

**OUTGOING TRUNK TRANSMISSION SYSTEM AND
AUTOMATIC TRANSMISSION MEASURING SYSTEM
SUMMARIZATION PROCEDURES
NETWORK TRUNK TRANSMISSION MEASUREMENT PLAN**

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1. GENERAL	1	1.01 This section provides the summarization procedures for trunk transmission test results performed by the Outgoing Trunk Transmission System (OTTS) and the Automatic Transmission Measuring System (ATMS) for the Network Trunk Transmission Measurement Plan (NTTMP). Procedures are included for summarizing results of transmission loss and C-message noise. The OTTS will also test the trunks for balance, gain slope, and C-notch noise upon demand from the control terminal. For routine loss and C-message noise, OTTS prints out a summary of the tests results. However, the demand test results are printed as raw data and must be analyzed and summarized by other means. If some trunks cannot be tested by OTTS or ATMS, the tests will have to be made using manual test procedures. Procedures for summarizing manual test results are found in BR 301-140-110.
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2.02 Balance, gain-slope, and C-notch noise are handled on a per-trunk basis with results recorded as tests. Tests are based on transmission characteristic measurements of the trunk with worst case single jeopardy. This means the worst condition found in either direction is the only exception charged to the trunk. An example is a trunk with a Q1 in the near-to-far (N-F) direction and a Q2 in the far-to-near (F-N) direction. The Q2 result is recorded on the report.

2.03 Balance tests include measurements for echo return loss (ERL), singing return loss (SRL), and singing return loss high (SRLH) and are counted as one balance test.

2.04 The ML for loss (1.0 dB and 1.5 dB) specified in AT&T Section 660-450-301 is not used as an indexing limit in NTTMP. Instead, a Q1 indexing limit of 1.7 dB is used. Using this limit for loss makes the limit consistent across all testing systems. Test limits to be used for other transmission characteristics are explained in AT&T Section 660-450-301.

A. OTTS

2.05 The OTTS generates a Test Summary report (Fig. 1) for each individual test cycle of the system. If more than one test cycle is completed in a report month, the output summaries for each category must be combined before entering the data Form NTTMP4 (Fig. 2). The procedures for summarizing the data are as follows:

- (a) Loss information is shown by type of facility. Results of all facility types must be combined for totals. The #TRUNKS on the OTTS Test Summary will provide the data for Column A, SCHEDULED TRUNKS on Form NTTMP4. This numerical figure will be used for both loss and C-message noise on Form NTTMP4.
- (b) The data for Form NTTMP4, Column B, SCHEDULED MEAS/TST is calculated using the following:

Test Scheduled	Multiply # TRUNKS by:
1-way Meas. - Weekly	4.3
2-way Meas. - Weekly	8.6
1-way Meas. - Biweekly	2.2
2-way Meas. - Biweekly	4.4
1-way Meas. - Monthly	1.0
2-way Meas. - Monthly	2.0

The data calculated is used for both loss and C-message noise, SCHEDULED MEAS/TST.

(c) The #MEAS MADE on the OTTS Test Summary (Fig. 1) for all categories of loss must be added together to determine the total number of loss measurements made. The total should be entered in Column C, COMPLETED MEAS/TST of Form NTTMP4 (Fig. 2).

(d) The number of completed noise measurements is taken directly from the OTTS Test Summary (Fig. 1), NOISE #MEAS MADE and transcribed onto Form NTTMP4 in Column C, COMPLETED MEAS/TST. If more than one test run was completed during the month, the results should be accumulated before entering on Form NTTMP4.

(e) The Q1 loss test results are shown in the OTTS Test Summary as LOSS 1.8 to 3.6 and will be entered on Form NTTMP4, Column D, Q1 MEAS/TST. The results of all loss categories should be added before entering.

(f) The Q2 loss test results are shown on the OTTS Test Summary as LOSS 3.7 AND OVER and will be entered on Form NTTMP4, Column E, Q2 MEAS/TST.

(g) The noise Q1 test results are shown on the OTTS Test Summary as > NML < NIAL. The combined totals from all test cycles will be entered on Form NTTMP4, Column D, Q1 MEAS/TST for the NOISE results.

(h) The noise Q2 test results are shown on the OTTS Test Summary as > OR=NIAL. The combined totals from all test cycles will be entered on Form NTTMP4, Column E, Q2 MEAS/TST for the NOISE results.

2.06 Balance, gain-slope and C-notch noise tests are made in OTTS upon the demand request of the user. The output of these tests are in the form of raw data and must be analyzed for Q1 and Q2 exceptions using the following guidelines:

- (a) The number of trunks and tests scheduled
Columns A and B, Form NTTMP4, will be the count of the trunks requested to be demand tested by the user.
- (b) The number of tests completed, Column C, Form NTTMP4, will be the actual count of the trunks tested as shown by the raw data.
- (c) Demand tests will be reported on a per-trunk basis (not measurements) reporting only the worst case single jeopardy condition. For example, a trunk with a Q1 and Q2 exception reported on balance will have only the Q2 reported against the trunk. Multiple Q2s on the same trunk for balance will have only one Q2 reported against the trunk for balance. The Q1 and Q2 exceptions for each component demand tested are totaled in preparation for inputting the summary data.
- (d) The number of trunks and tests scheduled, the number of trunks tests, and the Q1 and Q2 exceptions for each component demand tested can be summarized on the same Form NTTMP4 used for the automatic measurements previously recorded for loss and C-message noise.

B. ATMS

2.07 In offices that make loss and noise measurements using the ATMS frame, Form EO-001 (Fig. 3) is used. The tester records the loss deviation readings in lines 1 through 22 and noise readings in lines 23 through 25. A separate page is required for each set of circumstances involving type, facility, and loss measurement frequency. All pages for a month should be numbered sequentially for control.

2.08 The heading information on Form EO-001 should be completed as follows:

- (a) **PERIOD COVERED:** Enter month and year of the report period.
- (b) **FRAME NO:** Enter the number of the frame if this is a multiframe office.

(c) **LOCATION:** Enter the Common Language Location Identification (CLLI) code of the Plant Control Office (PCO).

(d) **TYPE OF FACILITY:** Place an X or similar notation in the appropriate box or boxes.

(e) **INTERVAL OF MEASUREMENTS:** Place an X or similar notation in the appropriate box. Note that daily readings are not used NTTMP.

2.09 The body of Form EO-001 provides space for the ATMS register readings and calculations necessary for NTTMP. The form should be used as follows:

LOSS

(a) **DATE:** Enter dates of ATMS run.

(b) **DEVIATION REGISTER READINGS**
Column B: Enter loss register readings on lines 1 through 22 under the date of the ATMS run. Enter noise readings on lines 23 through 25.

(c) **LINE TOTALS - Column C:** Add each line across and enter the total for that line in Column C.

(d) **SUMMATIONS - Column D:** This column is provided to sum Column C, lines 1 through 3, lines 4 through 7, lines 15 through 18, and lines 19 through 21.

(e) **TOTAL:** Enter total of lines 4 through 7 and lines 15 through 18 in the space provided either by adding the eight line totals from Column C or the two summations from Column D. These are readings that exceeded the ML, but not the IAL (Q1s). Enter totals of lines 1 through 3 and lines 19 through 21 in the space provided. This is the sum of readings exceeding the IAL (Q2s).

(f) **MEASUREMENTS:** Note that line 22, Column C, should equal the sum of Column C, lines 1 through 21. The result shown in Column C, line 22 (TOTAL) represents the total measurements completed during the month for these trunks.

(g) **NUMBER OF CONTROLLED TRUNKS SCHEDULED:** Enter the number of trunks scheduled in this space. This information can be obtained from the ATMS paper tape or card deck. This is the number of trunks scheduled for loss dur-

ing the month. Each trunk is counted only once for the month.

(h) **NUMBER OF MEASUREMENTS**

SCHEDULED: Enter the total number of loss measurements scheduled during the month. For instance, if these trunks are scheduled to be measured once a month in both directions, this would be twice the number of trunks scheduled. If the trunks are scheduled to be measured weekly in one direction, this would be four or five times the number of trunks scheduled depending on whether four or five weekly runs of ATMS were scheduled that month.

NOISE

2.10 The following information will help to summarize the noise test results.

(a) **DATE:** Enter the date of the ATMS run.

(b) **Q1N:** Sum Q1 noise registrations on line 23 (Section B) and enter the results in Column C, line 23 (LINE TOTALS).

(c) **TOT. MEAS:** Sum the total noise measurements on line 24 (Section B) and enter the result in Column C, line 23, (LINE TOTALS).

Loss

E0-001	E0-002	NTTMP4
No. of Controlled Trunks Being measured (A)	Trunks Sched. Col. B	Loss Col. A
Measurements Scheduled (B)	Sched. Meas. Col. C	Loss Col. B
Measurements (C)	Total Meas. Col. D	Loss Col. C
Q1 (D)	Total > 3.7 dB Col. F	Loss Col. E

NOISE

No. Of Controlled Trunks Scheduled (AN)	Trunks Sched. Col. G	Noise Col. A
Measurement Scheduled (BN)	Sched. Meas. Col. H	Noise Col. B
Total Meas. (CN)	Total Meas. Col. I	Noise Col. C
Q1N (DN)	Q1N Col. J	Noise Col. D
Q2N (EN)	Total Limits Col. K	Noise Col. E

(d) **Q2:** Sum the Q2 noise registrations on line 25 (Section B) and enter the result in Column C, line 25, (LINE TOTALS).

(e) **NUMBER OF CONTROLLED TRUNKS**

SCHEDULED: Enter the number of trunks scheduled for noise during the month. Each trunk should be counted only once.

(f) **NUMBER OF MEASUREMENTS**

SCHEDULED: Enter the number of measurements scheduled for noise during the month. If the trunk are scheduled to be measured in both directions, the number of trunks should be multiplied by 2 to determine the total measurements scheduled.

3. SUMMARIZING ATMS - NTTMP DATA

3.01 If more than one Form EO-001 was required for a PCO, it will be necessary to summarize the data before entering on Form NTTMP4 (Fig. 2). An ATMS Summary Form, EO-002 (Fig. 4), can be used for summarizing if several EO-001 Forms were required. The relationship between Forms EO-001, EO-002, and NTTMP4 is as follows:

4. INPUT TO CENTRALIZED RESULTS SYSTEM (CRS)

4.01 The NTTMP report month will start the 23rd of the month and continue through the 22nd of the following month. The summaries developed on Form NTTMP4 for each PCO are to be input to CRS by the 10th working day after the end of the report month.

4.02 The summarized test results on Form NTTMP4 are used for input to CRS via a data terminal or teletypewriter. A mask will be provided by CRS for this input. The mask will be identified by a header "OTTS INPUT - NTTMP4."

SUMMARY OF TRANSMISSION RESULTS FOR HRFBCT0304TLINDEXFD TRUNKS DATE 24 8:45

	100	102	104	105	108
CXR/REPEATER NOT TYPE F					
#MEAS MADE	0	0	0	1648	0
#TRUNKS	0	0	0	824	0
LOSS 0 TO .7	0	0	0	1308	0
LOSS .8 TO 1.7	0	0	0	297	0
LOSS 1.8 TO 3.6	0	0	0	36	0
LOSS 3.7 AND OVER	0	0	0	7	0
E REPEATER/NON GAIN					
#MEAS MADE	0	0	0	0	0
#TRUNKS	0	0	0	0	0
LOSS 0 TO .7	0	0	0	0	0
LOSS .8 TO 1.7	0	0	0	0	0
LOSS 1.8 TO 3.6	0	0	0	0	0
LOSS 3.7 AND OVER	0	0	0	0	0
NOISE					
#MEAS MADE	0	0	0	1648	0
< OR=NML	0	0	0	1646	0
> NML < NIAL	0	0	0	2	0
> OR=NIAL	0	0	0	0	0

Fig. 1—Example of OTTS Test Summary (2.05)

NTTMP SUMMARY REPORT

OTTS INPUT

FORM = NTTMP4

OFFICE =

MONTH =

YEAR =

 * MEASURED COMPONENTS *

	A	B	C	D	E
	SCHEDULED	COMPLETED	Q1	Q2	
CHARACTERISTICS	TRUNKS	MEAS/TST	MEAS/TST	MEAS/TST	MEAS/TST
1 LOSS					
2 C-MESSAGE NOISE					
3 BALANCE					
4 GAIN SLOPE*					
5 C-NOTCH NOISE*					

Notes: Loss and C-message noise are reported as measurements for columns B, C, D, and E.

Balance, gain slope, and C-notch noise are reported as tests for column B, C, D, and E.

For loss, Q1 is the number of measurements that exceed 1.7 dB, but are less than or equal to 3.7 dB; Q2 is the number of measurements that exceed 3.7 dB.

* Optional Input.

Fig. 2—Example of NTTMP Summary Report - NTTMP4 (2.05, 3.01)

EO-001
(9/83)

(Insert Your Company Logo) **Trunk Loss And Noise Measurement Record Of Automatic Measurements**

Period Covered	Frame Number	Location
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Type Of Facility	Interval Of Measurements
<input type="checkbox"/> Carrier <input type="checkbox"/> Non-Gain <input type="checkbox"/> No Hybrid <input type="checkbox"/> Other Rep <input type="checkbox"/> E Rep <input type="checkbox"/> Hybrid	<input type="checkbox"/> Weekly <input type="checkbox"/> 3 Months <input type="checkbox"/> 2 X Month <input type="checkbox"/> Monthly

Line No.	A	B						C	D	E
	Date →	Deviation Register Readings						Line Totals	Summations	Total
1	+5.0									
2	+4.5							Lines 1-3		
3	+4.0									
4	+3.5									
5	+3.0									
6	+2.5							Lines 4-7		
7	+2.0									
8	+1.5									
9	+1.0									
10	+0.5									
11	0.0							Do Not Summarize These Lines In Col. D		
12	-0.5									
13	-1.0									
14	-1.5									
15	-2.0								Q1	
16	-2.5								Lines 4-7 &	
17	-3.0							Lines 15-18	Lines 15-18	
18	-3.5								(D)	
19	-4.0								Q2	
20	-4.5							Lines 19-21	Lines 1-3 + Lines 19-21	
21	-5.0								(E)	
22	Total						(C)	Measurements		

EXHIBIT

Number Of Controlled Trunks Scheduled		(A)
Number Of Measurements Scheduled		(B)

Date →	B						C
							Line Totals
23	Q1N						(DN)
24	Tot. Meas.						(CN)
25	Q2N						(EN)

Number Of Controlled Trunks Scheduled		(AN)
Number Of Measurements Scheduled		(BN)

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Fig. 3—Example of ATMS Form EO-001 (2.07)

(Insert Your Company Logo)

NTTMP ATMS Summary Form

OFC Code	Month
CRS Code	Year

EO-001	LOSS					NOISE				
Page Number	Trunks Scheduled	Scheduled Meas.	Total Meas.	Total > 1.7 ≤ 3.7dB	Total > 3.7dB	Trunks Scheduled	Scheduled Meas.	Total Meas.	Q1N	Total Limits
A	B	C	D	E	F	G	H	I	J	K
EXHIBIT										

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Fig. 4—Example of NTTMP ATMS Summary Form EO-002 (3.01)