DATA ITEM DESCRIPTION

	Form Approved OMB No 0704-0188

1. TITLE	2. IDENTIFICATION NUMBER
RANDOMIZER TEST REPORT	DI-NDTI-80888

3. DESCRIPTION/PURPOSE

3.1 The Randomizer Test Report provides the data necessary for the government to evaluate and determine the effectiveness of randomizers incorporated into equipment. Study and analysis of these reports will also provide a basis upon which equipment design improvement or refinement may be recommended.

4. APPROVAL DATE (YYMMDD)	5. OFFICE OF PRIMARY RESPONSIBILITY (OPR)	6a. DTIC APPLICABLE	6b. GIDEP APPLICABLE
890717	G/Y		

7. APPLICATION/INTERRELATIONSHIP

7.1 This data item description (DID) contains the format and content preparation instructions for the data product generated by the specific and discrete task requirement as delineated in the contract.

7.2 This DID supersedes DI-S-5135C.

8. APPROVAL LIMITATION	9a. APPLICABLE FORMS	9b. AMSC NUMBER
		G4792

10. PREPARATION INSTRUCTIONS

10.1 <u>Format</u>. The report may be in contractor format. The attached formats (Figures 1, 2, and 3) are examples only.

10.2 <u>Content</u>. The report shall consist of the following:

10.2.1 <u>Tabulations</u>. The tabulations shall consist of typed or printed data which is obtained during the testing of randomizer elements or boards. The first page, or cover sheet, for each tabulation shall contain the following:

    a. The title, including the Telecommunications Security (TSEC) nomenclature, shall be in upper case letters.

    b. The name(s) of the report's author(s).

    c. Publication Date (day, month, and year, respectively spelling out the name of the month)

    d. The name of the activity preparing the report.

11. DISTRIBUTION STATEMENT

DISTRIBUTION STATEMENT A. Approved for public release; distribution is unlimited.

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    e. Contract number.

    f. Approved by: (signature of appropriate supervisor or authorized company representative and their official title or position).

    g. Appropriate security classification.

10.2.2 _Test data_. The body of the test data portion of the reports shall consist of sheets that are prepared according to the following:

    a. The top and bottom of each sheet shall be stamped with the appropriate security classification.

    b. Sheets shall be numbered sequentially.

    c. Each sheet shall contain a title consisting of the following:

        (1) Bit rate of randomizer in kilohertz.

        (2) The words "Test Data for Lot", followed by the appropriate lot number.

        (3) Test date.

        (4) If the test equipment is TSEC equipment, the type of TSEC equipment will be identified and its serial number recorded.

    d. An unclassified summary sheet (see Figure 1 for example) consisting of the following information:

        (1) At the top of the sheet:

            (a) Contract number.

            (b) Appropriate lot number.

        (2) Columns headed as follows with the appropriate data entered:

            (a) SLOT. Enter the test rack slot location

            (b) S/N. Enter serial number of the randomizer.

            (c) M S/N. Enter module serial numbers, applicable in dual leg randomizer boards _only_.

            (d) DISP. Enter disposition of the randomizer after the test.

            (e) COMMENTS. Leave blank for the government to fill in as needed.

10.2.2.1 _Burn-in data_. For data obtained during burn-in testing of individual randomizer elements, (see Figure 2 for example):

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  a. The information recorded during testing of each randomizer element is as follows:

    (1) Each page of information (for each element) shall list the:

        (a) Serial number of the element tested.

        (b) Test rack slot number in which the element was tested.

        (c) Start and stop dates of the tests.

      (2) The first column of information shall specify the time that each of the eight required test samples are taken.

      (3) The second column of information shall specify the Monobit count of leg #1 for each of the eight required tests.

      (4) The third column of information shall specify the Delta Count of leg #1 for each of the eight required tests.

      (5) The fourth column of information shall specify the Monobit Count for leg #2 for each of the required tests.

      (6) The fifth column of information shall specify the Delta Count of leg #2 for ach of the eight required tests.

      (7) The sixth column of information shall specify the Monobit Count of the modulo 2 adder for each of the eight required tests.

      (8) The seventh column of information shall specify the Delta Count of the modulo 2 adder for each of the eight required tests.

      (9) The information for the required tests as described above shall be recorded in eight successive rows numbered 1 through 8.

  b. The analysis of the test data specified above shall be recorded as follows:

      (1) For the Monobit and Delta Counts, record the highest of the eight counts in the ninth row directly beneath each column of information.

      (2) For the Monobit and Delta Counts, record the lowest of the eight counts in the tenth row directly beneath each column of information.

      (3) In the eleventh row, record the difference between the high and low value for each column of counts.

      (4) The dispositions of the counts, according to the criteria established in the contract, shall be recorded as the twelfth row of information, accordingly:

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(a) The 1st, 4th, 7th, 10th, 13th, and 16th dispositions for the range of the appropriate 8 counts.

(b) The 2nd, 5th, 8th, 11th, 14th, and 17th dispositions for the difference between the highest and lowest counts in the proper column.

(c) The 3rd, 6th, 9th, 12th, 15th, and 18th dispositions for the trend (strictly ascending or descending) of the 8 counts in the proper column.

10.2.2.2 Post-assembly data. For data obtained after the randomizer elements are assembled as dual leg randomizer boards, (see Figure 3 for example), the information recorded during testing of each randomizer board shall be submitted as follows:

a. SLT: This first column of information shall specify the slot number of the test equipment in which the randomizer board was tested. There will be 6 consecutive rows of information identified under this column with the same slot number.

b. BOARD SER: A 6 digit column for serial numbers of each board.

c. LEG SER: A 6 digit column for serial numbers of each leg of each board. In the first row, print the serial number of leg #1. In the third row, print the serial number for leg #2.

d. SUB: Under this column, identify the rows of information specified in paragraph 10.2.2.2.e below with consecutive numbers "1" through "6" respectively and as applicable.

e. Read:

(1) In the first row print the monobit count measured for leg #1.

(2) In the second row print the delta count measured for leg #1.

(3) In the third row print the monobit count measured for leg #2.

(4) In the fourth row print the delta count measured for leg #2.

(5) In the fifth row print the monobit count of the modulo 2 adder.

(6) In the sixth row print the delta count of the modulo 2 adder.

f. DISP: The analysis of the test data specified above shall be listed in this last column on the right of the same sheets along with the information as specified in paragraph 10.2.2.2 above. The analysis will be in accordance with the acceptance criteria provisions specified in the contractual documents.

10.2.2.3 Extremes test data. For data obtained during high and low temperature testing or during testing under voltage extremes:

ock 10, Preparation Instructions (continued)

a. The information, which shall be recorded during testing of each randomizer board or element and submitted, shall consist of one line of data for each test in a format similar to that indicated in paragraphs 10.2.2.1 and 10.2.2.2.

b. The analysis of the test data specified shall be prepared and recorded.

(1) The disposition of the temperature or voltage related counts, according to the criteria established in the contract, shall be recorded on a subsequent line.

(2) Final disposition is the lower acceptance level of the burn-in counts disposition and the temperature or voltage related counts disposition and shall be recorded on a final line.

10.2.3 Records. Records of all repairs performed on rejected randomizer elements shall contain the following for each repair action:

a. Serial number of the element(s) (and board if dual leg randomizer).

b. Date of repair.

c. Brief description of repair performed.

d. Tabulation of results of a retest after repair.

e. Analysis if results of a retest after repair.

10.2.4 Conditions of use. The specific information to be displayed and analyzed differs according to the configuration of the randomizer, as follows:

a. The randomizer board contains two randomizer legs and a modulo 2 adder circuit:

(1) Paragraph 10.2.2.2 and Figure 3 are not applicable

b. The randomizer board contains two randomizer legs without a modulo 2 adder circuit:

(1) Paragraph 10.2.2.2 and Figure 3 are not applicable.

(2) The columns of Figure 2 headed Mod-2 (Monobit and Delta) and paragraphs 10.2.2.1.a (7) and (8) are not applicable.

c. The randomizer board consists of a single randomizer leg:

(1) Paragraph 10.2.2.2 and Figure 3 are not applicable.

(2) The columns of Figure 2 headed leg #2 and Mod-2 (Monobit and Delta) and paragraphs 10.2.2.1.a (5), (6), (7), and (8) are not applicable.

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d. The randomizer board contains two randomizer legs (elements) which are tested individually before being placed on the board and are further tested after assembly as dual leg boards:

(1) Paragraph 10.2.2.1 and Figure 2 are not applicable.

e. The randomizer board contains one randomizer leg (element) which is tested individually before being placed on the board and is further tested after assembly as a single leg board.

(1) Paragraph 10.2.2.1 and Figure 2 are not applicable.

(2) The second sentence of paragraph 10.2.2.2.a, the third sentence of 10.2.2.2.c, paragraph 10.2.2.2.e (3), (4), (5), and (6) are not applicable.

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CONTRACT	XXXXXX-XX-X-XXXX			LOT 270
SLOT	S/N	M S/N	DISP.	COMMENTS
1	70543	1250/1417	A	
2	71238	1041/1042	A	
"				
"				

FIGURE 1. Sample summary sheet

BOARD SERIAL NO.   50002   START DATE   27 MAY 1968

SLOT NO.   3   STOP DATE   28 MAY 1968

SAMPLE	TIME	LEG #1 MONOBIT	LEG #1 DELTA	LEG #2 MONOBIT	LEG #2 DELTA	MOD-2 MONOBIT	MOD-2 DELTA
1	1423	49054	49857	49649	49855	49859	49056
2	1517	49211	49471	49776	49472	49469	49209
3	1602	48962	49602	49770	49608	49604	48968
4	0802	48930	49718	49647	49802	49716	48928
5	0847	49144	49640	49740	49668	49642	49146
6	0932	48938	49760	49588	49541	49758	48936
7	1017	48996	49639	49830	49350	49641	48998
8	1132	48942	49451	50098	49517	49449	48940
HIGH		49211	49857	50098	49855	49859	49209
LOW		48930	49451	49588	49350	49449	48928
DIFF.		281	406	510	505	410	281
DISPOSITION		AAA	AAA	AAA	AAA	AAA	AAA

FIGURE 2. E-XXX Test data (for individual randomizer elements)

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125 KHZ . TEST DATA FOR LOT 270 TESTED ON 08 24 67 PAGE 16

SLOT	BOARD SER	LEG SER	SUB	READ	DISP
26	000001	000011	1	50134	A
26			2	49987	A
26		000012	3	49628	A
26			4	50009	A
26			5	50018	A
26			6	49997	A

27--

Figure 3. Sample heading and layout for test data test result sheets (for data obtained after randomizer elements are assembled into dual leg randomizer boards)

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