

VERIFICATION NO TEST TRUNKS
TRANSMISSION TESTS
USING (MODIFIED) INTEGRATED MANUAL TEST FRAME SD-99604-01
NO. 4A TOLL SWITCHING SYSTEM

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1. GENERAL

1.01 This section describes methods of making transmission measurements on outgoing verification trunks (PSD-68009-02) using the integrated manual test frame (IMTF) SD-99604-01 modified per PSD-68017-02. The transmission measurements covered in this section include loss, message circuit noise, return loss, and office balance.

1.02 (Reserved for future use)

1.03 This issue affects the Equipment Test List (ETL).

1.04 The tests covered are:

A. Two-way 1000 Hz Loss Measurement to 101-Type Manual Test Line

B. Two-Way Message Circuit Noise Measurement to 101-Type Manual Test Line

C. Return Loss and Office Balance Measurement to 101-Type Manual Test Line

1.05 Conventional transmission testing methods and end office transmission are not generally compatible with the verification no-test network. Transmission test lines in crossbar offices require machine ringing in order to function. End office verification no-test incoming trunks are arranged to provide controlled ringing. The Network, however, cannot pass the ringing signals necessary to activate the ringing feature. Loop around test lines are equipped with syllabic filters that disconnect the looping feature when the interrupted 1400-Hz is received from the 4A verification no-test trunk.

1.06 When performing Tests A through C, a separate talking circuit is required for communication with the assistant at the end office test location.

1.07 These tests may affect no test service and utilization of end office personnel. Coordination with the personnel responsible for these functions is required.

1.08 When testing a trunk, a busy test is made on the trunk. If the trunk is service or maintenance busy, the test frame will initiate a 3-second timing interval. Should the trunk remain busy after 3 seconds, the test frame will be released from the test connector. The Test Busy (TB) lamp will indicate this condition. The test frame will have to be restored to normal (RN key) and the test call re-initiated. Determine if the trunk is maintenance busy, if maintenance busy remove MB plug from trunk make-busy (TMB). Do not operate the Maintenance and Service Busy Override (M&SBOVRD) key. On a service busy trunk, the test frame will stop the call setup process at the preliminary or final SL check, depending on the supervisory state

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of the trunk. The test frame may be made to continue to release the access common control circuitry and monitor a service busy trunk by operation of the Service Busy Continue (SB-CONT) key or the Force Link Transfer (FLTR) key. The FLTR key releases common equipment in the test frame to be released for the purpose of making transmission tests. This might be done on a trunk held service busy by TSPS for transmission problems.

1.09 The HV key is provided by the PSD-68017-02 modification. When operated, it provides a 95-Hz cross-office tone generator. This tone is required by the outgoing verification no-test trunks in order to complete a call.

1.10 RING keys are provided for both the A- and B-ACCESS. When depressed momentarily, a ring forward signal is generated towards the trunk to disable the scrambler and start warning (beep) tone.

1.11 Section 212-570-101 shows some of the progress and trouble indicators that the IMTF might display during testing and probable trouble conditions. The HIT trouble lamp indicates a cross-office check failure in addition to the condition listed in the section.

1.12 Only those lamps that are necessary for the verification of a step are shown in the VERIFICATION column.

1.13 Certain keys and lamps have been duplicated in both the A-ACCESS and the B-ACCESS portions of the IMTF. During the test, the A-ACCESS will be assumed to be the portion used, unless otherwise stipulated. If it is necessary, use the BSC for the ASC lamp in VERIFICATION text.

1.14 Trunk transmission requirements are shown on circuit layout record (CLR) card or local trunk records. CLR's should bear the following notation:

Type of Trunk

4A Outgoing to "PSD-68009-02, Options"
End Office

1.15 In each test, the transmission loss displayed by the transmission measuring circuit includes the loss through the connecting circuits used to provide the test connection.

1.16 Transmission loss displayed by the transmission measuring circuit is the actual measured loss (AML) in dB of the trunk under test made under the same conditions and configurations upon which the expected measured loss (EML) was calculated.

1.17 More than one test can be performed on the same trunk without releasing the trunk from the 101-type Test Line or the talking circuit.

1.18 Before performing any test in this section, all test sets to be used must be calibrated in accordance with standard instructions. Refer to the 103-2, 103-3, and 103-4 division-layers. Office records of scheduled and completed test equipment calibrations are found in the appropriate 103-division of the ETLs, Forms E 5450 and E 5451.

1.19 For detailed return loss and office balance procedures, refer to the 660-333-division-layer.

1.20 The PSD-68009-02 outgoing trunk circuit may be optionally either high or low loss. It is equipped with two sockets for 89-type resistor pads. With zero loss pads, and the scrambler disabled, the trunk unit has approximately 0.3 dBm loss in either direction of transmission. When enabled, the scrambler inserts 4 dB of loss in the receive direction.

1.21 A warning (beep) tone of approximately one second duration is applied by the outgoing trunk circuit every 15 seconds while the scrambler is disabled. This tone will be superimposed on the transmission path causing periodic incursions of the measured levels on all tests. These incursions should be recognized, but not recorded. The measured levels between the 15 second incursions are those to be noted and recorded.

1.22 LETTERED STEPS: A letter a, b, c, etc, added to a step number in Parts 2 and 3 of this section indicates an action is conditional depending on local conditions. The condition under which a lettered step or a series of lettered steps should be made is given in the ACTION column. All steps governed by the same conditions are designated by the same letter within a test. When a condition does not apply, all steps designated by that letter should be omitted.

2. PREPARATION

STEP	ACTION	VERIFICATION
1	<p>Establish coordination with end office personnel responsible for requests to assist with manual test line transmission testing.</p> <p>Inform end office personnel that limitations in the verification no-test network prevents "ringing in" on the 101-type manual test line. Requests to answer the manual will be affected over a central office (CO) communication line.</p>	<p>Coordination is established with end office personnel. Testing schedule is agreed upon.</p> <p>End office personnel is prepared to respond to requests to answer the 101-type manual test line (also referred to as "jack-ended test line"), and assist in transmission loss measurements when requested over the preestablished communications line.</p>

3. METHOD

STEP	ACTION	VERIFICATION
2	<p>All Tests – Establishing Test Calls</p> <p>Determine from the office records the 5-digit test connector number assigned to the trunk to be tested.</p> <p>Operate the TTH, TH, H, T, and U sections of the TRUNK SELECT switch to correspond to the 5-digit test connector number.</p> <p>If IMTF is associated with an office using separate test connectors (IT and TC connectors), operate TC or IT conn. key for correct test connector selection.</p> <p>Operate the A/TC or B/IT train key for correct marker selection.</p> <p>If trunk uses MF pulsing, operate the MFI key.</p> <p>If the trunk uses DP pulsing, operate the SXD key.</p> <p>If trunk (DP) is arranged for delay dial signaling, operate the XDD key.</p> <p>Operate HV key. (See 1.08)</p>	

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STEP	ACTION	VERIFICATION
10	If trunk under test has been made-busy by means of an MB plug at the TMB bay, remove MB plug (1.07).	
11	Ensure that TEL key is released.	
12	Required test numbers are obtained from the Test Number Directory and Section 201-101-900PT.	
13	Determine from office records the number of digits to be outpulsed.	
14	Momentarily depress OTRK key.	SHRT PAIR lighted.
15	Momentarily depress SCT key.	SHRT PAIR lamp extinguished. ONH and KP DIAL lamps lighted.
16	If trunk used MF pulsing, operate KP key. Keypulse digits to reach 101-type test line. Operate ST key.	ASC lamp lighted. KP DIAL lamp extinguished. Test call will or will attempt to complete termination specified by test being made. Refer to individual tests for complete verification results.
17	If trunk uses DP pulsing, dial digits to reach 101-type test line. Operate EOD key.	ASC lamp lighted. KP DIAL lamp extinguished. Test call will or will attempt to complete termination specified by test being made. Refer to individual tests for complete verification results.
18	Operate TEL key.	Trunk under test cut-through to handset on MTF.
19	Using communication lines, Request end office to answer manual test line.	End office acknowledgement. Call is answered at end office. SV lamp extinguished.
20	Momentarily depress RING Key.	Scrambler is disabled. Undistorted speech is heard, with superimposed warning (beep) tone. End office can talk on test line.
21	Request transfer to supervisory circuit for contact with far-end test assistant.	Call transferred to test assistant at the far-end.
A. Two-Way 1000 Hz Loss Measurement to 101-Type Manual Test Line		
22	Request far-end to apply 1000 Hz tone at 0 dBm for agreed upon interval.	
23	Restore TEL key.	

STEP	ACTION	VERIFICATION
24	Operate RCV and TMS keys.	Far-to-near loss measurement displayed on digital readout.
25	Record loss measurement.	
26	Operate TEL key.	
27	Request the far-end to measure 1000 Hz tone.	
28	Restore TEL key.	
29	Operate SEND key for an agreed upon interval.	Far-end transmission measuring circuit registers near-to-far loss measurement.
30	Operate TEL key.	
31	Obtain and record near-to-far loss measurements from far-end.	
32	If no other tests are to be performed, request far-end to disconnect.	
33	Restore all keys and switches.	All lamps extinguished.
B. Two-Way Message Circuit Noise Measurement to 101-Type Manual Test Line		
22	Request far-end to connect to a noise measuring set for agreed upon interval.	
23	Restore TEL key.	
24	Operate RCV and NSE keys.	Circuit noise, if any, heard on handset on IMTF.
25	Record noise measurement and type of noise.	Far-to-near noise measurement displayed on digital readout.
26	Operate TEL key.	
27	Obtain and record the noise measurement and type of noise from the far-end.	
28	If no other tests are to be performed, request far-end to disconnect.	
29	Restore all keys and switches.	All lamps extinguished.

STEP	ACTION	VERIFICATION
C. Return Loss and Office Balance to 101-Type Manual Test Line		
22	Request far-end to terminate manual test line (101).	SV lamp extinguished.
23	Restore TEL key.	
24	Operate BAL key.	
25	Return loss and office balance measurements adjustment procedures are performed according to the appropriate BSP in the 660-333-division layer.	
26	If no other tests are to be performed, request far-end to disconnect.	
27	Restore all keys and switches.	All lamps extinguished.