

## CUSTOMER TROUBLE REPORT ANALYSIS PLAN SUMMARIES FORMS E-4737, E-4737A, AND E-2700

### 1. GENERAL

1.01 This section of the Customer Trouble Report Analysis Plan (CTRAP) describes the methods used to summarize trouble data for:

- (1) Computing one component of the Exchange Maintenance Service Results (EMSR) Plan.
- (2) Deciding what items need further analysis to improve customer service.

1.02 This section is reissued to clarify the count for Number of Stations, Column G of the E-2700 for WATS, Private Line Telegraph and Telephone and VIDEO services. It also defines access lines, serving links and locations served.

1.03 Provisions have been made to summarize trouble report data daily, by the Plant Service Center (PSC). The procedure is different for PSCs using manual procedures and for PSCs using mechanized procedures. Manual summaries are prepared daily and monthly in the PSC. Mechanized summaries are prepared by a Data Processing Center daily for the PSC and District, and periodically for other levels of the organization.

### 2. MANUAL PROCEDURES—USE OF FORM E-4737— CUSTOMER TROUBLE REPORTS — MONTHLY TALLY SHEET

2.01 Plant Service Centers that use manual procedures, summarize information from trouble tickets daily. Customer Trouble Reports — Monthly Tally Sheet — Form E-4737 (Fig. 1) is used to accumulate this data. The information on this summary is essential daily for intelligent management of repair service.

2.02 Each column of the Form E-4737 corresponds to *an edge sort item or a combination of items* on the trouble ticket. Provision has been made on the form for writing the count of these items for each day of the measurement period. The Date column is used to identify each day of a report period. A Total line at the bottom of the form is provided for totaling the columns, thus simplifying the transfer of data to the monthly summary.

2.03 Sorting and counting trouble tickets to transfer information to the E-4737 summary form is done according to Section 010-210-001. However, some information on this form requires a series of sorts to obtain the correct data. Therefore, a suggested method for sorting and counting would be:

1. Sort, count, and tally tickets for all Categories of Trouble Reports, keeping the Customer-Direct and Customer-Relayed tickets separated for additional sorting.
2. Using only the Customer-Direct and Customer-Relayed tickets, sort and count for *all* information to the right of Categories of Trouble Reports, in order across the form.
3. Data in the MC SIRBAN and Miscellaneous Information categories are single and combination sorts of Customer-Direct and Customer-Relayed trouble tickets. The single sorts should be made first and tallied. Then the combination sorts can be completed.
4. All that remains is to sort for filing, and file all trouble tickets for that day of business.

The nearest representative of your edge sort ticket manufacturer will be glad to demonstrate and train on needle-sort techniques in the PSC whenever required.

### 3. MECHANIZED PROCEDURES — USE OF FORM E-4737A — DAILY CUMULATIVE CUSTOMER TROUBLE REPORT SUMMARY

3.01 Plant Service Centers that use mechanized procedures have information summarized for them daily by the Data Processing Center. This data is accumulated by the Data Processing Center from daily transmittals of trouble reports. The Data Processing Center in turn, furnishes the PSC and specified other management with a teletypewriter printout. This printout, used with a transparent overlay, Form E-4737A — Daily Cumulative Customer Trouble Report Summary (Fig. 2), provides trouble and performance data essential to intelligent management of repair service.

3.02 The line numbers on Form E-4737A — Daily Cumulative Customer Trouble Report Summary, correspond to the line numbers on the monthly Customer Trouble Report Summary, Form E-2700.

3.03 The E-4737A form furnishes the PSC people daily with information necessary to provide superlative repair service to customers:

1. Cumulative summaries of the MC SIRBAN items — these tell how well individual customer reports are handled.
2. Cumulative summaries of Customer Trouble Reports by Type, Disposition, and Cause — these identify our weak spots in plant and workman failures.
3. Customer Trouble Reports per 100 Report Units on a cumulative basis for the measurement period — this is a new measure used in the EMSR Plan. It tells how well a PSC is providing repair service in relation to the Bell System average and other repair service operating units. It compensates for the mixes of classes of service, complexity of station apparatus, and types of central offices. It tells Plant Service Centers daily how well *they* are doing.
4. A daily count of the reports that were transmitted the previous day that were in error or incomplete. These did not meet the editing requirements of the computer.

The count reflects the accuracy of ticket preparation. In addition, a printout of the trouble reports in error or incomplete will follow the daily printout of the E-4737A to the PSC.

### 4. FORM E-2700 — CUSTOMER TROUBLE REPORT SUMMARY

4.01 A summary of all trouble reports for a measurement period is required for each measured Plant Service Center, and for each District, Division, and Area or Company. For local analysis purposes, a summary can be prepared for each central office. The Customer Trouble Report Summary — Form E-2700 (Fig. 3) is used for this purpose. The lines on the E-2700 correspond to line numbers shown on Form E-4737 — Customer Trouble Reports — Monthly Tally Sheet and Form E-4737A — Daily Cumulative Customer Trouble Report Summary.

4.02 The count for Number of Stations, Column G of the E-2700, for Customer Trouble Reports by Class of Service is obtained from the Accounting Department or other available records. WATS, Private Line Telegraph and Telephone and VIDEO will not always have stations associated with the Class of Service. Therefore, the figure that is entered in Column G of the E-2700 will be the count of *access lines* for WATS; *servicing links* for Private Line Telegraph and Telephone; and locations served for VIDEO. A definition of these terms as used in this Plan is as follows:

- (a) *Access Line* — Each individual facility from a serving central office to a customer location.
- (b) *Servicing Link* — On two point and multi-point private services, the Servicing Link is each facility from a central office to a customer location, from one customer location to another customer location, when the facility does not home on a central office.
- (c) *Location Served* — is defined as follows:
  - (1) Single unit dwelling.
  - (2) Individual business location.
  - (3) Each *unit* or *apartment* of a multiple dwelling complex.

- (4) Each individual business in a multiple office complex.

**Note:** Facilities used for opposite directions of transmission such as full duplex telegraph and 4-wire facilities are counted as a single facility. *Appearances at a customer location are not counted in these categories.*

**Manual Procedures — Form E-2700 — Customer Trouble Report Summary**

**4.03** The Totals from the bottom of Form E-4737 are transcribed to the corresponding lines on Form E-2700. The accuracy of information on Form E-2700 can be checked by verifying that certain totals agree. The computations on this form provide data for analysis and for preparation of the Exchange Maintenance Index.

**Mechanized Procedures — Form E-2700 — Customer Trouble Report Summary**

**4.04** Plant Service Centers that use mechanized procedures will receive this summary once every report month from the Data Processing Center. This form will be produced as required for a Plant Service Center, District, Division, and Area or Company. Form E-2700 will be issued, along with the teletypewriter printout used with Form E-4737A, *on the last day of a report*

*period only.* Customer Trouble Reports per Report Unit and certain station information will be furnished to the Data Processing Center by the General Plant Staff for completion of Form E-2700.

**5. ORDERING INFORMATION**

**5.01** Forms E-4737 are provided in pads of 50 sheets per pad, packed two pads per package. These forms should be ordered in package units as follows:

(Quantity) Pkgs. Form E-( )

**5.02** Copies of Form E-4737A are provided singly in envelopes and may be obtained from:

Supervisor, Bell System Printed Matter  
Stock Room  
American Telephone and Telegraph  
Company  
195 Broadway — Room 208  
New York, N. Y. 10007

**5.03** Forms E-2700 are provided in pads of 25 sheets per pad, packed two pads per package. These forms should be ordered in package units as follows:

(Quantity) Pkgs. Form E-( )



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DAILY CUMULATIVE CUSTOMER TROUBLE REPORT SUMMARY

FORM E-4737A  
(9/65 REV.)

Line Numbers Correspond to Line Numbers On Form E-2700

Plant Service Center No.

Period

Code	Trouble Report by Central Office Entity	Total	% of Total
<b>MC SIRBAN-CUST TBL RPTS</b>			
49	Missed Appointment	M	
50	Work Comment	C	
51	Appointment Comment		
52	Subsequent Report	S	
53	"I" Report	I	
54	"R" Report	R	
55	O.O.S.-Rec Bef 5PM-Carr Over	B	
56	O.O.S.-Rec Aft. 5PM-Carr Over	A	
57	No Access	N	
<b>MISC INFORMATION-CUST TBL RPTS</b>			
58	Received Before 5PM		
59	O.O.S.-Received Before 5PM		
60	Received After 5PM		
61	O.O.S.-Received After 5PM		
62	Out Of Service		
63	Carried Over-Rec'd Before 5PM		
64	Carried Over-Rec'd After 5PM		
65	Dispatched (Outside)		
66	Res Visits-Disp Codes 1, 2, 3, & 9		
<b>CATEGORIES OF TROUBLE REPORTS</b>			
67	Customer-Direct	1	
68	Customer-Relayed	2	
69	Total Customer Reports (67 plus 68)		
70	Customer-Rec'd For Another Ctr.	3	
71	Employee	4	
72	Referred In	5	
73	Customer-Excluded	6	
74	Total (69 thru 73)		
<b>CUST TBL RPTS BY TYPE</b>			
1	Can't Call-NDT	1	
2	Can't Call-Other	2	
3	Transmission and Noise	3	
4	Can't Be Called	4	
5	Memory Services Failure	5	
6	Data Failure	6	
7	Physical Condition	7	
8	Miscellaneous	8	
9	Total (1 thru 8)		
<b>CUST TBL RPTS BY DISPOSITION</b>			
10	Station Set	1	
11	Other Station Equipment	2	
12	Station Wiring	3	
13	Outside Plant	4	
14	Central Office	5	
15	Customer Action	6	
16	Found Trouble Reports (10 thru 15)		
17	Test OK	7	
18	Found OK-In	8	
19	Found OK-Out	9	
20	Referred Out	0	
21	Total (16 thru 20)		
<b>CUST TBL RPTS BY CAUSE</b>			
22	Man Made-Telephone Employee	1	
23	Man Made-Other	2	
24	Plant or Equipment	3	
25	Weather	4	
26	Other	5	
27	Unknown	6	
28	Total (22 thru 27)		
<b>CUST TBL RPTS BY CL OF SVCE</b>			
29	TWX-3 Row	01	
30	TWX-4 Row	02	
31	WATS	03	
32	Residence	04	
33	Business	05	
34	PBX	06	
35	CENTREX	07	
36	Coin-Public	08	
37	Coin-Semi-Public	09	
38	Rural	10	
39	Joint Service	11	
40	Mobile	12	
41	Unclassified	13	
42	Private Line Telegraph	14	
43	Private Line Telephone	15	
44	Video	16	
45		17	
46		18	
47	Total Reports (29 thru 46)		
75	Cust Tbl Rpts Per 100 RPT Units		
<b>INVALID REPORTS</b>			

Fig. 2 - Form E-4737A

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**CUSTOMER TROUBLE REPORT SUMMARY**

FORM E-2700  
(1-66 REV.)

	A	B	C	D
	CODE	NUMBER OF REPORTS	PER 100 STATIONS BX 100 ÷ 647	% OF TOTAL BX 100 ÷ K69
<b>CUSTOMER TROUBLE REPORTS BY TYPE</b>				
1	CAN'T CALL - NDT	1		
2	CAN'T CALL - OTHER	2		
3	TRAN & NOISE	3		
4	CAN'T BE CALLED	4		
5	MEMORY SERVICES FAILURE	5		
6	DATA FAILURE	6		
7	PHYSICAL CONDITION	7		
8	MISCELLANEOUS	8		
9	TOTAL (1 THRU 8)			100.0

<b>CUSTOMER TROUBLE REPORTS BY DISPOSITION</b>				
10	STATION SET	1		
11	OTHER STA EQUIP.	2		
12	STATION WIRING	3		
13	OUTSIDE PLANT	4		
14	CENTRAL OFFICE	5		
15	CUSTOMER ACTION	6		
16	FD TBL REPORTS (10 THRU 15)			
17	TEST OK	7		
18	FOUND OK - IN	8		
19	FOUND OK - OUT	9		
20	REFERRED - OUT	0		
21	TOTAL (16 THRU 20)			100.0

<b>CUSTOMER TROUBLE REPORTS BY CAUSE</b>				
22	MAN MADE TEL EMPLOYEE	1		
23	MAN MADE OTHER	2		
24	PLANT OR EQUIPMENT	3		
25	WEATHER	4		
26	OTHER	5		
27	UNKNOWN	6		
28	TOTAL (22 THRU 27)			100.0

	E	F	G	H
	CODE	NUMBER OF REPORTS	NUMBER OF STATIONS	PER 100 STATIONS FX 100 ÷ G
<b>CUSTOMER TROUBLE REPORTS BY CLASS OF SERVICE</b>				
29	TWX - 3 ROW	01		
30	TWX - 4 ROW	02		
31	WATS	03		
32	RESIDENCE	04		
33	BUSINESS	05		
34	PBX	06		
35	CENTREX	07		
36	COIN-PUBLIC	08		
37	COIN-SEMI-PUB	09		
38	RURAL	10		
39	JOINT SERV	11		
40	MOBILE	12		
41	UNCLASS	13		
42	PRIV LINE TELEGRAPH	14		
43	PRIV LINE TELEPHONE	15		
44	VIDEO	16		
45		17		
46		18		
47	TOTAL STAS. MEAS. (29 THRU 46)			
48	TOTAL STATIONS IN SERVICE	% MEAS $\frac{647 \times 100}{648}$		%

	J	K	L	M
	CODE	NUMBER OF REPORTS	PER 100 STATIONS KX 100 ÷ 647	% OF TOTAL
<b>MC SIRBAN - CUSTOMER TROUBLE REPORTS</b>				
49	MISSED APPOINTMENT	M		*
50	WORK COMMENT			*
51	APPT'M'T COMMENT	C		*
52	SUBSEQUENT REPORT	S		*
53	"I" REPORT	I		*
54	"R" REPORT	R		*
55	O.O.S.-REC BEFORE 5 PM - CARRIED OVER	B	K55 X 100 K59	
56	O.O.S.-REC AFTER 5 PM - CARRIED OVER	A	K56 X 100 K61	
57	NO ACCESS	N	K57 X 100 K58	

<b>MISCELLANEOUS INFORMATION - CUSTOMER TROUBLE REPORTS</b>				
58	RECEIVED BEF 5 PM			*
59	O.O.S. - RECEIVED BEFORE 5 PM		K59 X 100 K58	
60	RECEIVED AFT. 5 PM			*
61	O.O.S. - RECEIVED AFTER 5 PM		K61 X 100 K61	
62	OUT OF SERVICE			*
63	CARRIED OVER RECEIVED BEFORE 5 PM		K63 X 100 K58	
64	CARRIED OVER RECEIVED AFTER 5 PM		K64 X 100 K60	
65	DISPATCHED (OUTSIDE)			*
66	RESIDENCE VISITS DISP CODES 1, 2, 3 & 9			*

<b>CATEGORIES OF TROUBLE REPORTS</b>				
67	CUSTOMER - DIRECT	1		*
68	CUSTOMER - RELAYED	2		*
69	TOTAL CUSTOMER REPORTS (67 PLUS 68)			§
70	CUSTOMER - RAC	3		§
71	EMPLOYEE	4		§
72	REFERRED IN	5		§
73	CUSTOMER - EXCLUDED	6		§
74	TOTAL (69 THRU 73)			§

\* NUMBER OF REPORTS X 100 ÷ K69  
 § NUMBER OF REPORTS X 100 ÷ K74  
 NUMBER OF REPORTS ON LINES 9, 21, 28, 47, 69 & 75 SHOULD BE THE SAME  
 REPORTS PER 100 STATIONS ON LINES 9, 21, 28, 47 & 69 SHOULD BE THE SAME

	N	O	P
	NUMBER OF REPORTS	HUNDREDS OF REPORT UNITS FS1 (E-4749) ÷ 100	PER 100 RPT UNITS N ÷ O
75	ALL SERVICES		

<b>SPECIAL STUDIES</b>				
76				
77				
78				
79				
80				
81				

REMARKS:

PLANT SERVICE CENTER  
 CITY  
 DISTRICT  
 DIVISION  
 COMPANY - AREA  
 PERIOD COVERED

Fig. 3 - Form E-2700