

## FORMS FOR RECORDING OVERALL NOISE MEASUREMENTS ON TRUNKS

	CONTENTS	PAGE	
1.	<b>GENERAL</b> . . . . .	1	(3) 301-122-100—Trunk Transmission Maintenance Index—Noise Component—General Description
2.	<b>USE OF FORM E-593A—ONE-WAY NOISE MEASUREMENTS ON TRUNKS</b> . . . . .	2	(4) 301-122-300—Trunk Transmission Maintenance Index—Noise Component—Index Tables
3.	<b>USE OF FORM E-593B—TWO-WAY NOISE MEASUREMENTS ON TRUNKS</b> . . . . .	3	◆(5) 301-122-500—Trunk Transmission Maintenance Index—Noise Component Manual—Summary Procedures◆
4.	<b>USE OF FORM E-593D—LOG OF TRUNKS WITH NOISE ABOVE MAINTENANCE LIMIT</b> . . . . .	4	1.04 Noise measurements should be recorded in dBrnc. If the available noise measuring equipment measure in dBa, an effort should be made to have it modified as soon as possible.
5.	<b>PREPARING AND FORWARDING REPORTS FOR SYSTEM SUMMARIES</b> . . . . .	4	1.05 The forms are to be used for recording the results of manual noise measurements made on a routine basis only.
6.	<b>ORDERING INFORMATION FOR FORMS</b> .	5	1.06 The control office is responsible for obtaining, recording, and reporting noise measurements made at both ends of the trunks it controls. Assistance will be required of the noncontrol office when one-way trunks are measured, or when test lines are unavailable. However, on two-way trunks the measurements may be made at each terminal, independent of the other terminal when test lines are available. In this case, the noncontrol office should supply the control office with the measurements for reporting and for corrective action, where necessary.
1.	<b>GENERAL</b>		
1.01	This section describes the use and preparation of Forms E-593A and E-593B for recording overall manual routine noise measurements on all message trunks which have gain devices or make use of outside plant facilities. It also covers the Log of Trunks With Noise Above Maintenance Limit (Form E-593D), for local use in logging and following up noise cases.		
1.02	This section is reissued to alter references to related sections and noise summary forms. Marginal arrows indicate the changes.		
1.03	Associated sections which should be consulted to fully understand noise measurements procedures are:		
	(1) 660-403-300—Message Circuit Noise Measurements—Test Classifications and Intervals—Message Trunks		◆1.07 The noise limits used for the purposes of this practice are the <i>maintenance</i> limit and the <i>immediate action</i> limit. Section 660-403-500 will be used to determine the limits. The <i>maintenance</i> limit as used in this section is shown as the <i>circuit order and maintenance</i> limit in Section 660-403-500.
	(2) 660-403-500—Message Circuit Noise Measurements—Methods and Requirements—Message Trunks		1.08 Noise measurements made with the Automatic Transmission Measuring System (ATMS) are recorded on registers which may be accumulated on Form E-5911 (See BSP Section 660-403-011) if desired. These are summarized as discussed in BSP 301-122-500.◆

## SECTION 660-403-010

### 2. USE OF FORM E-593A—ONE-WAY NOISE MEASUREMENTS ON TRUNKS

**2.01** Form E-593A should be used when making measurements to dial-up test line terminations without the assistance of the distant terminal or by the noncontrol terminal when making measurements for the control office. The form is shown in Fig. 1.

**2.02** The headings of the form should be prepared as follows:

- (1) **OFFICE**—Enter the name of the office making the measurements.
- (2) **TESTS MADE FROM**—Enter the type of testboard, OGT, test frame, or other location where the measurements were made.
- (3) **TYPE NOISE MEAS. EQP.**—Enter SD-95900-01, 43A system (if not modified per SD-95900-01), 3A, 3B, etc.
- (4) **ALL MEAS. IN:** dBa  dBrc  —Check whether the noise set used measures noise in dBa or dBrc. If it measures in dBa an effort should be made to have it modified as soon as possible.
- (5) **CONTROL**  **NONCONTROL**  —Check whether the office making the measurements is the control or noncontrol terminal on the trunks being measured.
- (6) **DATE**—Enter the date the tests were made.
- (7) **TESTER**—Enter the initial of the person making the measurements.

**2.03** The explanation for the column entries is as follows:

- (1) **TRUNK**—Enter the trunk number and the far-end designation in order to fully identify the trunk, ie, 5 New York 4, 117 Recording—948 ofc., etc.
- (2) **MILES**—Enter the miles shown on the circuit layout record. If the exact mileage is not available, enter the applicable mileage bracket shown in Section 660-403-500.

(3) **EML**—Enter the Expected Measured Loss as shown on the circuit layout record.

(4) **AML**—Enter the Actual Measured Loss in the receive (far to near) direction.

(5) **LIMITS**—Enter both the *maintenance* limit and the *immediate action* limit for the trunk as shown in Section 660-403-503 for the applicable trunk mileage bracket and measuring equipment being used. Enter the *maintenance* limit below the diagonal, and the *immediate action* limit above the diagonal.

(6) **NOISE**—Enter the noise measurements as read on the noise measuring equipment being used. *Circle the measurement* if it is above the *immediate action* limit and remove it from service until the trouble can be cleared.

(7) **DEV**—Compare the noise measurement with the *maintenance* limit. If the noise measurement is above the *maintenance* limit enter an **X** [this will include all the measurements that were circled as described in (6)]. If the measured noise is 0, 1, or 2 dB below the *maintenance* limit, enter a check mark (✓). If the noise measurement is 3, 4, or 5 dB below the *maintenance* limit, enter—**3**. If the noise measurement is 6, 7, or 8 dB below the *maintenance* limit, enter—**6**. If the measured noise is 9 or more dB below the *maintenance* limit, enter—**9**.

(8) **TIME**—Enter the time the measurement was made. If a series of measurements is being made with no break between them, it will be satisfactory to enter the time the first measurement is made on the line with the first trunk measured, and the time the last measurement was made on the line with the last trunk measured, and draw a vertical line between the two in the Time column.

(9) **TYPE NOISE**—When a noise measurement is above the *maintenance* limit, the character of the noise in descriptive terms should be determined and recorded along with the noise level. Examples are: Tone, Power Hum, Teletype or Data Pulses, Singing, Frying, Hissing, Crosstalk, Static, etc. Where the 3A or 3B set is used, the monitoring receiver provided with the set should be used. Where a noise measuring system associated with a testboard is used, monitor the

test connection as directed in the practice relating to the type testboard being used.

### 3. USE OF FORM E-593B—TWO-WAY NOISE MEASUREMENTS ON TRUNKS

**3.01** This form should be used by the control office when making noise measurements with the cooperation of the distant terminal, or to record the results of noise measurements made to dial-up test lines. The form is shown in Fig. 2. When **2-wire trunks** to an office are being measured, it will be satisfactory to estimate the maximum possible noise at the far end and record that instead of measuring it. However, if this estimated maximum possible noise is above the **maintenance** limit, the noise must be measured at the distant office. This estimated value will be included as a measurement on all reports. Noise measurements are required at both ends of a 4-wire trunk. BSP 660-403-500 contains guidelines for use in estimating far-end noise.

**3.02** The headings should be completed as follows:

- (1) **N.E. OR CONT OFFICE—(Near-End or Control Office)**—Enter the name of the home office preparing the form.
- (2) **TEST MADE FROM—NE, FE**—Enter the type of testboard, OGT, test frame, or other location where the measurements were made at the near-end and far-end office. When far end measurements are estimated, enter est. in the FE space.
- (3) **TYPE NOISE EQUIP. NE, FE**—Enter SD-95900-01, 43A system (if not modified per SD-95900-01) or 3-type Noise Measurement Set or equivalent.
- (4) **DATE**—Enter the date the tests were made.
- (5) **NEAR-END OR CONTROL OFC. DATA,**  
 **DBA,**  **DBRNC**—Check whether the noise measuring set being used reads dBa or dBnc at the near-end office. If it does not, an effort should be made to have it modified as soon as possible.
- (6) **FAR-END OR NONCONTROL OFC. DATA—**  
 **DBA,**  **DBRNC**—Check whether the far-end office is using a noise measuring set reading in dBa or dBnc.

**Note:** Measurements made by different far-end offices should be recorded on the same sheet only if they have the same type of noise measuring equipment.

**3.03** Entries are made in the columns as follows:

- (1) **TRUNK**—Enter the trunk number and the far-end designation in order to fully identify the trunk, ie, 5 New York 4, 117 Recording 948 ofc., etc.
- (2) **MILES**—Enter the miles shown on the circuit layout record. If the exact mileage is not available, enter the applicable mileage bracket shown in Section 660-403-500.
- (3) **TIME**—Enter the time the measurement was made. If a series of measurements is being made with no break between them, it will be satisfactory to enter the time the first measurement is made on the line with the first trunk measured, and the time the last measurement was made on the line with the last trunk measured, and draw a vertical line between the two in the Time column.
- (4) **EML**—Enter the Expected Measure Loss as shown on the circuit layout record.

**3.04** The columns under the heading **Near-End or Control Ofc. Data** apply to the office recording the measurements, and the columns under the **Far-End or Noncontrol Ofc. Data** apply to the cooperating far-end office.

- (1) **LIMITS**—Enter both the **maintenance** limit and the **immediate action** limit for the trunk as shown in Section 660-403-500 for the applicable trunk mileage bracket and measuring equipment being used. Enter the **maintenance** limit below the diagonal and the **immediate action** limit above the diagonal.
- (2) **NOISE**—Enter the noise measurement as read on the noise measuring equipment being used. **Circle the measurement** if it is above the **immediate action** limit.
- (3) **DEV**—Compare the noise measurement with the **maintenance** limit. If the noise measurement is above the **maintenance** limit, enter an X [this will include all the measurements that are circled as describe in (2)]. If the

## SECTION 660-403-010

measured noise is 0, 1, or 2 dB below the **maintenance** limit, enter a check mark (✓). If the noise measurement is 3, 4, or 5 dB below the **maintenance** limit, enter—3. If the noise measurement is 6, 7, or 8 db below the **maintenance** limit, enter—6. If the measured noise is 9 or more db below the **maintenance** limit, enter—9.

(4) **TYPE NOISE**—When a noise measurement is above the **maintenance** limit, the character of the noise in descriptive terms should be determined and recorded along with the noise level. Examples are: Tone, Power Hum, Teletype or Data Pulses, Singing, Frying, Hissing, Crosstalk, Static, etc. Where the 3A or 3B set is used, the monitoring receiver provided with the set should be used. Where a noise measuring system associated with a testboard is used, monitor the test connection as directed in the practice relating to the type testboard being used.

(5) **AML**—Enter the Actual Measured Loss.

### 4. USE OF FORM E-593D—LOG OF TRUNKS WITH NOISE ABOVE MAINTENANCE LIMIT

4.01 Form E-593D is used by the control office to log and maintain a record of trunks found with noise above the **maintenance** limit during routine tests. The form is shown in Fig. 3. An office may elect to keep the same information on a card record if it is considered more convenient. ◆

4.02 The form heading allows space to record the name of the office and to maintain a current record of the total **active** cases on each page.

4.03 The columns should be filled out as follows:

- (1) **Case Number**—Each trunk found above the **maintenance** limit should be assigned a case number in chronological order.
- (2) **Trunk**—Enter the trunk number and far-end designation in order to fully identify the trunk, ie, 5 New York 4, 117 Recording—948 ofc., etc. When several trunks assigned to a common facility measure above the **maintenance** limit, these trunks should be bracketed and the facility shown. (See Fig. 3.)

(3) **Date Found**—Enter the date noise trouble was initially uncovered through routine noise measurements.

(4) **Date Fixed**—Enter the date that the noise was brought to or below the **maintenance** limit.

(5) **Noise Limits—F to N, N to F**—Enter the noise limits as shown in Section 660-403-500 for both the far-to-near and near-to-far direction. When the limits are the same on both ends of the trunk (same type of testboards and/or measuring systems), only an entry in the F to N direction is necessary. A check mark (✓) should be placed in the N to F direction space.

(6) **Meas. Noise—F to N, N to F**—Enter the measured noise in both the far-to-near direction and near-to-far direction even when only one is above the maintenance limit.

(7) **Ticket Number**—Enter the serial number of the trouble ticket, E-1025 or equivalent, if applicable.

(8) **Action Taken**—This column should be used to briefly record action taken in order to clear the noise condition, ie, referred to carrier 10/1/66—referred to Engineers, letter of 10/20/66—Trouble cleared; bad channel unit in New York 4, etc.

**Note:** Troubles referred through organization channels to Engineering should be documented.

### 5. PREPARING REPORTS FOR SYSTEM SUMMARIES

◆ 5.01 Measurements of controlled trunks as recorded on Forms E-593A and B for an office or reporting entity will be summarized on Form E-5441D and E-5441F on a quarterly basis. ◆

◆ 5.02 The number of trunks still above the maintenance limits at the end of the quarter, the number of trunks above the maintenance limit for over one year, and those referred to Engineering for action will be summarized from the Form E-593D and entered on Form E-5441F on a quarterly basis. ◆

5.03 Summarization and reporting procedures for the Forms E-5441C, E-5441D, E-5441E, E-5441F, and Stroke Sheet E-5441A are covered in Section 301-122-500.

**6. ORDERING INFORMATION FOR FORMS**

(Quantity) Form E-593B

**6.01** Forms E-593A, B, and D can be obtained from Western Electric Company in pads of 50, two pads per package. They may be requisitioned in multiples of 100 forms on orders worded as follows:

(Quantity) Form E-593D

(Quantity) Form E-593A

SECTION 660-403-010

Printed in U.S.A.

ONE WAY NOISE MEASUREMENTS ON TRUNKS

FORM E 593A  
(9/66)  
BSP-660-403-010

Office New York  
Tests Made From OGT  
Type Noise Meas. Eq. 3A  
All Meas. in: dba  dbrnc

Control  Non-Control   
Date 9/20/70  
Tester RJR

TRUNK	MILES	EML	AML	LIMITS*	NOISE (1)	DEV (2)	TIME	TYPE NOISE
394 - SW # 1	0-15	2.5	2.7	28 33	26	✓	9 AM	
" 2	↑	↑	2.4		27	✓		
" 3			2.5		28	✓		
" 4			2.5		29	X		Teletype Pulses
" 5			2.6		26	✓		
" 6			2.8		23	-3		
" 7			2.7		25	-3		
" 8			2.7		23	-3		
" 9			2.7		24	-3		
" 10			2.7		(36)	X		Singing
" 11			2.4		26	✓		
" 12			2.4		28	✓		
" 13			2.4		27	✓		
" 14			2.5		23	-3		
" 15			2.6		22	-6		
" 16			2.7		23	-3		
" 17			2.7		23	-3		
" 18			2.6		23	-3		
" 19			2.5		22	-6		
" 20			2.7		28	✓		
" 21			2.6		29	X		Teletype Pulses
" 22			2.5		26	✓		
" 23			2.5		25	-3		
" 24			2.5		26	✓		
" 25			2.5		26	✓		
" 26			2.5		25	-3		
" 27	0-15	2.5	2.4	28 33	21	-6	11 AM	

- (1) Circle measured value if it is above the immediate action limit
- (2) Enter X if measurement is above maintenance limit
- Enter ✓ if measurement is 0, 1 or 2 db below the maintenance limit
- Enter -3 if measurement is 3, 4 or 5 db below the maintenance limit
- Enter -6 if measurement is 6, 7 or 8 db below the maintenance limit
- Enter -9 if measurement is 9 or more db below the maintenance limit.



Fig. 1—One-Way Noise Measurements On Trunks

Printed in U.S.A.

TWO WAY NOISE MEASUREMENTS ON TRUNKS

FORM E593 B  
(9/66)  
BSP-660-403-010

N. E. or Cont. Office Los Angeles

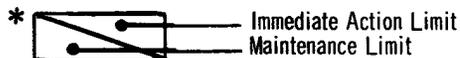
Tests Made from - NE 17C  
FE 17C

Type Noise Equip. - NE 43A  
FE SD95900-01

Date 9/20/70

Trunk	Miles	Time	Near End or Control ofc Data <input type="checkbox"/> DBA <input checked="" type="checkbox"/> DBRNC					EML	Far End or Non-Control ofc Data <input type="checkbox"/> DBA <input checked="" type="checkbox"/> DBRNC				
			Limits*	Noise (1)	Dev. (2)	Type Noise	F to N AML		N to F AML	Limits*	Noise (1)	Dev. (2)	Type Noise
Jackson 1	1502	8 AM	41 44	39	✓		4.0	4.5	3.1	39 42	40	X	Crosstalk
2	↑	↑	↑	36	-3		4.6	↑	4.6	↑	41	X	Tone
3	↑	↑	↑	40	✓		3.5	↑	4.2	↑	40	X	Crosstalk
4	↑	↑	↑	38	-3		4.2	↑	4.3	↑	39	✓	
5	↑	↑	↑	41	✓		4.8	↑	4.5	↑	37	✓	
6	↑	↑	↑	35	-6		4.5	↑	4.6	↑	32	-6	
7	↑	↑	↑	38	-3		4.0	↑	4.6	↑	30	-9	
8	↑	↑	↑	43	X	Hissing	4.1	↑	4.6	↑	29	-9	
9	↑	↑	↑	44	X	Crosstalk	3.9	↑	5.2	↑	38	✓	
10	1502			(48)	X	Crosstalk	4.5	↑	4.5	↑	39	✓	
11	2612			41	✓		4.4	↑	4.4	↑	26	-9	
12	1502			38	-3		4.6	↑	4.6	↑	31	-6	
13	↑	↑	↑	35	-6		4.9	↑	4.6	↑	42	X	Crosstalk
14	↑	↑	↑	36	-3		4.1	↑	4.7	↑	(47)	X	Crosstalk
15	↑	↑	↑	39	✓		3.5	↑	3.2	↑	38	✓	
16	↑	↑	↑	37	-3		3.2	↑	4.2	↑	34	-3	
17	↑	↑	↑	43	X	Frying	4.2	↑	3.5	↑	26	-9	
18	↑	↑	↑	42	X	Frying	4.3	↑	3.9	↑	32	-6	
19	↓	↓	↓	31	-9		4.5	↓	4.0	↓	31	-6	
20	1502	10:15 A	41 44	29	-9		4.5	4.5	4.5	39 42	(48)	X	Frying

- (1) Circle measurement if it is above the immediate action limit.
- (2) Enter X if measurement is above the maintenance limit.
- Enter ✓ if measurement is 0, 1 or 2 db below the maintenance limit.
- Enter -3 if measurement is 3, 4 or 5 db below the maintenance limit.
- Enter -6 if measurement is 6, 7 or 8 db below the maintenance limit.
- Enter -9 if measurement is 9 or more db below the maintenance limit.



Near End Tester DD  
Far End Tester JKS

Fig. 2—Two-Way Noise Measurements on Trunks

Printed in U.S.A.

LOG OF TRUNKS WITH NOISE ABOVE MAINTENANCE LIMIT

FORM E 593D  
(9/66)  
RSP-660-403-010

SECTION 660-403-010

Office *Atlanta*

Total active cases - This page *19*

Case No.	Trunk	Date Found	Date Fixed	Noise Limits		Measured Noise		Ticket No.	Action Taken
				F to N	N to F	F to N	N to F		
	<i>11 LR Atla-Jkn</i>	<i>9/5/70</i>			✓				<i>Referred to Carrier 9/5/70</i>
<i>1</i>	<i>1 Jackson</i>			<i>36 39</i>	✓	<i>33 37</i>		<i>112</i>	
<i>2</i>	<i>3 "</i>					<i>34 39</i>		<i>113</i>	
<i>3</i>	<i>4 "</i>					<i>32 40</i>		<i>114</i>	
<i>4</i>	<i>5 "</i>					<i>32 41</i>		<i>115</i>	
<i>5</i>	<i>7 "</i>					<i>31 38</i>		<i>116</i>	
<i>6</i>	<i>11 "</i>					<i>34 37</i>		<i>117</i>	
<i>7</i>	<i>012 "</i>					<i>33 42</i>		<i>118</i>	
<i>8</i>	<i>014 "</i>					<i>34 40</i>		<i>119</i>	
<i>9</i>	<i>016 "</i>					<i>35 38</i>		<i>120</i>	
<i>10</i>	<i>017 "</i>			<i>36 39</i>	✓	<i>36 39</i>		<i>121</i>	
<i>11</i>	<i>4 Shreveport</i>			<i>36 39</i>	✓	<i>37 39</i>		<i>172</i>	
<i>12</i>	<i>2 New Orleans</i>	<i>9/5/70</i>		<i>36 39</i>	✓	<i>38 40</i>		<i>194</i>	
<i>13</i>	<i>21 Jackson</i>	<i>9/7/70</i>	<i>9/8/70</i>	<i>36 39</i>	✓	<i>42 32</i>		<i>123</i>	<i>Found Bad Ch Modem in Atlanta</i>
<i>14</i>	<i>5 Jacksonville</i>	<i>9/15/70</i>		<i>36 39</i>	✓	<i>34 39</i>		<i>205</i>	<i>Referred to Carrier at Macon, Ga.</i>
<i>15</i>	<i>9 Chattanooga</i>	<i>9/14/70</i>		<i>37 40</i>	✓	<i>39 40</i>		<i>290</i>	<i>Ref. to Chatt. 9/16</i>
<i>16</i>	<i>36 Chattanooga</i>	<i>9/16/70</i>		<i>37 40</i>	✓	<i>38 38</i>		<i>292</i>	<i>Ref. to Cxr 9/16</i>
<i>17</i>	<i>44 Chattanooga</i>	<i>9/16/70</i>		<i>37 40</i>	✓	<i>38 39</i>		<i>294</i>	<i>Ref. to Chatt. 9/16</i>
	<i>102 OB Rome</i>	<i>9/16/70</i>	<i>9/21/70</i>						<i>Ref. to Atla. Cxr 9/17/70</i>
<i>18</i>	<i>5 Rome</i>			<i>33 37</i>	✓	<i>37 32</i>		<i>315</i>	<i>Fixed OW &amp; Ble on 9/21/70</i>
<i>19</i>	<i>6 Rome</i>			<i>33 37</i>	✓	<i>34 31</i>		<i>316</i>	<i>"</i>
<i>20</i>	<i>7 Rome</i>			<i>33 37</i>	✓	<i>35 30</i>		<i>317</i>	<i>"</i>
<i>21</i>	<i>8 Rome</i>	<i>9/17/70</i>	<i>9/21/70</i>	<i>33 37</i>	✓	<i>35 34</i>		<i>318</i>	<i>"</i>
<i>22</i>	<i>107 Rockdale</i>	<i>9/20/70</i>		<i>33 37</i>	✓	<i>34 27</i>		<i>340</i>	<i>Referred to Atla. Cxr 9/21/70</i>
<i>23</i>	<i>119 Rockdale</i>	<i>9/21/70</i>		<i>33 37</i>	✓	<i>30 34</i>		<i>351</i>	<i>Referred to Rockdale Cxr 9/21/70</i>
<i>24</i>	<i>141 Rockdale</i>	<i>9/21/70</i>		<i>33 37</i>	✓	<i>35 31</i>		<i>335</i>	<i>Ref. to Atla. Cxr 9/21/70</i>

Fig. 3—Log of Trunks With Noise Above Maintenance Limit