CENTRALIZED AUTOMATIC REPORTING ON TRUNKS—ISSUE 2 (2CA2)
SUMMARIZATION PROCEDURES
NETWORK TRUNK TRANSMISSION MEASUREMENT PLAN

CONTENTS

1. GENERAL

1.01 This section provides the summarization procedures for transmission test results performed by Centralized Automatic Reporting On Trunks (CAROT), generic issue 2 for the Network Trunk Transmission Measurement Plan (NTTMP). Procedures are included for loss, C-message noise, balance, gain-slope, and C-notch noise.

1.02 Whenever this section is reissued, the reason(s) for reissue will be listed in this paragraph.

1.03 Centers equipped with CAROT generic 2 (2CA2) point issue 4B or 5B are able to schedule and test network message trunks for loss and C-message noise. In addition, balance, gain-slope, and C-notch noise tests can be made on demand basis from the user's terminal. An index summary is printed out for routine loss or C-message noise results. The outputs from the routine and demand tests are printed as raw data and require separate analysis and reporting. If some trunks cannot be accessed by 2CA2, the tests will have to be made using manual test procedures. Procedures for summarizing manual tests are found in BR 301-140-110.

2. NTTMP INPUT DATA

2.01 To maintain uniformity throughout the NTTMP, loss and C-message noise readings are taken and processed on a measurement basis. That is, each direction of transmission is treated individually. For example, a trunk measured for C-message noise in both directions is counted as two measurements. This makes it possible to have two measurements that exceed the maintenance limit (ML) and receive two Q1s, or have the two measurements exceed the immediate action limit (IAL) and receive two Q2s, or receive one Q1 and one Q2 for a single trunk measured in both directions.

2.02 Balance, gain-slope, and C-notch noise are handled on a per-trunk basis and 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 will be 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 will be 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 will not be used as an indexing limit in NTTMP. Instead, a Q1 indexing limit of +1.7 dB will be used. Using this limit for loss makes the limit consistent across all testing systems. Test limits to be used for the other transmission characteristics are explained in AT&T Section 660-450-301.

A. Loss and C-Message Noise

2.05 The CAROT center will use the Index Summary Results printout (Fig. 1) as the data source for preparing the 2CA2. Input Summary Form NTTMP3 (Fig. 2). Procedures for necessary calculations. summarization, and transcription of the data are as follows:

(1) The number of **TRUNKS SCHEDULED,** column A on Form NTTMP3. is the sum of the NTRKS column on the Index Summary Results printout.

(2) Loss and C-message noise measurements scheduled during the month are shown in the **MEAS/TST SCHEDULED** column. Trunks measured in both directions count as two measurements. If the measurement is made in only one direction, it is counted as one measurement. The number of demand tests scheduled during the month for balance. gain-slope. and C-notch noise are also shown in the **MEAS/TST SCHEDULED** column for these characteristics. If a trunk is to be tested four times during the month. it is counted as four tests. To calculate measurements scheduled for loss and C-message noise. 2CA2 must identify the type of far-end test line (TYP), type of facility (FAC), frequency of testing(FREQ), and the total number of trunks (NTRKS). The various TYP, FAC, and FREQ codes used by CAROT are shown in Table A. The total number of measurements (NMEAS) scheduled is a function of TYP, FAC, FREQ, and NTRKS. **MEAS/TST SCHEDULED** are calculated by 2CA2 using the following algorithm:

TYP FAC FREQ NMEAS

8 5 10 NTRKS x 4.3
8 5 20 NTRKS x 2.2

8 5 30 NTRKS x 1.0
9 6 10 NTRKS x 8.6
9 6 20 NTRKS x 4.3
9 6 30 NTRKS x 2.0
9 10 10 NTRKS x 8.6
9 10 20 NTRKS x 4.3
9 10 30 NTRKS x 2.0

Note: The above algorithm does not include daily measurements. The daily measured trunks will be excluded from NTTMP for loss and C-message noise. Measurements scheduled for loss and C-message noise are calculated by summing all NMEAS for loss and all NMEAS for C-message noise given by this algorithm.

(3) The results in column C, Form NTTMP3, **COMPLETED MEAS/TST** is the sum of column L-TOT for loss and column N-TOT for C-message noise on the Index Summary Results printout.

(4) The transmission loss ML (+1.7 dB) and IAL (+3.7 dB) on the Index Summary Results printout are summed and transcribed to Form NTTMP3 columns D and E respectively.

(5) The Q1s and Q2s for C-message noise are printed on the Index Summary Results as Q1N and Q2N. These figures are summarized and recorded on Form NTTMP3 columns D and E.

B. Balance, Gain-Slope, and C-Notch Noise

2.06 Balance, gain-slope, and C-notch noise tests are made in 2CA2 issue 2.4B or 2.5B upon the demand of the user. The CAROT output of these tests is in the form of raw data and must be analyzed for Q1 and Q2 exceptions. Summary results for balance, gain-slope, and C-notch noise are reporting only the worst condition exception. That is, a trunk with a Q1 and a Q2 exception for ERL, SRL, or SRLH on balance will have the Q2 only reported against the trunk. If more than one balance measurement characteristic on one trunk results in a Q2 measurement, only one Q2 is reported.

2.07 The procedures used to complete each of the columns on NTTMP3 for balance, gain-slope, and C-notch noise are as follows:

(1) The number of **TRUNKS SCHEDULED** is a count of the trunks requested for demand tests by the user.

(2) The number of **TESTS SCHEDULED** column B is the actual count of the number of tests shown by the raw data printout. If there are four tests scheduled on a particular trunk during the month, the tests scheduled will be four times the number of trunks scheduled.

(3) The number of **TSTS COMPLETED** will be the actual number of trunk tests completed as derived from the raw data printout.

(4) The Q1 and Q2 exceptions for each component that are demand tested are to be totaled and entered in columns D and E. The Q1 and Q2 test limits are explained in detail in AT&T Section 660-450-301.

2.08 If tests were scheduled but not completed, an "NAV" should be recorded in the appropriate space on Form NTTMP3. The "NAV" means the data are not available. The data will be considered as unsatisfactory and reported as Band U on the Plant Control Office (PCO) results from CRS. For components that are not required to be tested, enter the notation "E" to show an empty field. The "NAV" and "E" information must be entered manually on the form because CAROT will not generate "NAV" and "E" notations.

2.09 The NTTMP report month will start the 23rd of the previous month and continue through the 22nd of the current report month. The summaries developed on Form NTTMP3 for each PCO are to be input to CRS by the 10th working day after the end of the report month.

2.10 The summarized test results on Form NTTMP3 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 "2 CAROT 2 INPUT—FORM NTTMP3."

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 *DISP
DATA FROM CONTROL OFFICE----ATLNGABUEO 3
ROTL ID--ATLNGABU12TØ
INDEX SUMMARY DATA -- DATE OF INTERVAL$START FRI 10/21/77
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TYP	NTRKS	FAC	FREQ	.7	1.7	3.7	L-TOT	Q1N	Q2N	N-TOT
8	Ø	5	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø
8	Ø	5	10	Ø	Ø	Ø	Ø	Ø	Ø	Ø
8	Ø	5	20	Ø	Ø	Ø	Ø	Ø	Ø	Ø
8	Ø	5	30	Ø	Ø	Ø	Ø	Ø	Ø	Ø
9	Ø	6	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø
9	Ø	6	10	Ø	Ø	Ø	Ø	Ø	Ø	Ø
9	Ø	6	20	Ø	Ø	Ø	Ø	Ø	Ø	Ø
9	1047	6	30	60	9	1	920	9	1	920
9	Ø	10	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø
9	2081	10	10	844	164	Ø	6244	21	1	6244
9	Ø	10	20	Ø	Ø	Ø	Ø	Ø	Ø	Ø
9	Ø	10	30	Ø	Ø	Ø	Ø	Ø	Ø	Ø

Fig. 1—Example of 2CA2 Index Summary Results (2.05)

NTTMP SUMMARY REPORT

2CAROT2 INPUT

FORM = NTTMP3

OFFICE =

MONTH =

YEAR =

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*********************************
*       MEASURED COMPONENTS      *
*********************************
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CHARACTERISTICS	A SCHEDULED TRUNKS MEAS/TST	B COMPLETED MEAS/TST	C MEAS/TST	D Q1 MEAS/TST	E Q2 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.

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* Optional Input.

Fig. 2—Example of Form NTTMP3 (2.05)

TABLE A

INDEX RESULTS SUMMARY DEFINITIONS

DATA ITEM	DEFINITIONS

TYP	Type of far-end test line:
	  9 – ROTL to 105 or combination 100-type test line
	  8 – ROTL to 102-type test line

NTRKS	Total number of trunks in category according to TYP, FAC, and FREQ
	
	Facility type:
	  6 – Combination E repeater, nongain with or without hybrid to 100 or 105 test line
	  5 – Combination E repeater, nongain to 102 test line
	  10 – Combination other repeater and carrier to 105 test line
	
	Note: 10 does not allow termination to 102 or 100 type test line

FREQ	Frequency of testing:
	  05 – Daily
	  10 – Weekly
	  20 – Biweekly
	  30 – Monthly