DIGITAL TRANSMISSION SURVEILLANCE SYSTEM
ADMINISTRATIVE METHODS
DIGITAL DATA SYSTEM

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1. GENERAL

1.01 This section outlines the specific responsibilities of offices and centers involved in the installation and maintenance of the Digital Transmission Surveillance System (DTSS). The DTSS provides performance information of DS-1 facilities used within and between digital serving areas in the Digital Data System (DDS). The DTSS may be used to aid in the maintenance of these facilities when used in DATAPHONE* Digital Service. The administrative procedures contained in this section emphasize DTSS reports and office responsibilities for those DDS offices providing DTSS. The administrative procedures for DDS are contained in Section 660-230-100.

1.02 This section is being reissued for the following reasons:

(a) Updates Facility Management Administration Center (FMAC) responsibilities

(b) Adds Minicomputer Maintenance Group-West (MMG-W) responsibilities

(c) Adds National Technical Support Center (NTSC) responsibilities

(d) Adds Minicomputer Operations Group (MOG) responsibilities

(e) Adds system manager responsibilities

(f) Adds system administrator responsibilities

(g) Deletes Digital Network Administration Center responsibilities

(h) Deletes Centralized Test Center (CTC) responsibilities

(i) Deletes hub office responsibilities

(j) Changes name of Regional Facility Management Center (RFMC) to FMAC.

Change arrows are used to emphasize the more significant changes.

1.03 The Digital Transmission Surveillance System is an enhancement to the DDS. The DTSS will remotely monitor, transmit, centrally process, and retrieve performance data on a digroup basis to identify troubles in each direction of transmission. The DTSS derives an 8-kb/s communications channel to transmit the DS-1 performance data to a centrally located minicomputer. The data is then processed and distributed in the form of performance reports over a multipoint network.

1.04 The DTSS utilizes circuit packs HL16B and HL95 in existing T1DMs, which are linked to a central minicomputer. A brief description of the equipment follows.

(a) A T1DM circuit pack (CP) coded HL16B is provided for framing pattern error monitoring in the 24th channel. It also derives a channel for the transmission of performance data over existing DS-1 facilities. Specifically, the data channel is derived from the DS-1 signal by using the 191st bit in each 193-bit DS-1 frame. The 191st bit, which is also called the R-bit, is currently unused in the DS-1 signals between T1DMs. Since the DS-1 frame repetition rate is 8000 bits per second, the derived data channel is 8 kb/s. Also, since the DS-1 facilities are full-duplex, the derived 8-kb/s data channels are full-duplex. For DTSS operation, the HL16B circuit pack is substituted for the HL16 circuit pack in the T1DM. ***A mixture of CPs HL16B and HL16 within the same bay is prohibited for DTSS operation but is permissible for normal T1DM service.*** A CP HL16B provides for sensing an error in the framing pattern as well as determining if the T1DM is "in synchronization" or "out of synchronization."

(b) A multi-microprocessor surveillance unit circuit pack HL95 is inserted in a previously vacant slot of the protection spare T1DM. The surveillance unit collects and analyzes the performance data furnished by circuit pack HL16B in the T1DMs that are being monitored. One surveillance unit is provided per T1DM bay which interconnects up to 11 working T1DMs and one protection spare T1DM. Some additional T1DM

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bay wiring is required if the bay was manufactured prior to 1980. The T1DM bays manufactured during 1980 and beyond may or may not include the additional wiring that enables the surveillance unit to access all T1DMs in that bay. The wiring is dependent upon the list number of the bay.

(c) One PDP* 11/70 minicomputer and peripheral devices are required for the central collection and processing of data. The minicomputer has 128K memory as well as the following peripheral devices:

- One model LA36 writer II system console, or equivalent, for the system interface
- One model LP11 high-speed printer, or equivalent, capable of 300 lines per minute
- One model RWP06 disk drive and controller, or equivalent, with a 176 megabyte capacity
- One model TWU16 tape drive and controller, or equivalent, capable of 1600 bits per inch per 9 tracks
- Multiplexers and controllers for 20 synchronous and 12 asynchronous communication lines or ports
- One Electronic Industries Association (EIA) level control unit to interface with the 64-kb/s multiplex channels.

Data storage for report production is accomplished using the disk system for recent data up to 7 days and the tape system for longer term storage. Access to the surveillance units in the system will be provided via the 20 synchronous communication lines. The 12 asynchronous lines will be used for the report distribution network.

1.05 The performance data collected by the surveillance units is transmitted via the 8 kb/s channels to the minicomputer for processing. The minicomputer generates performance reports based on the performance data it receives from the surveillance units. These reports will be transmitted automatically to terminals at selected locations via multipoint facilities. These locations include CTCs, the Long Lines Network Operations Center (NOC), FMACs, and contracted telephone company locations.

1.06 These reports consist of real-time performance reports and administrative reports. They indicate where corrective and/or preventive action is required in order for the telephone system to meet the expected facilities performance objectives.

2. DTSS RESPONSIBILITIES OF CENTERS AND OFFICES

2.01 Since DTSS is located in DDS offices, the definition and responsibilities for DDS offices are not listed in this section but are documented in Section 660-230-100. This part defines only those responsibilities that are unique to DTSS and are in addition to the normal responsibilities of the DDS office.

2.02 All centers and offices in the DDS hierarchy have the following responsibilities:

(a) Ensure that all applicable documentation standards are followed and that changes to these documents are applied.

(b) Maintain adequate and current records of facility assignments including records of temporary changes for which the center or office has responsibility as defined in this section.

(c) Cooperate with other centers or offices in testing to sectionalize troubles and in correcting unsatisfactory service conditions.

NATIONAL TECHNICAL SUPPORT CENTER

2.03 The NTSC receives DTSS trouble reports from the MOG and/or other locations which have DTSS related network equipment. After analysis of the report, the NTSC contacts the troubled office and provides guidance in the repair and/or modifications of DTSS equipment, eg, CP HL95, printer, etc. To restore service, the NTSC responsibilities are as follows:

(a) Assist, as required, in the sectionalization of trouble to supporting equipment, DTSS equipment, or network problems.

(b) Escalate trouble report, as required, to ensure a timely resolution of trouble.

* Registered Trademark of Digital Equipment Corporation.

(c) After receipt of a referral from the MOG, assist the DDS office in testing to further isolate the trouble and dispatch replacement units, as required, to ensure a timely resolution.

(d) Coordinate with the DDS office the most expedient delivery method of spare parts to that office.

(e) Provide assistance to DDS offices for the handling and shipping of defective equipment to Western Electric for repair and/or modifications.

(f) Control the shipment of new and repaired units to hub offices

(g) Take total responsibility of CP HL95 in the DTSS network as follows:

- Analyze the changes and/or additions of CP HL95 to ensure feasibility where performance is not degraded
- Coordinate the additions and/or modifications of CP HL95
- Verify the correct strapping and address assignments for newly installed CP HL95
- Strap and address the CP HL95 for network reconfiguration
- Maintain CP HL95 related log documents such as a trouble log, a deployment sheet, a serial number assignment log, and a circuit order and inventory log.

(h) Coordinate system testing with associated DDS hub offices after repaired CPs have been installed and locally tested.

(i) Assist in installation and repair of DTSS network printers [when provided by AT&T Communications (AT&T-C)].

(j) Maintain printer information such as option assignments and inventory status.

(k) Notify regional FMAC of any digroups that cannot be monitored due to CP HL95 troubles.

(l) Coordinate installation and/or repair to DTSS printers (when provided by AT&T-C) as follows:

- Verify that the printer test message is accepted
- Coordinate printer options with the associated data set or diode matrix board
- Provide technical support and/or assistance to users and repair forces.

FIELD ASSISTANCE CENTER FOR TECHNICAL SUPPORT-WEST

2.04 The minicomputer controls the DTSS. It collects the performance data from all circuit pack HL95s via the 8-kb/s performance message transmission channels. The minicomputer processes performance data to determine the per-route performance levels. These statistics are outputted in the form of reports that are automatically transmitted to designated locations.

2.05 Maintenance of the minicomputer will be performed by the MMG-W. This center will be responsible for ensuring high availability and reliability of the DTSS minicomputer, which will encompass the following responsibilities:

(a) Receive trouble reports from the MOG of suspected DTSS minicomputer hardware trouble.

(b) Assist the MOG personnel in troubleshooting the problem.

(c) Perform maintenance and/or repair on the minicomputer.

(d) Escalate to the NTSC any DTSS trouble not resolved or identified within 2 hours.

(e) Verify and change the DTSS hardware maintenance procedures or schedules with the concurrence of the MOG and System Manager.

MINICOMPUTER OPERATIONS GROUP

2.06 After receiving a trouble report, the MOG assists in the sectionalization of trouble as follows:

(a) Verifies system status for performance conditions

(b) Assists in the DTSS system isolation to line, data set, terminal printer, and DTSS components; then refers trouble to the appropriate organization, and follows up in the resolution process

(c) Notifies system manager of problems which severely affect DTSS monitoring capability

(d) Assists the planning and design group in the loading of new generic programs

(e) Maintains all associated equipment not maintained by the NTSC, MMG-W, or line organizations, such as Spectron panels, Western Electric cables, data sets, etc

(f) Maintains tape and disk software backups, as needed

(g) Coordinates with system manager and MMG-W any downtime required for maintenance

(h) Maintains DTSS outage log and provides the system manager a monthly report that includes the dates, times, and reasons for surveillance unit (SU) failure

(i) Makes status checks by monitoring daily the no talk program and reports to the NTSC any malfunctioning SUs

(j) Sends emergency notices when system is unavailable

(k) Submits requests for system enhancements and notices of generic problems to the system manager

(l) Provides system manager with quarterly report of maintenance hours and material costs for minicomputer.

SYSTEM ADMINISTRATOR

2.07 The Norway FMAC will act as the single point of contact for all DTSS network users requiring data base transactions or digroup testing. The Norway FMAC responsibilities include the following:

(a) Verifies correct digroup information by ensuring the following:

- Digroups have the correct allocated error second information
- Digroups have the appropriate printer codes assigned in the data base
- Data information has been correctly entered into the data base

(b) Obtains list of turned up and disconnected digroups by contacting weekly the Cincinnati facility circuit order group, and makes the appropriate data base corrections

(c) Maintains the DTSS facility search program

(d) Provides suggestions to improve DTSS performance or the DDS network

(e) Requests assistance, as required, of the system manager or the network planning and design group

(f) Reviews DTSS digroup count and display program for mismatches

(g) Enters allocated error second changes to the data base when notified by other FMACs

(h) Rechecks routing and changes printer code after any change of allocated error seconds

(i) Determines if other data base updates are required and enters them

(j) Verifies that the changes are feasible and do not adversely affect performance and response time or degrade the network

(k) Administers backup, loading, and scheduled update procedures for accurate data base information.

FACILITY MANAGEMENT ADMINISTRATIVE CENTER

2.08 The FMAC coordinates and manages the restoration of failed broadband facilities [1A radio digital terminal (RDT) to 1A RDT or equivalent, ie, broadband data modem (BDM) to BDM] and the associated protection facilities. This office has a printer for the DTSS reports. These reports are for digroups that terminate within or traverse their realm of responsibility. An FMAC has the following responsibilities:

(a) Verifies the performance on digroups between the remote CP HL16B and the minicomputer by using the dotting pattern test. This normally occurs after the system administrator notifies an FMAC that a new digroup has been entered into the data base.

(b) Ensures that CP HL16Bs have the correct options

(c) Places digroups in a testing mode, as required

(d) Reviews weekly the regional DTSS administrative reports and investigates any digroup(s) that reports 100 percent performance for two or more days or that had no data collected for two or more days

(e) Provides a quarterly list to the system administrator of the digroups that are not currently being monitored by DTSS

(f) Reviews quarterly the Facility Routing Guide and DTSS reports to (1) ensure that all digroups have the correct allocated error second data and (2) submit descrepancies to system administrator for resolution

(g) Analyzes and assists in corrective and/or preventive maintenance activities at the request of a special service center-digital/centralized test center (SSC-D/CTC) and/or serving hub as required

(h) Aids the responsible office in contacting the Surveillance and Control of Transmission System (SCOTS) or other alarm centers or main stations (if manned) to request switching of radio sections in its effort to restore the broadband facilities

(i) Refers those troubles that have been identified as the responsibility of the adjacent FMAC(s) to that FMAC(s)

(j) Maintains and reviews the administrative reports and performance statistics of broadband facilities terminating in its realm of responsibility

(k) Reports broadband facility failures to the NOC-Facility Management (FM) and follows up on failures under investigation until a satisfactory explanation is obtained

(l) Refers all digroup facility failures to the proper entity. These failures are determined through the continuous monitoring of DTSS and the following:

- Analyzing reports on a real-time basis
- Following up on failures to ensure that timely corrective action is in progress
- Initiating escalation procedures as required.

(m) Refers intermittent (dribbling) errors to the proper entity. These errors are determined by the following:

- Analyzing real-time and historical reports of digroup performance
- Establishing a worst facility list of chronic and/or poor performance digroups
- Following up on all trouble referrals to ensure that corrective action is in progress

(n) Establishes and publishes a monthly performance digroup list for their realm of responsibility

(o) Assists the DDS Plant Control Office and/or the service or sales manager in the resolution of customer complaints.

SYSTEM MANAGER

2.09 At Long Lines headquarters, the operation support systems district—intercity facilities

group is responsible for the system management of DTSS. These responsibilities are as follows:

(a) Serve as the subject matter expert on DTSS.

(b) Verify the system reliability parameters per the following:

- Periodically audit data base integrity
- Ensure that identified design descrepancies have been reviewed with the network planning and design group.

(c) Review and resolve user complaints per the following:

- Coordinate user training with network planning and design
- Evaluate and implement valid user request and priorities.

(d) Provide specifications for system changes per the following:

- Direct future development efforts
- Direct field trials on enhancements.

(e) Develop the long-range system plans or objectives per the following:

- Recommend systems growth and then develop transition plans
- Ensure that accurate documentation and required training material are available.

(f) Approve the addition and deletion of system users.

(g) Review and approve of the system security and controls.

(h) Initiate, develop, approve, and negotiate the following contracts or agreements:

- Service contract
- System maintenance agreement with proper trouble reporting procedure
- Cost saving or sharing agreement
- System interface agreement.

(i) Function as the escalation point for the system administrator and FMACs during system problems.

SURVEILLANCE AND CONTROL OF TRANSMISSION SYSTEM OR ALARM CENTERS

2.10 The SCOTS is designed to automate and centralize remote alarm center surveillance activities for the transmission plant. This central location has responsibilities as follows:

(a) Reports all broadband facility failures to appropriate FMAC

(b) Receives requests from the FMAC to switch broadband facilities in an attempt to clear and sectionalize troubles

(c) Activates a switch from the regular broadband facility to protection or standby in an effort to locate the offending section

(d) Initiates a trouble report to the responsible (facility or broadband facility) maintenance force in whose realm of responsibility the trouble is sectionalized

(e) Notifies the FMAC when the trouble is cleared and switch-back to the original facility has been made

(f) Fulfills additional responsibilities as described in Section 190-201-010, Alarm Centers, Alarm Center Administration, Operations Support Systems.

NETWORK OPERATIONS CENTER—FACILITY MANAGEMENT

2.11 The NOC-FM will maintain the basic facility failure data base to ensure that failure information is accurately reflected. The specific Network Operations Center—Facility Management responsibilities are as follows:

(a) Continues to exercise responsibilities as present instructions emphasize in Section 002-503-901LL

(b) Assists in the coordination of broadband facility restoration

(c) Transmits all significant digroup failure reports via teletypewriter network 0001

(d) Highlights all significant digroup outages on the morning report.

3. MEASUREMENT PLAN

3.01 Along with stringent availability objectives (Section 314-900-300), a quantitative description of data communications quality is necessary. To minimize the impact of imperfect data communications, attain 99.5 percent error free seconds on end-to-end DDS service as the operating quality objective for network average efficiency.

3.02 The following DTSS measurements were developed to provide a means of objectively evaluating the DDS DS-1 error performance.

(a) Experience during a 24-hour day fewer than the allocated errored-second criteria for each digroup

(b) Experience during a 24-hour day fewer than five 15-minute periods of which each has more than 18 error seconds

(c) Experience during a 24-hour day fewer than two consecutive 15-minute periods of which each has more than 90 error seconds

(d) Experience during a 24-hour day fewer than fifteen 100-millisecond or greater error bursts.

3.03 The DTSS reports are analyzed by looking for an "at" (@) symbol. This symbol indicates when (a), (b), or (c) of the measurements in paragraph 3.02 have been exceeded. These measurements are referred to as maintenance-action criteria in the DTSS reports. Corrective action must be taken by the proper entity.

3.04 Information which correlates to these measurements is provided in DTSS reports which are described in Part 4.

4. DTSS REPORTS

4.01 Reports are categorized into two general areas: real-time performance and administrative.

REAL-TIME PERFORMANCE REPORTS

4.02 The real-time performance reports provide an up-to-the-minute indication of system performance and ***may*** require immediate action from appropriate centers. The two types of real-time performance reports are the real-time exception report and the 15-minute summary exception report.

A. Real-Time Exception Report

4.03 The real-time exception report (Fig. 1) is utilized by those centers which monitor digroups on a real-time basis. This report enhances the centers capability to anticipate problem conditions.

4.04 The real-time exception report is generated when a digroup experiences more than 18 error seconds during a 15-minute time interval. It provides the number of error seconds and the error burst length information (grouped by length) for each digroup that exceeds the established error criteria. Once the criteria is exceeded, every error second will be printed for each 1-minute period until the end of the 15-minute interval. The error seconds of a specific digroup are cumulative during the 15-minute interval.

4.05 Upon request, the MOG can change the 18-error seconds criterion (threshold) down to 1-error second threshold for a specific digroup. Reducing the threshold can assist in digroup troubleshooting which is indicated as TS on the report.

B. Fifteen-Minute Summary/Exception

4.06 This 15-minute summary/exception report (Fig. 2) is utilized by those centers which monitor digroups on DDS facilities on a real-time basis. This enables them to characterize the type of errors occurring within a digroup, thereby determining their impact and extent on the total network.

4.07 This report is an exception printout of all digroups which exceed the allocated errored-seconds criteria (see paragraph 3.02). Also, this report is unique to that digroup as well as to all

digroups which exceed the real-time criteria in the preceding 15-minute period. This report provides the previous 15-minute errored-seconds count [see (b) and (c) in paragraph 3.02] as well as the accumulative count for that day.

ADMINISTRATIVE REPORTS

4.08 Administrative reports provide a summary of vital indicators which serve as an analytical tool to identify system quality trends. The administrative reports are generated by the minicomputer and transmitted to the maintenance centers on daily, weekly, and monthly intervals. These reports are intended for internal system analysis by each telephone company contracting DTSS and Long Lines Region.

A. Twenty-Four Hour Summary/Exception Report

4.09 The 24-hour summary/exception report (Fig. 3) is generated at the close (23:59) of a 24-hour day. It provides the total number of error seconds, error bursts (grouped by length), percentage error-free seconds, and summary data for 15-minute periods for each digroup by each telephone company and Long Lines Region. This report is utilized by centers to compare the distribution of errors and relative performance within each digroup.

B. Historical File Report

4.10 The historical file report (Fig. 4) is generated daily for any digroup that has exceeded (a), (b), or (c) threshold measurements in paragraph 3.02. This report lists the first day a criterion was exceeded up to 6 previous days. This report indicates the region a particular digroup appears in.

C. Weekly Performance Summary Report

4.11 The weekly performance summary report (Fig. 5) provides a digroup performance, measured in error-free seconds, for each day within the reporting period and for each digroup by each Long Lines Region or contracting party. The report period is from Sunday through Saturday. This report is used by management centers to obtain a comparison of the overall performance for all digroups within their realm of responsibility.

D. Performance Ranking Facilities by Region for Monthly Period

4.12 The performance ranking facilities, by region, for the monthly period report (Fig. 6) provides a listing of the facilities by each Long Lines Region or contracting telephone company that indicates the relative performance measured in error-free seconds. The facilities are ranked in performance order for each region or contracting party. This report is utilized by management to obtain a ranking by performance of facilities within their realm of responsibility (worst to best). The index cycle is from the 23rd of the month to the 22nd of the next month.

E. Monthly Facility Report by Rank

4.13 The monthly facility report (Fig. 7) is generated at the end of the index cycle (23rd to 22nd). It provides a listing of the facilities, indicating the relative performance measured in error-free seconds. This report is utilized by management to obtain a ranking of all facilities without regard to the Long Lines Regions or telephone company.

REPORT HEADINGS

4.14 The following list of headings and notations are used in the DTSS reports. After the heading, a brief definition is given.

- ALLOC ERRSEC—The maximum allowable error seconds for a digoup during a 24 hour period. The allocation is based on the digroup length and facility technology.

- ENTER DATE—The date (month, day, and year) a digroup exceeds any maintenance action criteria. This digroup will remain on the report until three consecutive days of not exceeding the criteria. Enter date is used only with the Historical File report. Error data from the digroups is received by the HL95 in byte blocks, every millisecond (ms). If an error bit occurs in that byte, an errored ms is said to occur. A burst is said to start at the first errored ms after a nonerrored ms. The burst is said to terminate at the first nonerrored ms block after the start of a burst. Error bits in the byte blocks are also called sync failures. A TS to the right of a number in the 100+ category indicates a troubleshooting mode, specifically, the 18

errored-second criteria has been reduced to a 1-errored second criteria.

- FAIL—This notation indicates that the digroup is to be treated as failed based on its errored-second performance during a 15-minute period.

- # CONS PER >90 ERRSEC—For a given digroup, the number of consecutive 15-minute periods in which the number of errored seconds was greater than 90.

- # ERROR BURSTS BY LENGTH IN MS—For a given digroup, the error bursts are divided and totaled into four categories. Each category is different in time (length in milliseconds) and is 1, 2 through 10, 11 through 99, and 100+.

- # ERRD SEC—For a given digroup, the number of seconds in which a sync failure occurred.

- NUMBER OF ERRORED SECONDS PER DAY—The number of errored seconds accumulated from 0000 to 23:59 network time.

- # FAIL—This indicates the number of times the digroup failed based on allocated errored seconds.

- # PER >18 ERRSEC—For a given digroup, the number of 15-minute periods in which the number of errored seconds was greater than 18.

- SERVICE INDICATOR—For a given digroup, it is calculated by 100 minus [(errored seconds divided by total seconds to present 15-minute period) multiplied by F and then multiplied by 100]. If there was a system outage or a CP HL95 out of service, the percentage is automatically adjusted since the elapsed time would be less than actual time. Rounding is done on all percentages less than 99.99; for percentages greater than 99.99 but less than completely error free, the value is 99.99. Asterisks in this column mean CP HL95 is not in place but the digroup is in the data base.

- TS—This notation indicates the digroup is in a one errored-second threshold troubleshooting mode.

- XXX.XX%—The percentage of digroups in the data base that have greater than 99.70% service indicator. It is calculated by 100 multiplied by the number of digroups with monthly service indicator greater than 99.70 divided by the number of all digroups in the DTSS data base.

5. REPORTS DISTRIBUTION

5.01 These reports are distributed via a multipoint network to terminals within the DTSS. Table A summarizes the type of report and when each report is generated. All DTSS reports are distributed to the DNAC, NOC, RFMCs, and SS C-Ds/CTCs.

6. GLOSSARY OF ABBREVIATIONS AND TERMS

6.01 A listing of some of the more commonly used terms relating to DTSS is presented with a brief description.

Broadband Facility (Digroup Facility): Denotes for the purpose of this section a microwave radio and/or coaxial cable and all associated equipment required to support transmission of digital data (T1DM to T1DM).

DDS: A system providing private line, point-to-point and multipoint, and duplex data transmission.

Digroup: A T1DM to T1DM connection providing for the transmission of digital data.

Digroup Control Office: A T1DM office at the receive end of a digroup.

DTSS: A system with the capability of continually gathering performance information on DS-1 facilities.

DTSS Reports: Reports showing the results of the performance information gathered from the DS-1 facilities. They are categorized into real-time or administrative reports.

Facility Control Office: A receive-end office that initiates requests to switch equipment in an effort to restore or clear a digroup trouble condition.

Facility Management Administration Center: The FMAC coordinates the restoral of failed broadband facilities and analyzes DDS troubles. The troubles are identified by DTSS and traverse or terminate in the FMACs realm of responsibility.

Field Assistance Center for Technical Support-West: The MMG-W is responsible for preventative and corrective maintenance of the DTSS minicomputer.

Hub: A main office in the DDS that serves a local access transport area (LATA). The hub office also serves as point of interface/point of presence (POI/POP) collection point for local and long-haul facilities. The hub office multiplexes, demultiplexes, and provides test access. Testing is performed either locally or remotely. A CTC is a test center and/or control center established to control and maintain circuit layout record cards, receive customer trouble reports, assist in the checkout of newly installed stations, perform trouble isolations, and coordinate service restorals.

LATA: The geographic area covering all DDS customer stations that home on a single DDS hub office.

National Technical Support Center: This center receives all trouble reports after the MOG has determined the trouble to be in DTSS equipment.

Minicomputer Operations Group: The MOG makes trouble analysis and/or assists other groups in the sectionalization of a DTSS trouble.

Receive Only Printer: A high-speed printer operating at 1800 bauds per minute. It is used to receive and print out the DTSS reports from the minicomputer center.

SCOTS: Consolidates and automates alarm surveillance, control functions, and switching action on the long-, medium-, and short-haul broadband transmission facilities.

SSC-D/CTC: A test location established to control installation and maintenance, test circuits remotely, administer records and results, and serve as the primary point of customer contact.

SU: An HL95 circuit pack that collects the performance information from the DDS DS-1 facilities via CP HL16B. Upon a poll from the minicomputer, the SU transmits the information to the minicomputer and passes data downstream to another SU.

Sync Circuit Pack HL16B: Provides error monitoring of DDS DS-1 facilities and derives an 8-kb/s service channel for the transmission of performance data over existing DS-1 facilities.

System Administrator: This position at the Norway FMAC is responsible for the DTSS data base management.

System Manager: The system manager is the overall coordinator for DTSS service.

7. REFERENCES

7.01 The following sections provide additional information.

SECTION	DESCRIPTION
002-503-901LL	Broadband Facility Management
190-201-010	Alarm Centers, Alarm Center Administration, Operations Support Systems
314-900-300	Digital Data System, Private Line Service Overall Maintenance
314-912-100	T1 Data Multiplexer, Description, Digital Data System
314-912-300	T1 Data Multiplexer, Maintenance and Troubleshooting, Digital Data Systems
314-912-500	T1 Data Multiplexer, Tests, Digital Data System
314-984-100	Digital Transmission Surveillance System, General Description, Digital Data System
314-984-200	Digital Transmission Surveillance System, Circuit Pack Installation and Test Procedures, Digital Data System
314-984-300	Digital Transmission Surveillance System, Central Processor Opera-

SECTION	DESCRIPTION	SECTION	DESCRIPTION
	tion and Database Management, Digital Data System	682-000-015	Assignment of Network Control Office, Responsibilities
314-984-500	Digital Transmission Surveillance System, Overall System Maintenance Requirements and Test Procedures, Digital Data System	880-605-101	Digital Transmission Surveillance System, Engineering Considerations and Design of Surveillance Network, Digital Data System
660-005-011	Office Responsibilities, Special Services		
660-230-100	Administrative Procedures, Digital Data System		

TABLE A

REPORT FREQUENCY AND DISTRIBUTION

TYPE OF REPORT	FREQUENCY	INITIAL DISTRIBUTION
Real-time exception	Real-time	Reports are distributed to the DDS Test Centers*, Facility Management Administration Centers, and Network Operations Center Facility Management.
15-minute summary/exception	Real-time	
24-hour performance data	Daily	
Historical file	Daily	
Weekly performance summary	Weekly	
Performance ranking of facilities by area	Monthly	
Monthly facilty report by rank	Monthly	

* May be an SSC-D/CTC or serving hub office.

-----------------4/26/81------REAL TIME EXCEPTION REPORT---

TIME	DIGROUP	FROM	TO	#ERRD SEC	ERROR BURSTS BY LENGTH IN MS 1	2-10	11-99	100†	
00:12	1T1E	CLMBOH11T20	CLEVOHO2S10	1	0	1	0	0	TS
00:13	2T1E	NYCMNY54T30	ATLNGATL	19	1	2	0	1	
00:14	1T1E	PITBPADGW10	PHLAPAMKW10	20	0	9	1	1	
00:14	1T1E	CLMBOH11T20	CLEVOHO2S10	656	1	3	0	1	FAIL

*** NOTICE: NOT FOR USE OR DISCLOSURE OUTSIDE THE BELL SYSTEM EXCEPT UNDER WRITTEN AGREEMENT.

Fig. 1—Example of Real-Time Exception Report

---------------------------4/26/81---------------------15MINUTE SUMMARY/EXCEPTION----------15:59--------------------------------

DIGROUP	FROM	TO	#ERRD SEC	# FAIL	#ERROR BURSTS BY LENGTH IN MS 1	2-10	11-99	100†	SVC IND	TOTAL ERRSEC	ALLOC ERRSEC
1T1E	CLEVOHO2S10	CHCGILCLS60	656	1	1	3	0	1	0.00	1362@	22
2T1E	DLLSTXTL	KSCYMOO9	21	2	19	1	1	0	15.80	96@	11
1T1E	CHCGILCLS60	STLSMOO9	86	3	29	0	4	0	14.20	322@	12
1T1E	DNVRCOMA	LSANCA01	423	0	1	0	1	0	6.00	1296@	16

@ = MAINTENANCE ACTION CRITERIA EXCEEDED

**NOTICE: NOT FOR USE OR DISCLOSURE OUTSIDE THE BELL SYSTEM EXCEPT UNDER WRITTEN AGREEMENT.

Fig. 2—Example of 15-Minute Summary/Exception Report

----------------4/26/81---24 HOUR SUMMARY/EXCEPTION---

FACILITY	FROM	TO	#ERRD SEC	#ERROR BURST BY LENGTH IN MS 1	2-10	11-99	100†	SVC IND	#CONS PER 90ERRSEC	#PER 18ERRSEC	ALLOC ERRSEC
ER ALTWPAAL											
1T1E	NYCMNY54T30	ALTWPAAL	1	0	2	0	0	99.98	0	0	55
NER NWRKNJ02T90											
2T1E	NYCMNY54T30	NWRKNJ02T90	861@	77	56	5	0	96.00	2	0	80
3T1E	NYCMNY54T30	NWRKNJ02T90	701@	3	6	1	3	93.48	2@	3	95
NYCR NYCMNY54T30											
1T1E	DNVRCOMA	NYCMNY54T30	21	18	20	0	0	99.95	0	0	81

*** NOTICE: NOT FOR USE OR DISCLOSURE OUTSIDE THE BELL SYSTEM EXCEPT UNDER WRITTEN AGREEMENT.

Fig. 3—Example of 24-Hour Summary/Exception Report

----------------4/26/82--HISTORICAL FILE---PAGE 1-------------

DIGROUPS EXCEEDING MAINTENANCE ACTION CRITERIA

#	DIGROUP FROM	TO	ENTER DATE	NUMBER OF ERRORED SECS PER DAY — PREVIOUS DAYS							>18 ES FOR >4 15 MIN PERD'S — PREVIOUS DAYS							>90 ES FOR 2 CONS 15 MIN PD — PREVIOUS DAYS						
											6	5	4	3	2	1	0	6	5	4	3	2	1	0
CR																								
1T1E	CLEVOHO2S10	CHCGILCLS60	6/30/82	24	61	96	118	300@	239@	99					@	@	@						@	
MR																								
2T1E	DLLSTXTL	KSCYMO09	5/28/82	805@	255@	323@	222@	118	92	140	@	@	@	@	@	@	@							
1T1E	CHCGILCLS60	STLSMO09	7/ 2/82	40	56	8	21	71	101	377@														
WR																								
1T1E	DNVRCOMA	LSANCA01	7/ 1/82	62	29	101	68	107	299@	17						@								

@ = MAINTENANCE ACTION CRITERIA EXCEEDED

***NOTICE: NOT FOR USE OR DISCLOSURE OUTSIDE THE BELL SYSTEM EXCEPT UNDER WRITTEN AGREEMENT.

Fig. 4—Example of Historical Report

----------------WEEKLY PERFORMANCE SUMMARY,WEEK ENDING 4/25/81--

SERVICE INDICATOR

DIGROUP			SU	MO	TU	WE	TH	FR	SA	WEEK
ER	WASHDCSWW20									
1T1E	ATLNGATL	WASHDCSWW20	89.29	95.76	95.44	90.17	90.26	91.35	91.00	91.89
1T1E	DNVRCOMA	WASHDCSWW20	99.78	99.69	99.95	99.78	99.54	99.56	99.48	99.68
NER	BSTNMAFRT50									
1T1E	KSCYMO09	BSTNMAFRT50	99.15	99.52	99.91	99.59	99.00	99.65	99.65	99.52
1T1E	NWHNCT02	BSTNMAFRT50	99.58	99.54	98.82	99.64	99.48	99.49	99.55	99.45
2T1E	NYCMNY54T30	BSTNMAFRT50	80.19	94.29	93.46	90.13	97.75	98.00	97.56	93.06
3T1E	NYCMNY54T30	BSTNMAFRT50	99.42	99.58	99.99	99.52	99.36	99.39	99.52	99.55
NYCR	NYCMNYBWSL1									
1T1E	CHCGILCLS60	NYCMNYBWSL1	99.53	99.92	99.93	100.00	99.78	99.58	99.68	99.77
2T1E	NYCMNY54T30	NYCMNYBWSL1	99.57	99.98	99.95	99.65	99.50	99.42	99.32	99.64
		NETWORK INDICATOR	95.80	98.59	98.41	97.37	98.00	98.33	98.25	97.83

***NOTICE: NOT FOR USE OR DISCLOSURE OUTSIDE THE BELL SYSTEM EXCEPT UNDER WRITTEN AGREEMENT.

Fig. 5—Example of Weekly Performance Summary Report

```
----------PERFORMANCE RANKING FACILITIES BY REGION FOR MONTHLY PERIOD--------3/23/81-4/22/81----------

FACILITY:                                SERVICE INDICTOR              # FAIL

ER
  1T1E  ATLNGATL      WASHDCSWW20              0.00                      23
  1T1E  DNVRCOMA      WASHDCSWW20             99.15                       2
NER
  1T1E  KSCYMO09      BSTNMAFRT50             94.19                       1
  1T1E  NWHNCT02      BSTNMAFRT50             98.99                       1
  2T1E  NYCMNY54T30   BSTNMAFRT50             99.22                       0
  3T1E  NYCMNY54T30   BSTNMAFRT50             99.43                       0
NYCR
  1T1E  CHCGILCLS60   NYCMNYBWSL1             99.37                       0
  2T1E  NYCMNY54T30   NYCMNYBWSL1             99.46                       0
  *** NOTICE: NOT FOR USE OR DISCLOSURE OUTSIDE THE BELL SYSTEM EXCEPT UNDER WRITTEN AGREEMENT.
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Fig. 6—Example of Performance Ranking Facilities by Region for Monthly Period Report

```
----------MONTHLY FACILITY REPORT BY RANK----------FROM WORST TO BEST----------3/23/81-4/22/81----------

   FACILITY:                             REGION   SERVICE INDICATOR  # MONTHS AMONG 10 WORST
   1T1E  ATLNGATL      WASHDCSWW20         ER          94.00                1
   1T1E  KSCYMO09      BSTNMAFRT50         NER         94.16                5
   1T1E  NWHNCT02      BSTNMAFRT50         NER         98.99                1
   1T1E  DNVRCOMA      WASHDCSWW20         ER          99.15                0
   2T1E  NYCMNY54T30   BSTNMAFRT50         NER         99.23                0
   1T1E  CHCGILCLS60   NYCMNYBWSL1         NYCR        99.38                0
   3T1E  NYCMNY54T30   BSTNMAFRT50         NER         99.47                0
   2T1E  NYCMNY54T30   NYCMNYBWSL1         NYCR        99.46                0   TOP TEN ACCOUNT FOR 7.93% TOTAL ES
 59.52% FACILITIES GREATER THAN 99.70% SVCIND
1491T1E  GNVLSCDT      CLMASCTL            SR          93.66
   2T1E  TAMPFLXL      ORLDFLMA            SR          93.91
   3T1E  GNBOMCEU      CHRLNCCA            SR          95.14
   1T1E  BLTMMDCHT10   NYCMNY54T30         NER         95.46

*** NOTICE: NOT FOR USE OR DISCLOSURE OUTSIDE THE BELL SYSTEM EXCEPT UNDER WRTTEN AGREEMENT.
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Fig. 7—Example of Monthly Facility Report by Rank