

**"DIMENSION®" 600/2000/CUSTOM PBX  
BUSINESS SERVICES DESIGN ENGINEERING  
TRAFFIC MEASUREMENTS**

	PAGE		PAGE
1. GENERAL . . . . .	3	A. Header Information . . . . .	10
2. TRAFFIC MEASUREMENT STRUCTURE . . . . .	5	B. System Activity and Feature Usage Peg Counts . . . . .	11
3. TRAFFIC REGISTER TYPES . . . . .	5	C. Network Administration . . . . .	12
A. General . . . . .	5	D. Processor Occupancy . . . . .	13
B. Accumulated Registers . . . . .	5	E. Attendant Position Administration . . . . .	13
C. Peak and Time-Coincident Registers . . . . .	5	F. Retail Measurements . . . . .	14
D. Automatic Route Selection Registers . . . . .	6	G. H/M System Administration . . . . .	14
E. Trunk-Group Busy-Out Map . . . . .	6	H. Trunk Group Maintenance Busy-Out at Poll Time . . . . .	16
F. Ringing-Group Blockage Registers . . . . .	7	I. Trunk Group Combination . . . . .	16
G. Time-Slot Blockage Registers . . . . .	7	J. Main/Satellite Trunk Groups for Satel- lite A Through Satellite D (FP8) . . . . .	16
H. Carrier Usage Registers . . . . .	7	K. Trunk Group Summary . . . . .	16
I. Load-Balance Registers . . . . .	7	L. Trunk Group Combinations Associated Trunk Groups . . . . .	17
J. Automatic Alternate Routing Registers . . . . .	8	M. Automatic Route Selection . . . . .	17
K. Automatic Circuit Assurance Registers . . . . .	8	N. Automatic Alternate Routing . . . . .	17
4. BUFFER DUPLICATION . . . . .	8	O. ACA Audit Trail . . . . .	17
5. TRAFFIC REGISTER ASSIGNMENTS . . . . .	8	P. Line/Trunk Usage Analysis . . . . .	17
A. General . . . . .	8	Q. Load Balance Analysis . . . . .	17
B. Peak and Time-Coincident Register As- signment . . . . .	9		
6. TRAFFIC SUMMARY REPORT—RMATS I . . . . .	9	7. RMATS II . . . . .	19

**NOTICE**

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CONTENTS	PAGE	CONTENTS	PAGE
A. General . . . . .	19	E. RMATS II . . . . .	32
B. Traffic Study Initialization . . . . .	19		
C. Customer Data Base . . . . .	19	<b>Figures</b>	
D. Translation Data Dump . . . . .	19	1. Peak and Time-Coincident Register Assignments . . . . .	34
E. Traffic Register Setup . . . . .	20	2. Traffic Summary Report—FP8 and FP12 Format . . . . .	35
F. Polling . . . . .	21	3. Traffic Summary Report—FP11 Format . . . . .	49
G. Data Storage . . . . .	21	4. Traffic Module—RMATS II, Release 2 . . . . .	55
H. Traffic Summary Report . . . . .	21	5. Translation Report—RMATS II, Release 2 (Sheet 1 of 3) . . . . .	56
I. Traffic Profile Report . . . . .	23	6. Traffic Profile Report—RMATS II, Release 2 Format . . . . .	59
J. Performance Monitoring Study Review Reports . . . . .	23	7. Traffic Summary Report—RMATS II, Release 2 Format . . . . .	60
K. Commands and Capabilities . . . . .	24	8. Performance Monitoring Study Review Report . . . . .	66
<b>8. EVALUATING ENGINEERED COMPONENTS</b>	<b>25</b>	9. Network Usage and Capacity Determination . . . . .	67
A. General . . . . .	25	10. Load Adjustment and Capacity Tables . . . . .	68
B. Network Administration . . . . .	25		
C. Processor Occupancy . . . . .	26	<b>Tables</b>	
D. Attendant Engineering . . . . .	27	A. Register Types and Packet Assignment . . . . .	69
E. Three-way Split . . . . .	29	B. Accumulated Register List . . . . .	70
<b>9. VALIDATION</b>	<b>30</b>	C. System Flags as a Result of Major and Minor Translation Changes—Type of Data and Packets Affected . . . . .	75
A. General . . . . .	30	D. Peak and Time-Coincident Traffic Measurement Items . . . . .	76
B. Traffic Summary Report . . . . .	30	E. Electronic Tandem Network Traffic Registers . . . . .	85
C. Trunk Group Combination . . . . .	31	F. Trunk-Type Encode Messages . . . . .	86
<b>10. THRESHOLDS</b>	<b>32</b>	G. Customer Data Base Information . . . . .	87
A. General . . . . .	32		
B. RMATS I . . . . .	32		
C. Option 1 . . . . .	32		
D. Option 2 . . . . .	32		

CONTENTS	PAGE
H. Default Grade of Service and Threshold . . . . .	94
I. Initial Engineering Facilities Table for DIMENSION PBX . . . . .	95
J. Regenerated Enginerable Facilities Table for DIMENSION PBX . . . . .	95
K. Default Traffic Register Assignments . . . . .	96
L. Traffic Summary Report Options for DIMENSION PBX FP8 . . . . .	99
M. Traffic Profile for DIMENSION PBX . . . . .	99
N. Measurement Thresholds in Carried CCS— Low Day-to-Day Variation of Demand— Based on Retrial Capacity Tables . . . . .	100
O. RMATS I System Thresholds . . . . .	104

## 1. GENERAL

**1.01** This section details the DIMENSION 600/2000/Custom PBX Feature Package (FP) 8, FP11, and FP12, traffic measurements. While these three feature packages differ from a functional viewpoint, their traffic measurements are quite similar. Section 554-111-005 discusses traffic measurements for FP7.

**1.02** This section is reissued to:

- (a) Include Remote Maintenance, Administration, and Traffic System II (RMATS II), Release 2
- (b) Traffic data collection guidelines
- (c) Threshold selections
- (d) Electronic Tandem Network (ETN) traffic register assignments.

**1.03** The traffic measurements program for these systems is compatible with the RMATS I, Issues 2 and 3; RMATS II, Release 1 and Release 2, and provides sufficient traffic data to allow effective administration and engineering of the DIMENSION PBX. This program provides both fixed and flexible (assignable) traffic registers.

**1.04** The RMATS I, Issues 2 and 3, and RMATS II, Release 1 and Release 2, are used to poll, store, summarize, and format DIMENSION PBX traffic data. They can also be used to provide remote maintenance and administration of DIMENSION PBXs.

**1.05** The FP8 and FP12 traffic measurements program is based upon the traffic measurements program for FP7. While analogous in many areas, the FP8 and FP12 programs provide the following significant improvements over that of FP7:

- (a) Additional trunk-group data and traffic data related to the ETN (FP8), retail (FP12), and deluxe queuing features.
- (b) The peak and time-coincident registers have been increased from 150 to 500, and the previous parameter constraints removed (ie, 50 peak, 100 time coincident). These peak and time-coincident registers can be assigned in any combination as long as at least one peak register is assigned.
- (c) The accumulated collection and output buffer area has been expanded to accommodate retail (FP12) and ETN data (FP8).
- (d) Load Balance and Carrier usage data can be collected and polled separately.
- (e) The Automatic Route Selection (ARS) measurement has been expanded to handle three ARS plans (FP8 only), including peg counts and overflow measurements.
- (f) Automatic Alternate Routing (AAR) measurements have been added for FP8.
- (g) Automatic Circuit Assurance (ACA) measurements have been added for FP8.
- (h) The traffic software has been restructured to provide individual polling of traffic packets which are identified in Table A.
- (i) The ringing-group blockage data has been changed so that only nonzero values are transmitted (ie, the first 16 nonzero values).
- (j) Major traffic affecting translation changes are indicated by "X" in the poll in which it occurred.
- (k) The eight traffic measurement types (FP7) for peak and time-coincident registers have been

expanded to include retail (FP12), ETN items (FP8), and a time-coincident time-of-day measurement.

(l) Dual traffic buffers have been provided to eliminate traffic data contention between the Customer Administration Center System (CACS) customer and the Telephone Company.

**1.06** The FP11 traffic program is built from the FP12 program. In addition to the FP12 related measurement capabilities discussed in the preceding paragraphs, the FP11 traffic program (compatible only with RMATS I, Issue 3) provides the following additional traffic measurements:

(a) Peak and time-coincident measurements related to the operation of console/terminals either in the hospitality/management mode or standard attendant mode are added. Measurements include time spent in each mode, key operation peg counts, and both check-in (admit)/checkout (discharge) peg counts and CCS measurements.

(b) Guest (patient) peg counts of unsuccessful call attempts, where controlled restrictions are encountered are provided.

(c) Energy Communications Service (ECS) peak and time-coincident measurements are added including peg counts of tones applied to energy control circuits, number of loads controlled, and usage measurements of energy control administration activities.

(d) Local and Long Distance Call Billing (LB and LDB, respectively) measurements are incorporated including peg counts of feature activations, number of calls billed for each feature, number of local call message units billed, LDB buffer occupancy and unsuccessful LDB message counts (eg, due to printer failure, invalid or vacant room records, and unavailability of LDB buffer when a Property Management System (PMS) message arrived).

(e) Peripheral Interface Circuit (PIC) measurements are incorporated, such as peripheral interface buffer (PIB) occupancy, PIB seizure peg and failure counts, Traffic Service Position System (TSPS) queue peg counts and usage (hundred call seconds [CCS]) information, and PIC alarm counts.

(f) New PMS measurements including peg counts of each PMS feature, PMS error message counts, and blocked printer counts during check-in/checkout (admit/discharge) attempts are added.

(g) Peg and usage counts for printer use of dial pulse originating registers and for printer activity are incorporated.

(h) Data Entry via Telephone (DET), Maid Status, and Emergency Access to Attendant cumulative peg counts derived from the number of times the access code is dialed are included.

(i) Peak or time-coincident peg counts associated with wakeup calls are measured including: automatic calls that were completed, calls that were not completed, calls that received busy and don't answer treatment, total wakeup call attempts, and wakeup messages initiated from the console.

**1.07** The RMATS I, Issue 3, program also provides the following generalized summary report improvement applicable to FPs 8, 11, and 12:

(a) Two system accumulative peg count registers for valid and invalid security code detection.

(b) The summary report header is modified to print the RMATS facility name and unit number at the beginning of the report.

(c) The accumulative feature count sections are modified to suppress printing feature counts with all zero data. Thus, a report can be generated with feature count headings and no features printed.

(d) A new administrative section is added under Processor Administration. This packet contains 38 data values per poll and is labeled **Packet 9 Occupancy Profile**. Packet 9 is activated in FP8 and FP12 with Issue 1.5 of these feature packages.

(e) The summary report is modified to test the packets to be polled as set by PROC 03 within RMATS I. For example, if ARS or AAR were not being polled, then the ARS or AAR sections would not print headers.

(f) The message, "FILE ID xxx SUMMARY REPORT COMPLETE," appears at the end of each RMATS I report.

**1.08** References in this section to methods, planning, data requirements, service levels, and equipment quantities are based on American Telephone and Telegraph Company recommendations.

**1.09** Recommendations for changes to this section should be submitted on Form E-3973 as specified in Section 000-010-015, How To Comment on Bell System Practices.

#### **A. Traffic Data Collection Guidelines**

**1.10** The existing policy regarding DIMENSION PBX data collection and analysis has been modified. This modification basically recommends eliminating routine studies entirely and responds to demand request and threshold exceptions with critical judgment. However, both the Traffic Summary Report and Threshold Exception Report will be discussed in this section.

**1.11** Request for traffic studies should only be generated by Marketing in connection with potential sales activities. If an actual new study is required, the design engineer should determine the amount and type of data required. Customer-initiated requests for studies beyond Bell Operating Company (BOC) requirements and exceeding one study per two years should be billable to the customer.

**1.12** However, additional factors such as post-cutover studies (30 through 90 days after cut or during a known busy season) and requests from maintenance deserve consideration relating to traffic studies.

## **2. TRAFFIC MEASUREMENT STRUCTURE**

**2.01** The traffic measurement program performs data collection and storage functions. Peg counts, usage, and overflow data are recorded and stored in a sectionalized traffic buffer indexed by register type. This data can be output in individual groups, known as "packets". Table A shows the register types and the packet to which each is assigned in FP8, FP11, and FP12.

## **3. TRAFFIC REGISTER TYPES**

### **A. General**

**3.01** The following paragraphs discuss the various types of traffic registrations that are available in FP8, FP11, and FP12.

### **B. Accumulated Registers**

**3.02** The accumulated collection/output buffer stores a fixed set of preassigned feature peg count and administrative data registers. Table B shows a complete list of all accumulated registers giving the names and definitions of the various registers in the buffer.

**3.03** The miscellaneous registers (1 through 20) store administrative data. The first 17 of these are for "system flags," ie, translation changes made in the DIMENSION PBX which could affect traffic data. These are reported as major or minor translation changes.

**3.04** A major translation flag is generated when any of the following occurs:

- Change to any peak or time-coincident assignment
- Change ARS pattern assignment
- Change AAR pattern assignment
- Change carrier usage assignment
- Change load balance trunk assignment.

**3.05** When a major translation occurs in the DIMENSION 600/2000 PBX FP8, FP11, and FP12, Issue 1 and later, the translation change is recorded on a per-packet basis. The RMATS I, Issues 2 and 3, will indicate what poll the change occurred in and will continue to generate the Traffic Summary Report. Minor translation-change flags are generated when trunk-group sizes, line assignments, or queue sizes are altered. The RMATS I, Issues 2 and 3, will print a message indicating that a minor translation change has occurred. The RMATS II printout presents a calendar reflecting minor and major translation changes. Table C shows which packets are affected by each type of change.

**3.06** Accumulated values, which include translation flags, are zeroed after each poll. Therefore, RMATS will see a translation flag only once. A reinitialization request from RMATS will also zero the accumulated values as will a system reload at the DIMENSION 600/2000 PBX.

### **C. Peak and Time-Coincident Registers**

**3.07** Five hundred registers are available in the traffic buffer for assignment as either peak or

time-coincident registers. The types of registers are shown in Table D.

#### Peak Registers

**3.08** Peak registers may be assigned to record peak usage, peg count, and overflow on various traffic items and features. Each hour the DIMENSION 600/2000 PBX Traffic Measurement Program collects data on the traffic items and/or features assigned to peak registers, compares the current hourly value with the stored hourly value, and retains the higher value as the peak. The retained peak value is then used for the next hourly comparison. This data comparison routine is performed each hour (stored hourly value versus current hourly value); thus, the peak hourly value is always retained.

#### Time-Coincident Register

**3.09** These registers may be assigned to record peg count, usage, and overflow on various traffic items and features which are to be measured coincident with a peak registration.

**3.10** Time-coincident (TC) registers always must be associated with peak registers. This association is necessary because the peak register controls data storage on the time-coincident registers. A maximum of 499 time-coincident registers may be assigned to a peak register. These assignments are described in greater detail later in this section.

**3.11** The result of the data comparison routine for the peak register determines whether the stored hourly value or the current hourly value for the time-coincident register is retained. For example, if the peak busy hour for the day is between 9:00 a.m. and 10:00 a.m., the time-coincident data (stored value) reflects the same hour. Time-coincident values always reflect the data for the hour in which the peak occurred.

**3.12** Thirty-six categories of traffic measurement types are provided for peak and time-coincident register assignments. Only the traffic types and items listed in Table D may be studied. Certain registers are unique to specific feature packages as shown on Table D. Any single measurement item can be assigned as both peak and time coincident. Also, any single measurement item can be assigned time coincident to several peaks. The peak measurement is printed first followed by all its associated TC

measurements. The RMATS I printout of the TC measurements is indented by two from the peak measurements. Time-of-day (PBX time) can be assigned TC with any peak measurement. When assigned, it provides time-of-day that the peak occurred. The RMATS II printout clearly identifies the peak and TC measurements.

#### D. Automatic Route Selection Registers

**3.13** A total of 360 registers are provided to record ARS data. These registers represent three ARS plans (FP8 only), six patterns per plan, ten trunk groups per pattern, and two items of data per trunk group (peg count and overflow). The ARS measurements are accumulative type. These measurements are summed by RMATS and represent the total occurrence of all polls in the Traffic Summary Report.

**3.14** Although the basic buffer structure is the same for FP8, FP11, and FP12, only FP8 has Time-of-Day Routing capability. To support this, the ARS pattern specified is measured across each of the three ARS plans. For each pattern in use, there is a set of 20 registers in each of three parallel tables. Data is stored in that table which corresponds to the ARS plan in effect at the time (FP12 can only have one ARS plan).

**3.15** The peg count register associated with a trunk group in the pattern is incremented when a trunk in the group is seized under ARS.

**3.16** The ARS overflow register is provided for FP8, FP11, and FP12. When an overflow occurs, a word in the ARS collection/output buffer is incremented. Overflow to reorder is a measurement of overflows out of an ARS pattern. The overflow to reorder count is incremented for the last pattern position tried. Overflow from one pattern position to another is not included in the above count. In a system equipped with FP8, the ARS plan in effect at the time of the study is transmitted to RMATS immediately before the ARS traffic data.

#### E. Trunk-Group Busy-Out Map

**3.17** The trunk-group busy-out map buffer provides a bit map which corresponds with each of the trunk groups. Each time one or more trunks in a trunk group are made busy for maintenance purposes, the appropriate bit in the trunk-group busy-

out map is set. The trunk-group busy-out map assignments are fixed in the collection buffer.

**3.18** The trunk-group busy-out map represents the accumulation of all trunk groups in which one or more trunks have been busied-out at some time between traffic polls. The maintenance busy CCS is not included in the usage data for the trunk group. The Traffic Summary Report indicates the trunk group and poll in which one or more trunks in a trunk group have been busied-out. If no busied-out trunks are found, the summary report prints "NO MAINTENANCE BUSYOUTS PRESENT".

#### F. Ringing-Group Blockage Registers

**3.19** Unlike the FP7 arrangement which treated ringing-group blockages as a part of the accumulated register data, FP8, FP11, and FP12 provide a separate buffer for this information. The ringing-group blockage collection buffer size is dependent upon the memory size. The number of registers is equal to two times the maximum number of line carriers that the memory can accommodate.

**3.20** By far, the majority of ringing-group blockage data are zeroes. For this reason, only nonzero values are transmitted. A maximum of 16 registers can be transmitted. If more than 16 registers are incremented, only the highest 16 are sent. The data transmitted consist of the number of blockages and the location (ie, module, frame, carrier, half-carrier).

#### G. Time-Slot Blockage Registers

**3.21** A time-slot blockage register is provided per module to record the number of time-slot mismatch blocks between Bus A and Bus B for a given line carrier, trunk carrier, or link half-carrier. This register scores when a call cannot be completed, because the like-numbered time slot on the opposite bus is occupied by a circuit in the same line carrier, trunk carrier, or link half-carrier. A registration indicates that the call was not completed and the station received reorder tone. High registrations necessitate deloading the module with respect to line, trunk, and link half-carriers and/or balancing the system.

**3.22** There is one register for each module, and storage space is allocated for 15 modules.

#### H. Carrier Usage Registers

**3.23** PROC 411 is used to set up line and trunk carrier usage measurements for single and

multimodule systems. Usage is recorded for each line circuit within a specified line carrier and each trunk circuit within a specified trunk carrier. Sixty-four registers (0 through 63) are provided for each line carrier and 32 registers (0 through 31) for each trunk carrier. The maximum number of line and trunk carriers which may be studied is memory size dependent as illustrated below.

Memory Size C	Numbers of Registers
0 Lines + 4 Trunks	128
1 Line + 2 Trunks	128
2 Lines + 0 Trunks	128
<b>Memory Size D and F</b>	
0 Lines + 6 Trunks	192
1 Line + 4 Trunks	192
2 Lines + 2 Trunks	192
3 Lines + 0 Trunks	192.

The number of registers equals the total number of line and/or trunk carriers multiplied by the number of circuits for each line or trunk carrier type. As an example, 4 trunk carriers times 32 trunk circuits equals 128 registers.

**3.24** Unlike FP7, the carrier usage data and the load balance data have separate buffers in FP8, FP11, and FP12. For this reason, carrier usage data and load balance data may be studied simultaneously. A further improvement in the traffic study program allows for load balance values up to 36 CCS per circuit to be transmitted in FP8, FP11, and FP12 as opposed to a maximum of 31 CCS per circuit in FP7.

#### I. Load-Balance Registers

**3.25** The load-balance measurement may be used only with multimodule systems. Eight registers (0 through 7) are provided per module and per link group to record total usage, line-to-line usage, line-to-trunk usage, trunk-to-line usage, and trunk-to-trunk usage.

**3.26** The load-balance traffic study is made active or inactive by PROC 411. The format is fixed

in terms of the items measured and the type of data recorded. Only the trunk groups are translatable. Two trunk groups may be translated for a given load balance study. The trunk groups are shown as TG1 = trunk group 1 and TG2 = trunk group 2 in the Load Balance section of the Traffic Summary Report. The trunk groups translated are identified at the beginning of the Load Balance Analysis of the Traffic Summary Report.

**3.27** When two trunk groups are translated, the traffic report reflects the line-to-trunk, trunk-to-line, and trunk-to-trunk traffic for the two trunk groups specified. Any trunk-to-trunk or trunk-to-line traffic within the modules, or between modules for the remaining trunks in the system, is not captured. If only one trunk group is translated, that trunk group is defined as TG1 on the traffic report and all other trunks in the system are defined as TG2.

#### **J. Automatic Alternate Routing Registers**

**3.28** The FP8 provides the Automatic Alternate Routing (AAR) feature. The buffer structure for AAR registers is somewhat similar to that provided for ARS. The AAR measurements are accumulative type and represent the total occurrence of all polls in the Traffic Summary Report.

**3.29** The AAR feature provides up to 180 route lists (patterns) with a maximum of four trunk groups per pattern. As many as 24 patterns can be studied simultaneously. Registers are provided to record carried peg count and overflows to reorder tone. Overflow to reorder tone is a measurement of overflows out of an AAR pattern. The overflow to reorder count is incremented for the last pattern tried.

**3.30** The translation for storing the AAR patterns under study is set up differently from ARS due to the larger number of patterns involved. The AAR pattern numbers (1 through 180) are used as an index to the table. The AAR buffer collects peg count and overflow registrations for each trunk group in an AAR pattern.

#### **K. Automatic Circuit Assurance Registers**

**3.31** The ACA feature registers list the most recent 32 trunks identified with a very short or very long holding time. This record is updated in a round-robin fashion and is not zeroed after each poll.

**3.32** The RMATS receives a snapshot of current values. All 32 of the records are stored and

transmitted. Each record contains the following information:

- (a) Trunk identification
- (b) Short or long call failure
- (c) Time of day
- (d) Has attendant tested the trunk using Trunk Verification by Customer (TVC)? "Yes/No".

**3.33** Two additional registers (bringing the total to 130 registers) are provided to record the following data: (a) number of Trunk Verification by customer (TVC) calls made by the attendant and (b) number of ACA referrals to the attendant. Unlike the other 128 registers, these two registers are zeroed after each poll.

#### **4. BUFFER DUPLICATION**

**4.01** The FP8, FP11, and FP12 traffic buffers are duplicated for customer and telephone company use. The traffic study configuration for the customer's buffer can be administered by the telephone company, or the customer (via Customer Administration Panel ([CAP] or CACS). When the DIMENSION PBX is polled, the proper traffic buffer is used. If CACS is used to obtain traffic data, the registers are not zeroed automatically but can be reset automatically. The telephone company buffer can be administered independently of the customer buffer and polled for traffic data via RMATS.

**4.02** All buffers are duplicated for customer access with the exception of the ACA buffer and the processor occupancy profile buffer. Only a small portion of the ACA buffer is duplicated for customer access specifically, the number of TVC calls by the attendant and the number of ACA referrals to the attendant. This is the reason the 128 ACA registers are not zeroed after the poll. The processor occupancy profile is not available to the customer.

#### **5. TRAFFIC REGISTER ASSIGNMENTS**

##### **A. General**

**5.01** The types of traffic data assignable to peak and time-coincident registers are detailed in Table D. Information concerning peak and time-coincident registers is discussed in paragraphs 3.07

through 3.12. Each item to be studied must be assigned to a peak or time-coincident register by way of translation procedures. Traffic register assignments may be made via the questionnaire (Form 8124) at the time that the DIMENSION 600/2000/Custom PBX is ordered. For proper administration of Electronic Tandem Networks, certain traffic register assignments are required both for the initial ordering and redesign using Enhanced Network Administration System (ENADS). Table E lists the registers required in the customer's traffic measurement buffer for ETN.

### B. Peak and Time-Coincident Register Assignments

**5.02** Figure 1 illustrates a three-way split and how, with the minimum number of traffic register assignments, the three-way split can be maintained to meet the customer's requested grade of service. In the three-way split arrangement, the 1-way incoming and the 1-way outgoing trunk groups overflow to the 2-way trunk group. All data is time coincident with the peak register assigned in the trunk combination arrangement. A trunk group combination consists of two or more trunk groups which have a community of interest (ie, trunk groups which route advance).

**5.03** COMBO CCS (type 1, item 1) is assigned as the peak register. Time-coincident with the peak register are CO1WO CCS (type 5), CO1WO PEG (type 6), and CO1WO OVL (type 7) which are associated with trunk group 18. Also time coincident with the peak register are the registers assigned to trunk groups 19 and 20. These registers are CO2W CCS (type 5), CO2W CCSI (type 8), and CO2W INPG (type 9) for trunk group 19; and CO1WI CCS (type 5) and CO1WI PEG (type 6) for trunk group 20. The final assignment time coincident with the peak register is the time of day (type 2, item 1). A "quick-look" engineering determination and register assignment validation of this arrangement can be found in Parts 8 and 9, respectively.

## 6. TRAFFIC SUMMARY REPORT—RMATS I

**6.01** This section details the format of the RMATS I, Issue 2 or Issue 3, Traffic Summary Report for DIMENSION 600/2000 PBX FP8, FP11, and FP12. This report summarizes the most recent or the last 8 hours or 5 days of data stored. If the data stored is less than 8 hours or 5 days, the summary reflects the total number of hours/days of data stored.

**6.02** The Traffic Summary Report summarizes, averages, and prints eight columns of polled

data. If there is no data for a measurement (trunks, feature, trunk group, etc) during the poll, a zero is printed for that measurement. Effective with RMATS I, Issue 3, the summary report accumulated feature counts section is modified to suppress printing of all feature counts with all zero data. Thus, it is possible to generate a report with feature count headings and no features printed.

**6.03** The accumulated feature peg counts are no longer computed for the entire polling period (ie, study period). After each poll, the accumulated value item is collected and the accumulation buffer is initialized to zero in preparation for the next collection interval. The data is printed to reflect daily accumulation for a given polling period (ie, 24 hours) or 1 hour of accumulated data for hourly studies.

**6.04** The translation change message prints in the report header and indicates whether the change was major or minor (refer to paragraphs 3.03 through 3.06 and Table C). The RMATS I Central Facility should be reinitialized so the system configuration information is updated. This ensures that the study results include the correct number of traffic facilities.

**6.05** The PBX reload message also prints on the summary report. When reload occurs, the traffic clock offset minutes should be displayed to ensure the offset time is still accurate.

**6.06** Processor "overflow" peg count is labeled **LD IND B** (processor load indicator B), and processor "overload" peg count is labeled **PROC LOAD IND A** (processor load indicator A).

**6.07** A trunk-group maintenance busy-out map list is provided and precedes the trunk-group summary section of the report. This list indicates what trunk groups have maintenance-busied facilities during a given poll.

**6.08** A Trunk-Group Combination section is provided and lists the trunk groups assigned in each trunk-group combination under COMBO 1, COMBO 2, and COMBO 3.

**6.09** The Traffic Summary Report is produced by an RMATS using data collected at the PBX. The traffic information is formatted, summarized, and averaged as Fig. 2 (FP8 and FP12 format) or Fig. 3 (FP11 format) indicates. The beginning of each

page of the Traffic Summary Report contains the page number, date, and time the report was requested by RMATS, and the title TRAFFIC SUMMARY REPORT. The reason for the report, GENERATED BY REQUEST, appears on the first page only. The Traffic Summary Report begins with the header information.

#### A. Header Information

6.10 The following is the header information:

- (a) **RMATS FACILITY:** The facility name and unit number (RMATS I, Issue 3, Fig. 3).
- (b) **PBX ID:** Assigned by the RMATS/CACS to identify each PBX.
- (c) **COMPANY NAME:** Can be up to 26-character company name entered on the DIMENSION PBX tape by the Western Electric Company. On the same line and to the right of the company name is the PBX Serial Number (usually the serial number of module zero, cabinet zero).
- (d) **SYSTEM CONFIGURATION:** Includes a 10-digit encoding which indicates the type of PBX, feature package, memory configuration, and feature package tape issue (ie, 5E 008-041.0 is a DIMENSION 600/2000 PBX, FP8, with a "D" memory configuration, and the 1.0 tape issue of FP8).
  - Digits 1 and 2—1E—DIMENSION 400 PBX - 5E—DIMENSION 600/2000 PBX
  - Digits 3, 4, and 5—001—feature packages 1 through 012—FP12
  - Digits 6 and 7—02 through 06 corresponding to memory configurations B through F.
  - RMATS I, Issue 3, summary report system configuration section is modified for FP11 data to print the quantity of energy control loads, room and individual. This section is also modified to print a list of Hospitality/Management (H/M) features with PMS or FP11 active items indicated by "X" (Fig. 3).
  - Character digits 8, 9, and 10—feature package tape issue. Character digit 8 is used to designate a feature package tape issue still

under Bell Telephone Laboratories (BTL)-controlled introduction (L).

**DAYS (HOURS) STUDIED** is the number of days or hours represented by the summary report. Traffic can be set up for hourly polling or daily polling. This field indicates which has been set up and how many hours or days are contained in the study. Figure 2 shows the daily polling format where the report analyzes only the most recent five polls (days) of data with zero data printed for the last three columns. When the PBX is hourly polling, the report analyzes the most recent eight polls of data. Following the **DAYS (HOURS) STUDIED** is a breakdown of installed equipment items. These include number of station lines, Electronic Custom Telephone Service (ECTS) lines, ECTS stations, attendant positions, network modules, line carriers, and trunk carriers. No data indicates the equipment/feature is not installed.

- (e) **POLLING SCHEDULE:** An "X" indicates the days on which polling is in effect.
- (f) **POLL (numbered 1 through 8):** Formats the eight columns of the most recent data and an average column (AVG or average bouncing busy hour [ABBH]) of those columns polled.
- (g) **TRANSLATION CHANGE (MAJOR/MINOR):** When a translation change occurs, an "X" is indicated under the poll number and MAJOR or MINOR is printed to indicate the change. (Refer to Table C.)
- (h) **POLLING INTERVAL (HRS):** Polling interval hours represent the number of hours since the last poll.
- (i) **TRAFFIC UPDATE:** Last time hourly work was done (the time peak values are moved from the collection buffers to the output buffer). This time is PBX system clock time.
- (j) **POLL TIME PBX:** Time of poll as reflected by the PBX system clock. Difference between the PBX time and the RMATS time reflects time-zone difference and synchronization differences in the two clocks.
- (k) **POLL TIME RMATS:** Time of poll as reflected by RMATS system clock.
- (l) **DATE:** Reflects the date that poll occurred. On the next line, centered between polls 3 and

6, **DATE OF LAST POLL** is printed. This is the last date the RMATS polled the PBX, whether it is an hourly or daily study.

#### B. System Activity and Feature Usage Peg Counts

6.11 These measurements are accumulative measurements and are an indicator of the use of the feature and are not to be used for engineering purposes. Collection occurs from poll to poll, and the measurement counts accumulate between polls and are zeroed at poll time. The register (REG) number referenced after each register item in the following discussion is the preassigned accumulated register value shown in Table B. Some measurements discussed do not appear on the sample printout of the Traffic Summary Report (Fig. 2 and Fig. 3).

(a) **STATION FEATURE COUNTS:** The count indicated in the Traffic Summary Report is the number of times the corresponding feature access code was dialed, not necessarily the number of times the feature was properly activated. The Code Calling and Paging features are accessed somewhat differently (ie, Code Calling and Paging features are accessed by dialing the associated trunk dial access code). Therefore, the peg count for these two station features is incremented each time their associated trunk dial access code is dialed. Registers 30 through 42 are associated with the station features (Table B).

(b) **SYSTEM FEATURE COUNTS:** The traffic measurements described in this section are also accumulative-type measurements (the polling agrees with the collection interval). The measurement counts accumulate between polls and are zeroed at poll time. The following is a description of each of the system measurements:

- **PROC LOAD IND A:** DIMENSION PBX maintenance routines are given the opportunity to run when all call processing work is completed. If a maintenance routine has not been run for 450 ms (DIMENSION 600/2000 PBX), then the maintenance routine is forced into operation. Each time this occurs, the processor overload count is incremented. Small overload counts may begin to appear at processor occupancies as low as 40 percent. The overload counts will increase to around 1600 through 1800 counts at 75 percent processor occupancy (REG 21).
- **TAAS CALL:** Trunk Answer From Any Station is incremented each time the TAAS

access code is dialed by a station user (REG 25).

- **TAAS CALL ABANDON:** When TAAS is active, TAAS abandon is incremented each time an incoming trunk call abandons before being answered. All calls are routed through the incoming call queue; therefore, **INCQ ABANDON** is also incremented (REG 26).
  - **REM ACCESS RT CD:** This count is the number of times a remote access trunk user dialed the proper barrier code (REG 27).
  - **REM ACCESS WG CD:** This count is the number of times a remote access trunk user dialed an invalid barrier code (REG 28).
  - **SMDR BLOCKAGE:** This is the count of blockages trying to access a Station Message Detail Recording (SMDR) record. For outgoing calls, this blockage represents a blocked call (REG 29).
  - **CALL WT ORIG:** This is the count of "camp-on" to a busy station. This measurement includes all sources of "camp-on" (ie, station, attendant, direct inward dialing [DID] trunk). This measurement appeared as part of the attendant feature measurements prior to RMATS, Issue 2 (REG 46).
  - **VALID SEC CODE:** This is an accumulative-type register of legal remote access to the DIMENSION PBX. This is an aid in the security of RMATS-equipped DIMENSION PBXs (REG 98) (Refer to Fig. 3.)
  - **INVALID SEC CODE:** This is a peg count of illegal remote access attempts (REG 99) (Refer to Fig. 3.)
- (c) **ATTENDANT FEATURE COUNTS:** The following measurements are listed as attendant feature measurements on the Traffic Summary Report. These measurements are accumulative-type measurements. The following is a description of each of the attendant feature measurements:
- **ACTIVATE ACOT:** Attendant Control of Trunk Group Access is incremented by one each time the attendant dials the feature

code to activate attendant control of a trunk group (REG 43).

- **DEACT ACOT:** Attendant Control of Trunk Group Access is incremented by one each time the attendant dials the feature code to deactivate attendant control of a trunk group (REG 44).
- **CONF CALL:** This measurement is incremented by one each time an attendant depresses the conference (CONF) key and establishes a conference call (REG 45).
- **CALLS ORIGINATED:** This measurement is incremented each time the attendant uses the START key to originate a call (REG 47).

(d) **ECTS FEATURE MEASUREMENTS:**

These counts are analogous to the station feature counts and are incremented each time the associated feature key is depressed at an ECTS station (REG 48 through REG 54).

(e) **MAIN/SAT FEATURE COUNTS INVALID AUTH CODE DIALED:**

These accumulative counts for FP8 only represent invalid use of authorization codes from a station, tie trunk, attendant, and a remote access user (REG 56 through REG 59).

(f) **H/M ACCUMULATED FEATURE COUNTS:**

The H/M accumulated feature count measurements are compatible with RMATS I, Issue 3, FP11 (Fig. 3). These counts include emergency access to the attendant console, housekeeping, local and long distance billing, line restrictions (guest/patient dialing), and PMS message counts. The feature counts are defined in Table B (REG 60 through REG 97).

(g) **NETWORK COMPLETION ACCUMULATED COUNT:**

Network completion measurements are indicators of the performance of the PBX in completing incoming calls from the message network. The following is a description of the network completion measurements:

- **DID TO BUSY STA:** This count is incremented by one each time an incoming DID trunk call is directed to a busy station (REG 22).
- **DID UNANSWERED:** This count is incremented by one each time an incoming DID

trunk call abandons before being answered (REG 23).

- **IN CALLS ABANDON:** All calls directed to the attendant pass through the incoming call queue. This count is incremented by one each time an incoming trunk call abandons while in the incoming call queue (REG 24).
- **RNG BLK-MOD, CAB, CR:** Ringing group blockage is an accumulative count and is recorded by equipment location (ie, module, frame, carrier, half-carrier) with 0, 1 indicating lower- or upper-half-carrier. Blockage occurs when more than four lines on a single half-carrier require ringing simultaneously.
- **TS MSMTCH BLK MOD #(1-15):** Time-slot blockage is an accumulative-type measurement which records the number of times a call cannot be completed because the like-numbered time slot on the opposite bus is occupied (line, trunk, or link half-carriers). High registrations indicate load balancing is required. There is one register for a module with a maximum for 15 modules.
- **CAS ABDN:** This count is incremented by one each time a call abandons from the centralized attendant service (CAS) queue before being serviced (before a release link trunk (RLT) becomes available).

C. Network Administration

6.12 If any of the following traffic items are assigned as a peak measurement, the peak and the associated TC measurement will appear in the Network Administration portion of the summary report:

- **TIMESLOT CCS:** The time-slot CCS is the total PBX time-slot usage and not just network CCS. In addition to the network CCS measurements, time-slot CCS includes double-switched traffic (two or more time slots per call) and maintenance test.

**Note:** Network CCS = time-slot CCS - link traffic group CCS - number of modules × 108 CCS.

- **TIMESLOT PEG:** The number of times a time slot was selected. This is not the number of busy-hour calls.

- **TNDM TRF:** The usage measurement for all trunk-to-trunk calls through the PBX.

#### D. Processor Occupancy

6.13 If any of the following traffic items are assigned as a peak measurement, the peak and the associated TC measurement will appear in the Processor Occupancy portion of the summary report:

- **OCCUPANCY PCT:** This is the percent of time spent doing call processing work. Audit or maintenance activity, CACS, RMATS, and traffic polling are not included.
- **LD IND B  $\times$  100 PEG:** All DIMENSION PBX activities are scheduled over a fixed interval of time (10 ms for DIMENSION 2000 PBX and 25 ms for DIMENSION 400 PBX). Call processing work is scheduled to occur at the beginning of each interval of time. If all call processing work is completed before the time interval is up, then maintenance-type work is allowed to execute. The overflow measurement is the number of times that call processing used all of the time in an interval. A healthy system with occupancies below 30 percent may show overflow counts. As the PBX occupancy increases, the overflow counts increase. Systems with overflow counts of 50 percent or less should not result in any service degradation. To find percent of overflow, divide 360,000 into the summary report measurement.
- **CALL PRC  $\times$  100 PEG:** This is the number of times the call processor recognized a stimulus (ie, digit done, time-out, sequence done, etc). The count appearing on the Traffic Summary Report (CALL PRC  $\times$  100 PEG) is actually the true measurement divided by 100 due to space limitation. At high occupancies (60 percent and above), this count tends to average approximately ten stimuli per busy-hour call. Approximate calls in the system may be estimated by multiplying the processor pegs by 100, and dividing by an average of ten stimuli per call.
- **DT REQST/DT DELAY:** Dial tone request records the number of sampled station-originated requests for dial tone (every 16 requests are sampled). Dial tone delays re-

cord the number of requests that are delayed greater than 3 seconds. By dividing the dial tone delays by the dial tone requests times 100, the percent delayed greater than 3 seconds is determined. When the percent delayed greater than 3 seconds exceeds 1.5 percent, this is an indication more originating registers are required or time slots are overloaded. At very high processor occupancy levels (in excess of 75 percent), the dial tone delay measurement may not be accurate since the measurement routine may not get control often enough to properly measure dial tone delays.

- **ECTS STM  $\times$  100 PEG:** This measurement is the count of ECTS stimuli measured.
- **PACKET 9 OCCUPANCY PROFILE:** This packet contains 38 data values per poll. The first element (Processor Occupancy Profile Data) is the average hourly occupancy for the peak hour since the last poll. Data elements 2 through 37 are the average occupancy for each consecutive 100-second slice of the hour. The final element is a time stamp identical to type 2, item 1 register. The packet 9 data prints only if a peak register type 3, items 3 through 9, is assigned for study. This is effective with RMATS I, Issue, 3. (Fig. 3).

#### E. Attendant Position Administration

6.14 If any of the following are assigned as a peak measurement, the peak and the associated TC measurements will appear in the attendant measurement portion of the summary report. With these measurements, it is possible to determine speed of answer, work time, attendant-handled calls, attendant busy time, and attendant busy hour (TIME, assigned time coincident to WRKD GRP CCS on Fig. 2).

- **WRKD GRP CCS:** This represents the time spent on a switched loop. Attendant activity not requiring a switched loop is not measured.
- **ACTV GRP CCS:** Activity group CCS is the total manned (attended) time for all attendant positions. This is a measurement of attendant positions with the headsets plugged in. Position busy is not measured by traffic programs.
- **WRKD GRP PEG:** This represents the number of attendant-handled calls. In gener-

al, it is the count of loop activations. This measurement is summed over all attendants.

- **WK CNS PEG and CCS:** These are per-console measurements equivalent to the worked-group counts.
- **ACTV CNS CCS:** This is a per-console measurement equivalent to the activity-group time.
- **INCALL "Q" CCS:** This is the total time spent by calls waiting in the incoming call queue. (All attendant-seeking calls pass through the queue.)
- **INCALL "Q" PEG:** This is the count of calls directed toward the attendant (placed in the **INCALL Q**). (All attendant-seeking calls pass through the queue.)
- **INCALL ABNDN PEG:** This is the trunk calls which abandon the incoming call queue before being served. Station dial "0" abandons are not included in this count.

**Note:** For FP8, FP11, and FP12, it is possible to assign a time-of-day time-coincident register to each peak register assigned. With this new tool, it is possible to determine the time of day that the attendant busy hour occurred.

- **LDN CALL ANS PEG:** This is the number of incoming central office (CO) and DID trunk calls answered by the attendant.
- **NON LDN ANS PEG:** This is the sum of all other (non-CO and DID) trunk-answered calls by the attendant.
- **ATND RECALL PEG:** Attendant recall is the count of recalls answered by the attendant.
- **ATND ORIG PEG:** This is the number of attendant-originated calls using the START key. The direct station selection (DSS) and direct trunk group selection (DTGS) key calls are not included in this count.

#### F. Retail Measurements

- 6.15 The CAS feature eliminates or minimizes the need for attendant service at branch locations.

Therefore with CAS, the **main** provides all or most attendant service. Calls that come into a **branch** or originate at the branch are passed to the main attendant across RLTs. All calls destined for the attendant at the main pass through the CAS queue at the branch. Calls wait in the CAS queue until an idle RLT to the main is made available.

- **CAS CCS:** This is the total wait time for all calls that wait in the CAS queue waiting for an RLT. This measurement is only applicable to branch locations.
- **CAS PEG:** This is a count of calls directed toward the CAS attendant from the branch. This measurement is only applicable to branch locations.
- **CAS ABNDN:** This is a count of all calls that abandon the CAS queue before being served (ie, before an RLT becomes available). This measurement is only applicable to branch locations.
- **RLT-ATND:** This is a measurement of calls received over an RLT and answered by an attendant (ie, a count of attendant-answered branch traffic). This measurement is only applicable to the main location.
- **UCD PEG:** This is a measurement of the time spent at or above threshold level for the queue. The traffic count is pegged once every 2 seconds as long as the queue is at or above its assigned threshold level.

#### G. H/M System Administration

6.16 The following traffic measurements have been added for Hospitality/Management FP11 and may be assigned and administered as either peak or time-coincident registers.

- **PRINTER OR CCS:** Total printer usage of dial pulse originating registers.
- **PRINTER OR PEG:** Total printer peg count of dial pulse originating registers.
- **ATND CNS H/M CCS:** The usage measurement of the total time the attendant console (type 1) spent in the H/M mode.
- **ATND CNS H/M PEG:** The peg count measurement of all H/M key operations on the attendant console (type 1).

- **STA CNS H/M CCS:** The total time the station console (type 2) spent in the H/M mode.
- **STA CNS H/M PEG:** The peg count measurement of all H/M key operations on the station console (type 2).
- **ATND CNS CHK CCS:** The usage measurement of the attendant console in the check-in (admit) and checkout (discharge) mode.
- **ATND CNS CHK PEG:** The peg count measurement of the number of attendant console check-in (admit) and checkout (discharge) activations.
- **STA CNS CHK CCS:** The usage measurement of the station console in the check-in (admit) and checkout (discharge) mode.
- **STA CNS CHK PEG:** The peg count measurement of the number of station console check-in (admit) and checkout (discharge) activations.
- **TOTL CNS BTN PEG:** The total peg count of button activation on the attendant console.
- **H/M PRTR CCS:** The usage measurement of printer activity on a per-printer basis.
- **H/M PRTR PEG:** The peg count measurement of printer activity on a per-printer basis.
- **SML/MED/LGE BFR PCT BSY:** The peak percent of buffer slots in use for each size buffer (16, 32, 80). The DIMENSION PBX provides the maximum slots in use and the total buffers available. The percent is calculated by RMATS.
- **SML/MED/LGE BFR SEIZE PEG:** The peg count measurement of the PIC buffer seizures for each buffer size.
- **SML/MED/LGE BFR FAIL PEG:** The peg count measurement of PIB seizure failures for each size buffer. Only first attempt failures are counted.
- **PMS SEND/REC DLY CCS:** The usage measurement provides average message delay of PMS queue activity. Two measurements are taken—one for PMS SEND and one for PMS REC.
- **EC SEND DLY CCS:** The usage measurement of energy control message (congestion) delay.
- **LDB REC DLY CCS:** The usage measurement of TSPS messages in the queue.
- **PMS SEND REC PEG:** The peg count measurement of all PMS queue activity. Two counts are maintained—one for PMS send and one for PMS receive.
- **EC SEND PEG:** The peg count measurement for Energy Communications (EC) administration. The measurement is used in the real-time equation to measure the EC effect on real-time processor occupancy.
- **LDB REC PEG:** The peg count measurement of TSPS messages received.
- **RMECF CNTRL PEG:** The peg count measurement of the number of times a tone is applied to a questroom energy control circuit.
- **IND ECF CNTRL PEG:** The peg count measurement of the number of times a tone is applied to an energy control circuit for individual load lines.
- **IND ECF BLKD PEG:** This measurement provides peg count data on the number of tone blockages that occur on nonguest-shared lines. High blockages indicate a need for more dedicated lines or a problem in the EC load control hardware/software.
- **WAKE UP DLYD PEG:** This peg count measurement provides peak capacity counts for calls blocked during a given 5-minute cycle for the Wakeup feature. High peg counts indicate an excessive number of calls for a given 5-minute cycle or insufficient facilities.
- **WAKE UP CMPLT 5 PEG:** The peg count measurement provides peak capacity measurements for completed calls during a given 5-minute cycle for the Wakeup feature.
- **WAKE UP BY/DA PEG:** The peg count measurement provides a count of the retries due to don't answers and busies.

- **WAKE UP ATTEMPTS PEG:** This peg count measurement provides the total attempts for the hour interval of the Wakeup feature. Time-slot blockage, ringing group blockage, or insufficient intercoms could cause high peg counts, since wake-up will continually retry the call.

#### H. Trunk Group Maintenance Busy-Out at Poll Time

6.17 This new section of the Traffic Summary Report lists trunk group(s) which have maintenance-busied facilities during a given poll. This section represents the accumulation of all trunk groups in which one or more trunks have been busied out at some time between traffic polls. Maintenance busy CCS is not included in the usage data for the trunk group.

#### I. Trunk Group Combination

6.18 This section lists the trunk groups assigned in each trunk-group combination.

#### J. Main/Satellite Trunk Groups for Satellite A Through Satellite D (FP8)

6.19 This section of the Traffic Summary Report lists all the trunk-group numbers which access the satellite from the main. Alpha characters A through D (Fig. 2) correspond to numbers 1 through 4 used in Procedure (PROC) 455.

#### K. Trunk Group Summary

6.20 With these measurements, it is possible to determine average call hold time, carried CCS, offered and carried peg, and trunk-group blockage. The trunk-type encodes are defined in Table F. If any of the following are assigned as a peak measurement, the peak and the associated TC measurements will appear in the trunk group summary portion of the summary report:

- **TRK GRP CCS:** This is the carried load for a trunk group and includes setup time and restore time for a trunk.
- **TRK GRP PEG:** The number of carried calls (trunk seizures) for the trunk group.
- **TRK GRP OVL:** This is the number of blockages (overflows) or delayed calls. With-

out queuing, this is the number of blocked calls. With queuing, this is the number of calls that were offered to queue (delayed). Without queuing, trunk group overflow plus trunk group peg represents the trunk group offered peg count. With queuing, the offered peg count is calculated by the sum of the trunk group peg plus queue abandon and queue overflow. Trunk group overflow can only occur on outgoing trunks.

- **TRK GRP CCSI:** Incoming CCS for a 2-way trunk group.
- **TRK GRP INPG:** Incoming call count for a 2-way trunk group (FP8, Issue 1 only).
- **Q CCS:** This is a measurement of the total time spent in queue for all calls in the associated trunk group.
- **Q PEG:** This is a measurement of the number of calls placed in queue.
- **Q OVL:** This is the count of the number of times an attempt was made to place a call in queue but the queue was full (blocked call).
- **Q ABDN:** This is the count of the number of times a call abandons from queue without getting service (blocked call). Off-hook queues are counted as abandoned either by going on-hook before time-out or by timing out without being served. Ringback queues are abandoned by failure to answer two callbacks separated by 3 minutes, by being busy on two attempts separated by 3 minutes, or by calling-in to remove the call from queue.
- **IN QUE TIMEOUT:** This is a count of the number of calls that remained in queue greater than "t" seconds.

6.21 Trunk-group usage can be studied for trunk groups 8 through 99. If trunk groups 8 through 11 are studied, they should be studied as a queue group and not a physical trunk group. Trunk groups 12 through 14 are automatic number identification (ANI) queues and are rarely measured. If the ANI queues are studied, they should also be studied as queues. Trunk groups 15, 16, and 17 are the intercom trunks, dial pulse registers, and TOUCH-TONE® di-

aling registers. All other trunk groups (18 through 99) can be assigned as desired, and one queue group is available for each trunk group. There is no limit on the number of queue groups that can be measured.

#### L. Trunk Group Combinations Associated Trunk Groups

**6.22** Up to six trunk groups can be combined for each trunk-group combination, and three trunk-group combinations can be defined. A trunk-group combination consists of two or more trunk groups which have a community of interest (ie, trunk groups which route advance). Trunk-group combination measurements are hourly peak or time-coincident measurements. For each trunk-group combination, the incoming CCS, outgoing CCS, and total CCS for all trunks in the trunk-group combination may be measured. Many times, route advance groups are combined into trunk-group combinations to get the total load for a route advance group.

#### M. Automatic Route Selection

**6.23** With ARS measurements, it is possible to study pattern usage. The ARS measurements are accumulative type (ie, collection occurs from poll to poll). These measurements are summed by RMATS and represent the total occurrence of all polls in the Traffic Summary Report. In the DIMENSION 600/2000 PBX, there is a maximum of 3 ARS plans with up to 64 ARS patterns, and each pattern contains up to 10 trunk groups. Of these, six ARS patterns can be studied at one time, and these six patterns are measured across each of the three ARS plans. The ARS plan that is in effect is indicated under each poll. Figure 2 shows plan 1 is in effect with the six patterns being studied listed as ROUTE 2, 3, 4, 6, 7, and 8. The ten trunk groups per pattern are shown as PREFERENCE 1 through 10. The following two registers are associated with the ARS Accumulated peg counts:

- **PEG:** This is an indication of the carried call volume for each preference within the studied ARS pattern. These counts are generally higher than their corresponding trunk-group peg counts in the Trunk Group Summary section since the ARS PEGs are summed over all polls.
- **OVFL:** Overflow-to-reorder tone is a measurement of overflows out of the ARS pattern. Overflow can occur in two ways: to reorder tone and to queue.

**6.24** Overflow to reorder tone is a new ARS measurement for FP8, Issue 1. Overflow to reorder tone is a measurement of overflows out of an ARS pattern. If a call using an ARS pattern is routed to reorder tone or is put on queue because there are no trunk groups available to the call, the overflow reorder count is incremented for the last pattern position tried. If a call has insufficient Facility Restriction Levels (FRL) to try any entry in the pattern, then the count is not incremented. Overflow from one pattern position to another is not included in the above count. This measurement is intended to aid in the engineering of FRLs. An installation may have sufficient trunks but may not have sufficiently high FRLs assigned to its users, resulting in high overflow counts (delayed and blocked calls) and underutilization of trunk facilities.

#### N. Automatic Alternate Routing

**6.25** The AAR is analogous to ARS with AAR involving on-net routing and ARS involving off-net routing. The AAR has up to 180 route lists (patterns) with each containing up to 4 entries (trunk groups). Up to 24 AAR patterns can be studied at one time. The AAR also has two traffic measurements (carried peg and overflow-reorder) and are incremented in the same manner as ARS.

#### O. ACA Audit Trail

**6.26** The ACA feature identifies the trunks with very short or very long holding times. This record lists the poll, date, time, trunk access code, trunk index, if the attendant tested the trunk (yes or no), and short or long call failure (REFERRAL). Thirty-two records are stored, transmitted, and updated in a round-robin fashion after each poll.

#### P. Line/Trunk Usage Analysis

**6.27** Carrier usage is an hourly measurement such that only the last hour's data is available at poll time. Carrier usage can be studied for up to six trunk carrier or three line carriers. Each individual line or trunk in the carrier is measured in CCS. Carrier usage measurements provide a means for the telephone company engineer to balance traffic across line or trunk carriers within a module.

#### Q. Load Balance Analysis

**6.28** Load balance measurements are hourly peak-type measurements. Load balance measure-

ments provide the design engineer with the volume of intramodule and intermodule (link group) traffic. Since link traffic requires more PBX facilities and results in a relatively greater PBX load, it is desirable to minimize the link traffic in a system. Time-slot blockages and ringing-group blockages are generally an indication of a system needing some balancing. Load balance measurements can also be used in determining network traffic volume. One, two, or no trunk groups can be studied with load balance measurements. If one trunk group is being studied, then trunk group 2 becomes the summation of all other trunk group traffic. If no trunk groups are assigned for study, then trunk group 2 represents all trunk-group traffic.

(a) **INTRAMODULE MEASUREMENTS:**

Time-slot CCS is the peak hour of total module time-slot usage. All intramodule measurements are time coincident with this peak CCS measurement. The intramodule measurements include the following:

- **TIMESLOT CCS:** Peak hour time-slot usage for the module.
- **INTERCOM CCS:** An hourly time-coincident usage measurement of all the line-line traffic within the module.
- **LINE-TG1 CCS:** The hourly time-coincident usage of all the line-trunk group 1 traffic within the module.
- **LINE-TG2 CCS:** The hourly time-coincident usage of all the line-trunk group 2 traffic within the module.
- **TG1-LINE CCS:** The hourly time-coincident usage of all the trunk group 1 line traffic within the module.
- **TG2-LINE CCS:** The hourly time-coincident usage of all the trunk group 2 line traffic within the module.
- **TNDM T12 CCS:** The hourly time-coincident usage of all trunk group 1 to trunk group 2 traffic within the module.
- **TNDM T21 CCS:** The hourly time-coincident usage of all trunk group 2 to trunk group 1 traffic within the module.

(b) **INTERMODULE MEASUREMENTS:**

Intermodule traffic (link traffic) is the call

volume requiring two or more time slots. For all calls except outgoing trunk calls, the probability of using two time slots (link traffic) is  $(n-1)$  over  $n$  where  $n$  is the number of modules in the PBX. For example, if the system has ten modules, 9/10 of all calls (except outgoing trunk calls) will use two time slots. The following load balance measurements provide intermodular measurements for each link group:

- **LINK GROUP CCS**
- **INTERCOM CCS**
- **LINE-TG1 CCS**
- **LINE-TG2 CCS**
- **TG1-LINE CCS**
- **TG2-LINE CCS**
- **TNDM T12 CCS**
- **TNDM T21 CCS.**

6.29 Link group traffic is analogous to the intramodule traffic described above with the link group CCS measurement becoming the peak measurement and the remaining measurements time coincident to it.

6.30 The trunk group CCS measured in the trunk-group measurements does not equate to the trunk-group CCS measured in the load balance measurements, even though the same trunk group is being studied. The measurement program looks at the software trunk record for each physical trunk in the system. If the trunk record indicates that a trunk is busy, then the CCS measurement for the trunk group that the trunk resides in is incremented by one (except when the trunk is maintenance busy). The trunk-group CCS measurement is incremented from the time it is seized for use until it is released.

6.31 The load balance CCS is based on a search through the connection status tables in the system. Only certain call configurations can be measured by the load balance routine to derive the CCS measurements it collects. The configurations are station-to-station, station-to-trunk, trunk-to-station, and trunk-to-trunk calls. Therefore, any three-way tone, and calls involving more than two facilities are not measured by the load balance routine.

**6.32** Therefore, it is clear that the two measurements are two entirely different statistics. The trunk group is measuring the amount of time the physical trunks are actually in use while the load balance is only sampling certain types of calls to get statistics on the ratio of intramodule to intermodule traffic.

## 7. RMATS II

### A. General

**7.01** RMATS II, Release 1 (R1) and 2 (R2), is compatible with the traffic program of the DIMENSION 600/2000/Custom PBX and all feature packages except FP8, Issue 3. The traffic features of RMATS II provide:

- Reduced manual effort required to initiate a traffic study
- Monitoring of product and facility performance
- Tracking of 2-year profile of product usage
- Monitoring of poll status and product translation changes.

**7.02** In addition, each product's translation data is available for polling. Translation tables are requested from the product whenever traffic studies are set up or reviewed for translation changes. The polled translation data is a snapshot of the product's server groups and is used to initialize and structure the continual Performance Monitoring studies. Figure 4 provides general information on the traffic module of RMATS II.

### B. Traffic Study Initialization

**7.03** The first issue to be addressed is the initialization of a study in the PBX. It is immaterial whether this PBX has been under study via RMATS I. For all practical purposes, each study setup can be considered a new one.

### C. Customer Data Base

**7.04** In order to initiate traffic studies on a new site, certain information must be recorded in the Customer Data Base (CDB) such as main listed directory number (LDN), customer name and ad-

dress, product type, feature package, etc. The information to be added at the time of study setup is such items as business days and business hours (both are for polling schedule), polling activation date, length of study period, etc. Accurate CDB inputs are important to ensure reliable traffic data. The traffic user inputs are entered with the *custedit* or *custenter* commands.

**7.05** The subtype field (stype) in the CDB is used to represent the unique DIMENSION PBX products. They are represented by distinct 2-character subtypes:

- CM—Call Management System (Automatic Call Distribution ([ACD]/Message Telecommunications Service [MIS], or Communications Management System [CMS])
- 1B or 2B—One- or 2-bus (DIMENSION 600 PBX)
- DR—Retrofitted data switching hardware.

**7.06** All CDB entries of interest except the Traffic Poll Activation Flag (tpef)=yes entry should be inputted before the other traffic-related commands are executed (trsrn, trsedit, etc.). Additionally, the traffic register setup should be successfully transmitted to the product before the scheduled traffic polling begins. The setting of *tpef*=yes should be the last step after all other fields and actions have been verified. If CDB entries are not accurate or available (due to poor records etc), the *traftrans* command will produce current translations from the product. Table G describes the CDB entries and whether they apply to R1 or R2. The traffic items are indicated by an asterisk (\*).

### D. Translation Data Dump

**7.07** The *traftrans* command causes the system to call the product and request a translation data dump. The product responds by sending current information on the server groups and other appropriate quantities. Figure 5 shows an example of a translation data dump.

**7.08** Prior to sending the call to the product, the user is prompted to answer whether an Engineering Facilities Table (EFT) is desired. A "yes" answer causes the creation and storage of the EFT. If one already exists for this customer, the user is

prompted to remove it with the *treftrem* command. In any case, an EFT will always be printed at the end of the *traftrans* report. The user can add, change, or delete server groups, dial access/identification (ID) codes, lower and upper thresholds, facility description, etc, by using the *treftedit* command.

**7.09** In addition, translation-reading PROCs are executed to populate the queue assignments to trunk groups, route advance patterns and dial access/ID codes. As a final step in the population process, default grades of service and thresholds are provided for selected entries. These values are shown in Table H. The user will still have editing capability. Tables I and J show an initially populated EFT and an edited regenerated EFT respectively.

**7.10** The currently measured trunk group combinations are copied into the EFT and defined as C01, C02, or C03. If the trunks have not been set up for measurement in combinations, they will appear with a CO? designation. To identify the three CO trunk group combinations for measurement, the user edits the CO? fields to change them to C01, C02, or C03. In the case of isolated groups, CO? will be edited to a CO designation.

**7.11** When regular queues applicable to FP7 are to be measured for performance monitoring, the user must also enter an asterisk (\*) next to the queue number of interest and only on the line defining the Outgoing Trunk Queuing (OTQ) group (eg, \*qn2). This invokes a default type-4 peak measurement for the queue and a set of type-4 time-coincident measurements for the related trunk group. Six of the twelve possible queues may be designated with an asterisk (\*). The remainder is assigned to type-5 measurements.

**7.12** The next use of the *treftedit:bye* command causes a regeneration of the EFT and the assignment of the TC01, TC02, or TC03 entries and their thresholds. The EFT is sorted and reorganized into two parts as shown in Table J. The TC01, TC02, or TC03 entries are used for the Performance Monitoring of trunk group combinations, while the related C01, C02, or C03 entries are displayed to define the trunk groups invoked in the combination.

**7.13** When deluxe queuing applies, as in FP8, the EFT generated by the *traftrans* command shows the type of queue (priority or nonpriority) and the number of queue records assigned. For determin-

ing queue records and trunk quantities for outgoing trunk queuing, refer to FIL 69. The EFT contains 12 columns of data used to assemble traffic reports.

- **TGP:** The trunk group number (8 to 99 for DIMENSION 600/2000/custom PBX).
- **DAC:** The dial access code for a trunk group.
- **QUEUE:** The type queue (priority (P) or nonpriority (N)). The number following the type of queue is the quantity of assigned queue records.
- **RA:** The number in this column represents the trunk group to which the associated TGP route advances to.
- **FAC:** The type of facility such as; dial pulse registers (DPR), TOUCH-TONE dialing registers (TTR), outgoing trunk queue (OTs), and CO trunks.
- **DR:** The direction of the trunk facility such as; incoming (IC), outgoing (OG) and two-way (2W).
- **DESCRIPTION:** This aids the user to further identify the facility.
- **SVC:** The service objectives are expressed as blocking (P.01, etc) and delay (D1S etc). Outgoing trunk queuing grade of service is expressed as both. For example, Q102 is a mean waiting time in queue (averaged over all attempted calls of 1.0 seconds and a blocking of 0.02).
- **CHK:** The threshold level for that facility (hi,lo, or no).
- **LLIM:** The lower limit of a threshold setting.
- **ULIM:** The upper limit of a threshold setting.
- **QTY:** The number of facilities attendant positions, trunks, and registers.

#### E. Traffic Register Setup

**7.14** The user should peruse the traffic registers that are assigned based upon the edited EFT.

Upon the execution of the *trsed* command, RMATS II generates default traffic register assignments based on the default tables (Table K). These tables reflect the most commonly used assignments and are grouped by product type and feature package. If a traffic register setup (TRS) exists when a new EFT is created, the user is alerted that a current TRS exists. At this point the TRS can be edited (*trsed*) or removed (*trsr*).

**7.15** The *trsed* command allows the user to display the TRS and make additions, changes, or deletions to the peak and time-coincident register assignments as desired. The edited TRS does not necessarily have to agree with the edited EFT. For example, a Recorded Announcement trunk group may not need to appear on the EFT. However, if data is desired, the appropriate registers can be assigned via *trsed*, and data will be collected and stored for that group.

**7.16** Once the TRS file is completed and approved, RMATS II can generate the hundreds of traffic PROC commands to set up the traffic registers within the product. This is achieved by using the *trsr* command. Upon completion of *trsr*, polling begins when scheduled according to poll activation date. The traffic-related entries to the CDB should be made at this point. The user can schedule the *trsr* command through the use of a command file (CF). The CFs are created with *cfenter* and scheduled with *cfshed*. This allows the user to perform other functions and expedite the initialization process.

#### F. Polling

**7.17** Hourly or daily polling of the product is available for maintenance and traffic study setup. However, hourly polling should be kept to a minimum. Hourly polling puts a huge load on the system, and close coordination is required between the maintenance and traffic users responsible for polling schedules. At present, daily traffic polling is the normal mode of operation and is performed during evening hours on the business days scheduled in the CDB. The polling window takes place from 5 minutes after the hour until 10 minutes before the next hour (20:05 through 20:50).

**7.18** The business day entry can be flexibly assigned to any days in the week, and polling does not necessarily need to be performed daily. One

method for reducing polling activity is to poll the most stable customers one day a week. If this is done, an effort should be made to determine the customer's high-traffic day and schedule polling for that day. The PMS review feature uses the average bouncing busy hour (ABBH) concept, and that figure is compared against any threshold input; so surveillance on weekly poll customers is not severely degraded.

#### G. Data Storage

**7.19** Hourly data is recorded, stored, and retained in an hourly study (HS) store for up to four weeks. It is stored for four weeks to allow time for analysis, and then purged a day at a time. Accumulative, peak, and time-coincident hourly data is also transferred to and stored in a daily study (DS) store. This process allows the selectivity of either daily or hourly reports (accumulative, peak, and time-coincident only) even if hourly polling is being performed. This is achieved by the system selecting the highest hourly data for each peak and associated time-coincident of each day and storing it in the DS store. Additionally a "clean up" daily poll of any additional accumulative data is added to the sum of the hourly accumulative data to create the equivalent of a daily poll. This process is referred to as "concatenation."

**7.20** Daily poll data is stored in the DS store for a 6-week period. As new data is received, the oldest data is purged. When using the daily polling schedule, the user always has available the most current 6 weeks of data. At the end of each week, the number of working stations, processor occupancy, and time-slot occupancy measurements from the weeks raw data is processed and retained in a Traffic Profile for 2 years for each customer (Fig. 6). These values can be displayed via the *trafprofile* command. This provides a simple growth pattern and busy season determination for any given customer.

#### H. Traffic Summary Report

**7.21** The stored polled data is accessed via the *trafsummary* command and allows the user to view the Traffic Summary Report in printed format or on the Cathode Ray Tube (CRT). In order to view a formatted report, the user enters:

- Main LDN
- Start date
- End date

- Hourly or daily
- Type of report (Peak and Time-coincident, ARS, Load Balance, etc).

**7.22** Figure 7 depicts a partial printout of a daily peak and time-coincident report. The report contains header information, daily polls, and flags. The header and other general information is followed by the recorded data. If any data is invalid or appears to be invalid, the data can be removed via the *trdatarem* command. Table L shows the data available in hourly or daily format. Carrier usage is the only exception to daily polling.

**7.23** Infrequently, a packet requested for polling is not transmitted to RMATS II. Currently, there are three attempts made to collect the data. If any of the polls are unsuccessful, then no data is saved, and the poll is considered unsuccessful.

**7.24** The data to appear on the summary report is the direct result of the traffic register setup. The ABBH is calculated based on the start and end date entries. If a total of 6 weeks of data is present in the data base and the start- and end-date encompasses a 6-week period, the ABBHs will represent that 6-week period, calculated on daily entries contained in each week. The result is an ABBH for each week within the time period.

**7.25** The summary report shown in Fig. 7 begins with the title, TRAFFIC SUMMARY REPORT across the top of the page, the header, and general information. The following information is contained in the header.

- (a) **CUSTOMER:** Can be up to 30-character company name.
- (b) **MAIN LDN:** (NPA) NNX-Line. NPA is optional. The listed directory number used by RMATS II to identify the product.
- (c) **SYSTEM CONFIGURATION:** The system configuration includes the following:
  - **PRODUCT TYPE:** The type of DIMENSION PBX product (D100, D400, D2000, etc).
  - **FP:** A number 1 through 5, 7 through 12, and 14, 15 for DIMENSION PBX feature package.
  - **HW CONFIG:** A letter A through F denotes memory configuration.

- **ISSUE:** A number 1 through 99 specifies generic software release. The letter L designates a tape issue still under BTL-controlled introduction.
- **SUBTYPE:** Provides more information about product characteristics (refer to paragraph 7.05).
- **STATION LINES:** The number of working stations.
- **ECTS STATIONS:** The number of working ECTS stations.
- **NUMBER OF MODULES:** The number of working modules.
- **AE LDN:** Account Executive telephone number.
- **MA LDN:** Marketing Administrator telephone number.
- **ENG:** Initials of traffic engineer, up to eight characters.
- **CLERK:** Initial of traffic clerk, up to eight characters.
- **START DATE:** Month, day, and year traffic poll starts.
- **END DATE:** Month, day, and year traffic poll ends.
- **FORMAT:** Hourly or daily.

**7.26** Directly below the header information appears the type of data requested for collection. Figure 7 includes the Feature Utilization (accumulated values), Time Slot Mismatch Blockage, Ring Group Blockage, ACA Audit Trail, and Trunk Group Maintenance Busy-Outs. The options that are available are shown in Table L. In the interest of minimizing transmission time, system computation time, and storage requirements, one should be selective in the amount of data collected. For example, processor occupancy profile is rarely required on products that are not approaching processor occupancy capacity.

**7.27** The next data that appears on the Traffic Summary Report are:

- (a) **CALENDAR:** Seven columns across—one for each day of the week beginning with Sun-

day (SUN) and ending with Saturday (SAT). The dates are shown under each day only for the time frame that was requested.

(b) **NUMBER OF HOURS INCLUDED IN POLL:** The number of hours since the last poll. For example, a one (1) should be shown under the calendar day for hourly format.

(c) **POLL TIME:** The time of poll as reflected by the PBX system clock.

(d) **TRAFFIC UPDATE TIME:** The last time hourly work was done. The peak data is moved from the collection buffers to the output buffer.

(e) **ALARMS REPORT:** Alarm or flag symbols appear for each calendar day of the report. The list of symbols are also defined.

**7.28** The next part of the Traffic Summary Report contains the measurements. Figure 7 shows a daily peak and time-coincident format. The first measurement listed is the register assigned as PEAK 1; then all registers assigned time-coincident to PEAK 1 are listed in numerical order of assignment (TC1 through TC6). On the same line and to the right of the measurement name (eg, PROCESSOR OCCUPANCY%), the type and item number (eg, 3, 4) for that measurement appear in brackets. The line below the named measurement, listed under each calendar day, are the peak counts (CCS, pegs, and ovfl). The ABBH or AVG for that measurement appears in the far-right column. The peak and time-coincident measurements appear on the Traffic Summary Report in numerical order of assignment.

#### I. Traffic Profile Report

**7.29** The *trafprofile-LDN* command is used to print a formatted report of the most recent 104 weekly statistics for the given customer. The report highlights the extremes of distribution as shown in the example report of Fig. 6. The traffic profile is used to track product growth changing traffic characteristics or identify a busy season. At the end of the week, certain data is recorded for each customer as shown in Table M. It is taken from either the daily or hourly store depending on the polling schedule.

#### J. Performance Monitoring Study Review Reports

**7.30** The Performance Monitoring Study (PMS) reports are requested via the *trvreport* com-

mand. The report is derived from the EFT and data stored in the CDB and traffic data base. The header information is all part of the CDB previously entered with the exception of Report Status and Disposition. Figure 8 shows an example of the PMS report.

**7.31** There are three PMS review reports available based on status. They are current, previous, and reference copies. The current copy reflects the most recent review which is based on the established review frequency. A review is the process of creating an ABBH for each entry on the EFT and comparing it to any user-selected threshold value. When this review is completed, a current copy of PMS is created and may be requested. After the next review date (dependent on review frequency), the existing current copy is relabeled *previous*, and a new current copy is created. The process of creating a current copy, relabeling it to *previous* copy, and purging the existing previous copy occurs at each review frequency interval. Should the user desire to retain a particular copy, either a current or previous copy can be made a reference copy. This is done via the *trvref* command. The user can retain unique PMS data (such as busy season) and not lose it through the ongoing purge process. A new reference copy can be created at any time, thereby purging the existing reference copy.

**7.32** The lower portion of the PMS report contains the information used to create the EFT plus the average carried load and the type of threshold violation. Every facility entered on the EFT is duplicated on the PMS report, so any data desired on the report must be entered first on the EFT. Additionally, the average load is derived from the data stored within the defined study period. The type of violation is based on the entry in the *CHK* column. The number of these violations occurring during the study period is displayed in the *EX* column which shows only the upper-threshold daily violations. The usual average load violations for both upper and lower thresholds (*ULIM* and *LLIM*) are displayed in the adjacent *VI* column as shown in Fig. 8. Threshold recommendations are discussed in Part 10 of this section.

**7.33** The PMS is the equivalent of threshold exception reporting in RMATS I, but with more flexibility and expansion. Since the current data collection policy recommends a threshold program in lieu of routine studies, this process proves to be the most used and useful within the traffic module of

RMATS II. The concept is to create and schedule a command file to search for PMS reports that contain threshold exceptions and alert the user as exceptions occur.

**7.34** The average load data that appears on the PMS report is retrieved from the Performance Review Data Base (PRDB). The study period, entered in the CDB as *pmssp* can range from daily (d) to weekly (1 through 6 weeks). If an average is to be developed reflecting 1 week's worth of data, then a "1" is entered in *pmssp*. Initially, a study period of 4 weeks for most products is recommended. The review frequency (*pmsrf*) entry determines how often the data within the study period is averaged, compared to thresholds, and PMS reports generated. The entries can be daily (d) or weekly (1 through 6 weeks). A reasonable approach to starting PMS is to establish most study periods in the 2- through 4-week range and set the review frequency at 1 week. This allows time for data collection and storage, and generation of a current and previous PMS report within a month. After reviewing the PMS reports satisfactorily, the review frequency can be changed to 4 weeks. For customers requiring closer surveillance, the review frequency should be daily or weekly.

**7.35** There are two other traffic reports available, a raw data dump and a log of historical polling. The *trafraw* command retrieves the raw data dump. It represents one poll of data, either hourly or daily. It is in decimal format, and the number of registers and lines depends on the product.

**7.36** The Log Traffic (LT) report is available in several formats. It is requested via the *lreport* command. The report is on traffic polling and can be selected on main LDN, date of polling, hour of polling, and message.

**7.37** The *lcreport* command produces a connection log report on connection failures to customer products. These failures may indicate an intermittent problem (noise on data line) or a definite failure at RMATS II or customer product (data set, CO line, product software). Entries are made in the log only when a connection has failed during the connection attempt or after the call was established. The log is intended to help document problems both with RMATS II hardware and customer products.

#### K. Commands and Capabilities

**7.38** In the day-to-day operation of traffic polling, there is a need to know various commands and

their capabilities. The following information is an attempt to help the user understand what is available in RMATS II.

- ***custedit/custenter***: Provides the option of initiating an hourly, daily, or weekly traffic polling schedule on all products compatible to RMATS II by entering the customer-related items in the CDB.
- ***trseddit:packets***: Command to select any one or any combination of packets for polling of a given product. Carrier usage and load balance packets require product data entries.
- ***traftrans LDN***: The command produces a translation summary report and provides the initial population of the EFT. In particular, the command provides automatic EFT population for the translations of deluxe queuing, route advance, and measured trunk combinations. In addition, the command causes the automatic population of the upper threshold value (ULIM) for a select set of facilities.
- ***treftedit LDN***: Command to review and edit the EFT. The subcommand *list* is used to display the current state of the EFT after a series of edits. In addition, the command causes a regeneration of the EFT under the following conditions:
  - (a) The presence of the FAC code C01, C02, or C03 causes regeneration with the TC01, TC02, or TC03 entries.
  - (b) The change of a QTY entry without a change in the default SVC entry causes a regeneration of the threshold value ULIM according to the default threshold table. In addition the change of an SVC entry (within the limit set in Table H) will cause the regeneration of ULIM.
- ***trseddit LDN***: Command to generate a default set of register assignments from the existing EFT entries and to review and edit the default assignments, trunk combination measurements, and AAR/ARS patterns as well as a select set of packets to be polled.
- ***trsrn LDN***: Command to generate and execute a command file of traffic PROCs ac-

ording to the register assignments within *trsed* Within the command, the customer site is dialed, and the command file is executed. In addition, the capability of setting the system clock and distinguishing the time zone, accordingly, is provided.

- ***cfenter/cfsched***: Commands to build and schedule command files for background execution. To expedite the initialization process, *trafrans*, *trsed*, and *trsrn* are allowed in scheduled command files.
- ***trafsum LDN***: Command to produce formatted report for a given customer. In order to obtain a multiweek calendar report of peak and time-coincident values in a daily format, the user enters: *trafsum 949-3000* (LDN) *1/28* (sdt) *2/10* (edt) *d* (d/h) *pktc* (field).
- ***trafraw LDN date hour packet***: Command to print a raw unformatted report for a particular poll. The data is printed in decimal notation.
- ***trafprofile LDN***: Command to print a formatted report of the most recent 104 weekly statistics for the given customer. The report highlights the extremes of the distribution as shown in Fig. 6.
- ***trfreport m h XL = y date =y***: Command to report on the LDNs that had major or minor translation flag indications at the time of poll. The command is used for more than monitoring of translation changes; it is also designed for monitoring the day-to-day polling process. The following selector fields apply:
  - (a) main = LDN or \*: To identify the customer from which the traffic data was polled.
  - (b) date = mm/dd, y, or t: To select the polling date; month/day, yesterday or today.
  - (c) stat = —, no data in traffic data base; 36+, more than 36 hours included in poll; 12-, less than 12 hours included in poll; OK, none of the previous states are true.
  - (d) Flag = r, reload; X, major translation change (PROC) and x, minor translation change

(trunks or queues); A, major alarm; a, minor alarm; z, zero flag via PROC 421; d, data reinitialization; s, short hour.

- ***ltreport m h date=y poll=24 mesg=failed***: Command provides lists of the LDNs having unsuccessful data transfers during their scheduled polls. A scheduled command file with both the *trfreport* and *ltreport* commands provides the poll-monitoring capabilities required to monitor and assure weekly uninterrupted daily polling.
- ***trdatarem LDN sdt edt opt***: Command to remove traffic data polled between a certain start date (sdt) and end data (edt) which can be stored as both hourly and daily polls. The *opt* field has the following realizations and implications:

- (a) d = remote the daily polls.
- (b) h = remove the hourly polls.
- (c) all = remote both daily and hourly polls.
- (d) n = remote the polls for hour N (0 through 23).

## 8. EVALUATING ENGINEERED COMPONENTS

### A. General

**8.01** The output of an RMATS Traffic Summary Report can be used to evaluate the service performance of various engineered components of a DIMENSION 600/2000 PBX. The following material provides guidelines for evaluating the performance of certain critical components using the data from a Traffic Summary Report. Although the following examples are taken from the RMATS I Traffic Summary Report (Fig. 2), the same methodology applies to the RMATS II Traffic Summary Report (Fig. 8). These guidelines are not intended to supercede the detailed engineering methodology presented in other DIMENSION PBX component engineering sections; however, service problems can be avoided by the information acquired using these procedures.

### B. Network Administration

**8.02** In order to evaluate the performance of the time-division switching network, adjustments must be made to the total time-slot CCS measure-

ment shown on Page 2, of the Traffic Summary Report. Total time-slot CCS includes link traffic (double-switched) which inflates the true-offered network CCS from lines and trunks. The time-slot CCS also includes an estimated 108 CCS per module for maintenance testing. Network offered CCS from lines and trunks is determined by subtracting the total link traffic and 108 CCS/module from time-slot CCS.

**8.03** Figure 9 shows a work sheet which may be used to summarize the summary report traffic data required to analyze the switching capacity of an existing network. In the example shown in Fig. 9, the ABBH in Fig. 2 is used as the busy hour. The time-slot CCS is 7248, item (c), total link group CCS 1842, item (b), and maintenance CCS 432 (4 modules times 108 CCS), item (d). The calculations in Fig. 9 indicate Network Usage is 4974 CCS, item (e).

**8.04** The next step is to find the proportion of network usage that is outgoing. List all the Outgoing Trunk CCS as shown in Fig. 9. For 2-way trunk groups, the outgoing CCS can be determined by subtracting the CCSI measurement from the total measured trunk group CCS. The proportion of outgoing CCS is determined by dividing the Total Outgoing Trunk CCS, item (a) by the Network Usage, item (e), as shown in Fig. 9.

**8.05** Refer to Section 554-111-615, Table B, to determine the available system capacity. Enter Table B, at the Proportion of Total Traffic Outgoing, item (f), and the number of modules in the system. At the intersection of these figures is the capacity available in the system, 10,087 CCS, item (g).

**8.06** If the actual network CCS, item (e), exceeds this value, the network should be considered potentially exceeding its CCS switching capacity. A detailed network sizing procedure should be initiated as discussed in Section 554-111-615.

**C. Processor Occupancy**

**8.07** The processor pegs measurement (Call PRC × 100 PEG) when multiplied by 100 represents the total processor pegs during the measured hour. An average call requires 8 to 12 pegs per call. Approximate calls in the system can be established by multiplying the processor pegs (CALL PRC × 100 PEG) by 100 and dividing by an average of 10 pegs per call:

$$\text{System Calls} = \frac{(\text{CALL PRC} \times 100 \text{ PEG}) \times 100}{10}$$

**8.08** For example, the Traffic Summary Report (Fig. 2) shows 674 CALL PRC × 100 PEG for the ABBH measurement. Therefore, to find the calls for that poll, apply the above formula:

$$\frac{674 \times 100}{10} = 6740 \text{ Calls}$$

**8.09** Load Indicator A and B measurements may prove helpful in confirming service problems with systems having reasonable occupancy levels as well as with systems that have high occupancy levels. Load Indicator A is the number of 450-ms intervals that maintenance audits were deferred due to call demands on the processor. The normal expected level may be compared to measured pegs by dividing the measured PROC LOAD IND A pegs by 8000 and multiplying by 100. Compare this figure to the chart figure of the system occupancy level.

**Note:** The maximum 450-ms intervals that can occur in 1 hour is 8000.

Percent Occupancy	Normal Percent Load Indicator A
50%	8%
55%	10%
60%	13%
65%	15%
70%	18%
75%	22%
80%	28%

$$\left[ \frac{\text{PROC LOAD IND A PEG}}{8000} \right] \times 100 = \% \text{ LOAD IND A}$$

**Example:**

With a PROC LOAD IND A peg of 180 and a 60 percent processor occupancy, the actual percent of PROC LOAD IND A is 2.25 percent:

$$\frac{180 \times 100}{8000} = 2.25\%$$

This is well within the normal range for 60 percent processor occupancy stated above (13 percent) and therefore indicates that little or no periods of peaked traffic intervals were present during the study period.

**8.10** Excessive PROC LOAD IND A pegs would indicate prolonged peak traffic intervals. In this case, service problems might be experienced while occupancy levels appear reasonable.

**8.11** LD IND B × 100 PEG is the number of 10-ms intervals that maintenance audits were deferred due to call demands on the processor. Healthy systems will have an acceptable range of these pegs. To find the percent of LD IND B pegs, divide 360,000 into the summary report measurement times 100 and multiply by 100.

$$\left[ \frac{(\text{Load Indicator B Peg}) \times 100}{360,000} \right] 100 = \% \text{ LD IND B}$$

Where: Load Indicator B PEG Is the Actual Summary Report Measurement of LD IND B X 100 PEG.

**Note:** The maximum number of 10-ms intervals in 1 hour is 360,000.

**Example:**

The summary report (Fig. 2) indicates the ABBH measurement for LD IND B × 100 PEG is 336. Apply the above formula to find the percent LD IND B.

$$\left[ \frac{336 \times 100}{360,000} \right] \times 100 = 9.3\%$$

The chart below is used to compare this figure at the system occupancy level. Comparing the 9.3 percent computed above and the associated 33.8 percent processor occupancy during the same polling period (Fig. 2), it can be seen that the system is above the normal percentage for this occupancy, indicating that there were intervals of peaked traffic during the busy hour.

Percent Occupancy	Normal Percent LD IND B
40%	5%
50%	15%
60%	25%
70%	35%
80%	50%

**8.12** For further detailed information on processor occupancy engineering methodology, refer to Section 554-111-630.

**D. Attendant Engineering**

**8.13** The attendant facilities and performance may be evaluated by the Traffic Summary Report data on an individual or group basis. Using the measurements from the summary report, it is possible to evaluate attendant performance such as average work time, speed of answer, and attendant-offered load.

**8.14** In order to determine the average work time, the number of attendant-handled calls and the time spent doing this work is required. The following formula is used to calculate this performance:

$$\text{Average Work Time} = \frac{\text{WRKD GRP CCS} \times 100}{\text{WRKD GRP PEG}}$$

**Example:**

Figure 2 indicates the WRKD GRP CCS for the ABBH is 45 CCS and the WRKD GRP PEG is 221. The average work time is:

$$\frac{45 \times 100}{221} = 20 \text{ Seconds}$$

- 8.15 The same formula applies if individual console performance is required:

$$\text{Average Work Time} = \frac{\text{WKD CNS} \_\_\_ \text{CCS} \times 100}{\text{WKD CNS} \_\_\_ \text{PEG}}$$

- 8.16 All calls directed toward the attendant pass through the incoming call queue. The INCALL Q PEG is the count of all calls directed toward the attendant, and the INCALL Q CCS is the sum of the wait time for all calls that waited in the incoming call queue. By dividing INCALL Q CCS times 100 by INCALL Q PEG, the average speed of answer is determined:

$$\text{Average Speed of Answer} = \frac{\text{INCALL Q CCS} \times 100}{\text{INCALL Q PEG}}$$

**Example:**

Figure 2 indicates the INCALL Q CCS for the ABBH is 5 CCS and the INCALL Q PEG is 203. The average speed of answer is:

$$\frac{5 \times 100}{203} = 2.5 \text{ Seconds}$$

**Note:** Average speed of answer is also referred to as average delay (d)—the time a call is expected to wait before being served.

- 8.17 Now, the average delay of delayed calls (d) can be determined by applying the above information, average speed of answer (d), average work time

(AWT), and Table C in Section 788-100-142. By dividing the average speed of answer by the average work time, we find the average delay in multiples of average holding time:

$$\bar{d} \text{ (AHT)} = \frac{\bar{d}}{\text{AWT}}$$

$$0.125 = \frac{2.5}{20}$$

Enter Table C (Section 788-100-142) with the average delay in multiples of average holding time, 0.125 (use column 0.120) and three servers. Table C predicts an average delay of delayed calls in multiples of AHT equal to 0.62 (AHT). Since the average work time is 20 seconds, this equates to an average delay of delayed calls of 12.4 seconds:

$$\text{AHT} \times \text{AWT} = \bar{d} \text{ Seconds}$$

$$0.62 \times 20 = 12.4 \text{ Seconds}$$

- 8.18 In order to determine attendant-offered load, the attendant overflow CCS must be found. The attendant overflow CCS is calculated by multiplying the average work time (paragraph 8.13) by INCALL ABNDN PEG divided by 100. The formula is expressed as:

$$\text{Attendant Overflow CCS} = \frac{\text{AWT} \times \text{INCALL ABNDN PEG}}{100}$$

Add the attendant overflow CCS to the WRKD GRP CCS to calculate the attendant-offered load.

**Example:**

Using ABBH of Fig. 2 as the busy-hour rate, note that the customer had two INCALL ABNDN PEG counts and from the previous calculation in paragraph 8.13, the average work time is 20 seconds. The WRKD GRP CCS for the ABBH is 45 CCS.

$$\frac{20 \times 1}{100} = 0.2 \text{ CCS}$$

45 CCS WRKD GRP CCS  
 0.2 CCS Attendant Overflow  
 45.2 CCS Attendant Offered Load

8.19 Further information for attendant console engineering methodology can be found in Section 554-111-635.

**E. Three-way Split**

8.20 The following example shows how to determine that the quality of service the customer requested is being maintained. This method is used as a "quick-look" at the three-way split. If customer requirements are not satisfied, then a detailed engineering method, as shown in RL-81-05-329 (AT&T letter), should be initiated.

**Example:**

**STEP 1**

In order to evaluate the three-way split, the service levels the customer requested must be known. Through office records, it is determined that the customer-requested blocking levels of 7 percent average outgoing, 1 percent average incoming, and 50 percent of the outgoing traffic are to be served on the 1-way outgoing group. Using the recommended three-way split registers discussed in Part 5, the following peak and time-coincident measurements were taken from Fig. 2, poll 1, TRUNK GROUP COMBO 1 on the customer's Traffic Summary Report.

TRK GRP	MEASUREMENT		TRK SIZE	CCS/PEG
1	COMBO	CCS		900
18	C01WO	CCS	6	176
18	C01WO	PEG	6	160
18	C01WO	OVL	6	167
19	C02W	CCS	10	223
19	C02W	CCSI	10	39
19	C02W	INPG	10	65
20	C01WI	CCS	19	501
20	C01WI	PEG	19	835

**STEP 2**

(a) Determine the total outgoing CCS by subtracting CO2W CCSI from CO2W CCS and adding the difference to C01WO CCS (223-39 = 184 + 176 = 360).

(b) The objective outgoing blocking is B.07 (customer request).

(c) The objective overflow level is 50 percent (customer request).

(d) Enter the Apparent Load Adjustment Factor (AAF) Table (shown in part, Fig. 10) with the percent blocking (7 percent). The factor for this problem is 1.052.

(e) The apparent outgoing CCS is determined next by multiplying the total outgoing CCS by the AAF, or 360 CCS × 1.052 = 379 CCS.

(f) Enter the Peakedness of Apparent Load Table (shown in part, Fig. 10) with the apparent outgoing CCS. Use the table value of 400 CCS (this is the closest to the problem value of 379 CCS) and 10 percent blocking. The outgoing peakedness at 7 percent blocking is approximately 1.14, between 1.12 (5 percent blocking) and 1.16 (10 percent blocking).

(g) The number of 1-way outgoing trunks, can now be determined by using the information from (e), (f), and the objective blocking level (0.50). Enter the Expanded Alternate Routing Capacity Tables (shown, in part, Fig. 10). At a peakedness of 1.15 (clos-

est to actual peakedness of 1.14), 379 CCS requires six trunks. The result is approximately 51 percent blocking with a carried load of 184 CCS. This meets the customer's requirements since six trunks have been installed.

### STEP 3

- (a) Determine the total incoming CCS by adding the CO2W CCSI and the CO1WI CCS measurements ( $501 + 39 = 540$ ).
- (b) As in Step 2 (d), the AAF for 1 percent blocking (customer request) is given in Table A1 as 1.007.
- (c) As in Step 2 (e), the apparent incoming load is equal to the incoming CCS  $\times$  AAF or  $540 \text{ CCS} \times 1.007 = 544 \text{ CCS}$ .
- (d) As in Step 2 (f), the incoming load peakedness of 500 CCS (closest to 544 CCS) at 1 percent blocking is 1.07.
- (e) As in Step 2 (g), the incoming trunks are determined by entering the Expanded Alternate Routing Capacity Tables with 1.05 peakedness (closest to 1.07) and 543 CCS incoming (closest to 544 CCS); 19 trunks provide 7 percent blocking with a carried load of 505 CCS. Since the customer has 19 trunks installed, this meets customer requirements.

### STEP 4

- (a) Next, the 2-way trunk group requirements are determined by finding the total overflow CCS.
- (b) The overflow CCS of the 1-way outgoing trunk is 379 CCS apparent load minus 184 CCS carried load as determined in Step 2 (g) equals 195 CCS overflow.
- (c) The 1-way incoming overflow CCS is 39 CCS, 544 CCS apparent load minus 505 CCS carried load as determined in Step 3 (e).
- (d) The total overflow CCS is 234 CCS ( $195 \text{ CCS} + 39 \text{ CCS}$ ).
- (e) The required 2-way blocking is found by dividing the objective outgoing blocking

by the expected overflow level of the 1-way outgoing trunk group ( $0.07 \div 0.51 = 0.14$ ).

(f) Next, the total overflow variance is determined by multiplying the 1-way incoming and 1-way outgoing overflow CCS by their respective peakedness or  $195 \text{ CCS} \times 1.72 + 39 \text{ CCS} \times 2.62 = 437 \text{ CCS}$ .

(g) The 2-way overflow peakedness is then determined by dividing the overflow variance by the total overflow CCS or  $437 \div 234 = 1.87$ .

(h) Enter the Neal-Wilkinson Trunk Capacity Tables (Fig. 10) with peakedness factor 1.9 (closest to 1.87), 14 percent blocking (Step 4[e]), and 234 CCS (Step 4[d]). The required number of trunks is ten. Since the number installed is ten, customer requirements are satisfied.

**8.21** This example shows all customer requirements are met (blocking, overflow level, and trunks); therefore, the three-way split is sized properly. Refer to AT&T Co. letter RL-81-05-329, for more detailed information on engineering design of three-way splits.

## 9. VALIDATION

### A. General

**9.01** Before any traffic register data are used for engineering analysis or design, the measurements must be validated. Incorrect data can be the cause of poor service and unnecessary expense for the customer. Proper validation of the Traffic Summary Report measurements is necessary to develop engineering data on all customers.

### B. Traffic Summary Report

**9.02** The common items that affect the validity of the summary report are the system flags. These include reload, major and minor translation changes and alarms, zero indicator, reinitialization, and short hour. Any of these flags are a warning of change that could affect the data for a given study period.

**9.03** Good judgment should be used in determining the measurements that are suspected of being

invalid and those that appear reasonable. The following validation considerations are intended to assist the user in making those determinations.

- Check the header information for product type, feature package, tape issue, study period, and polling interval.
- Check the count on features not included in the system if suspicious of register offset.
- The time-of-day stamp can also verify register offset; should always be a 4-digit number (0800).
- No usage (CCS) should be more than 36 X the number of the facility.
- A facility that has usage (CCS) measurements should also have peg-count measurements, and the reverse also applies.
- RMATS II allows the user to compare the EFT facilities with the TRS. Then compare the TRS with the product type and item measurements.
- Invalid or suspected data can be removed from the data base with RMATS II via the *trdatarem* command.

### C. Trunk Group Combination

**9.04** Figure 1 indicates a three-way split assigned as a trunk group combination. The traffic register assignments are sufficient to validate and give the proper data to engineer the three-way split. The following procedure explains the validation shown in Fig. 1. The measurements used are from Fig. 2, poll 1, TRUNK GROUP COMBO 1 on the customer's Traffic Summary Report.

#### **Example:**

##### **STEP 1**

- (a) COMBO CCS is the total CCS measurement of all the trunk groups assigned in the trunk combination; therefore, COMBO CCS = CO2W CCS + CO1WO CCS + CO1WI CCS:

$$900 = 223 + 176 + 501$$

##### **STEP 2**

- (a) By dividing CO1WO CCS by CO1WO PEG  $\times$  100, the holding time for trunk group 18 (ht18) is established.

$$\frac{176 \times 100}{160} = 110 \text{ SECONDS}$$

- (b) The outgoing CCS on the CO2W trunk group (X) is found by (X) = CO2W CCS - CO2W CCSI:

$$(X) = 184 = 223 - 39$$

- (c) (X) is validated by dividing ht18  $\times$  CO1WO OVL by 100:

$$\frac{110 \times 167}{100} = 184 = (X)$$

- (d) The CO1WO OVL ht is assumed rightly the same as the ht18. The CO1WO OVL ht is found:

$$\text{ht1WO OVL} = \frac{(X) \times 100}{\text{CO1WO OVL}}$$

##### **STEP 3**

- (a) The holding time for trunk group 20 (ht20) is found by dividing CO1WI CCS times 100 by CO1WI PEG:

$$\frac{501 \times 100}{835} = 60 \text{ SECONDS}$$

- (b) The holding time for the incoming portion of the CO2W trunk group (ht2WINC) is found by dividing CO2W CCSI times 100 by CO2W INPG:

$$\frac{39 \times 100}{65} = 60 \text{ SECONDS}$$

(c) If ht20 and ht 2WINC are equal, then all measurements used to compute the holding times are valid.

## 10. THRESHOLDS

### A. General

**10.01** The use of a threshold program in conjunction with daily polling can provide early warning indicators and an indication of the service level the customer is experiencing. Daily polling is applicable to this program and is recommended at this time. The threshold selection process differs between RMATS I and RMATS II; therefore, both will be discussed in this part.

**10.02** The actual threshold assignments are inputted to the RMATS I Central Facility via PROC 05. The threshold set in an RMATS I Central Facility is compared to incoming peak data. The threshold table (Table N) was established to account for day-to-day variation (DDV) and to predict a 20 percent exception rate. RMATS II thresholds are compared to the ABBH of the data stored in the PRDB within the PMS study period parameters. Since the ABBH is the value to which threshold values are compared, DDV is already accounted for, and unique threshold tables are not required for RMATS II. The RMATS procedure can be used to suppress or activate the summary report upon exception. It is recommended to suppress the summary report and request it only when necessary.

### B. RMATS I

**10.03** Any item assigned as a peak register may be selected for a threshold assignment. In addition to all peak registers, thresholds may be assigned to module time slots, link groups, processor overload peg count, and ring group blocking. The following paragraphs discuss Option 1 and Option 2 (RMATS I); either can be used in selecting threshold values. The choice is a local decision based on the difference described below.

#### C. Option 1

**10.04** This option allows checking overprovisioning as well as underprovisioning on server groups. The threshold tables (Table N) are designed so that the selected threshold value is exceeded approximately 20 percent of the time. This equates to exceptions 1 day in 5 for daily polling.

**10.05** Exceptions at the 20 percent rate mean the server group is sized correctly for the desired grade of service. If reports appear more than the 20 percent rate, the group is underprovided, and if at less than the 20 percent rate, the group is overprovided. In either case, a summary report or hourly study can be requested for a more in-depth analysis. Any traffic recommendation should be the result of a summary report or hourly study and not based on threshold exception reports.

#### D. Option 2

**10.06** This option provides a check for underprovided server groups. Although valid system growth may be detected, this option does not detect overprovided server groups.

**10.07** This is achieved by setting the threshold value considerably higher than the desired service level. The initial recommended setting should be 4 percent higher than the desired blocking level on various trunk groups. This option is also used on network measurements as shown in Table O.

**10.08** The use of a certain percent higher blocking level on a given server group is not fixed. The day-to-day variation of traffic may create the need to select a threshold value 3 through 5 percent higher than the desired level. If the day-to-day busy-hour traffic is relatively smooth, a threshold value of only 3 percent higher than the desired service level may be required. However, if the day-to-day variation is extreme, a threshold value of 5 percent higher may be required. Some judgment based on gained experience is needed to determine specific value for certain server groups.

### E. RMATS II

**10.09** The following paragraphs address the rationale for threshold selection when an ABBH value from one or more weeks of the PMS study in the RMATS II system is used. In addition to any peak register, threshold values may be assigned to Processor Occupancy, Time-Slot Usage, Attendant Facilities, and Trunk Group Facilities, or any measured entity on the EFT. A select set of EFT entries has the default assigned automatically for the ULIM only. The user will have editing capabilities.

**10.10** The default assignments are shown in Table H. The selected time-slot values represent

approximately 90 percent of the ABBH carrying capacity. The rationale for selecting lower thresholds is due to the averaging that occurs over a study period of several days. For example, analysis of detailed data that makes up an ABBH of 3600 CCS would reveal several busy-hour measurements of greater than 3600 CCS. Therefore poor service may have occurred several times before the threshold was violated. Hence a lower threshold seems in order.

**10.11** The same rationale applies to trunk groups and their peaked traffic characteristics. The default threshold values selected for the trunk groups reflect the actual carrying capacity of the trunk group size and the service level objective. More information from Marketing and/or the customer will be needed to select more finite thresholds on individual trunk groups. The default proves to be a reasonable starting point as well as a reference for comparing carried load to carrying capacity on the PMS report. The default tables reflect P.01, P.02, P.03, and P.05 grade of service. Trunk group parameters

must be entered by the user for trunk groups exceeding 100 trunks.

**10.12** The carrying capacity for thresholds is determined by using the Retrial (No DDV) Tables for serving groups with blocking characteristics. The carrying capacities for dial pulse registers, TOUCH-TONE receivers, and senders can be seen on Table H in Section 554-111-610.

**10.13** The carrying capacity for outgoing trunks with queuing (including deluxe queuing) is determined from FIL 69 for two grades of service:

- Q 032 = mean waiting time 0.3 (average delay) and blocking 0.02.
- Q 102 = mean waiting time 1.0 (average delay) and blocking 0.02.

**10.14** The stored carrying capacity for attendants is derived from the 0.500 column of Table A, Section 788-100-142.

PEAK REGISTERS				TIME-COINCIDENT REGISTERS				
REG NO.	TYPE	TRUNK GROUP	MEASUREMENT	REG NO.	TYPE	TRUNK GROUP	MEASUREMENT	VALIDATION
①	1	1	COMBO CCS	②	5	18	CO1WO CCS	$① = ② + ⑤ - ⑧$
				③	6	18	CO1WO PEG	$CO2W\ OUT = (X) = ⑤ - ⑥$ $(X) = \frac{ht18 \times ④}{100}$ where: $ht18 = \frac{② \times 100}{③}$
				④	7	18	CO1WO OVL	
				⑤	5	19	CO2W CCS	
				⑥	8	19	CO2W CCSI	$ht20 = ⑧ \times 100$ $ht\ 2W\ INC = ⑥ \times 100$ equal
				⑦	9	19	CO2W INPG	
				⑧	5	20	CO1WI CCS	⑧ and ⑨ are validated from above ht20.
				⑨	6	20	CO1WI PEG	
				⑩	2		TIME	

"DIMENSION" 2000 PBX

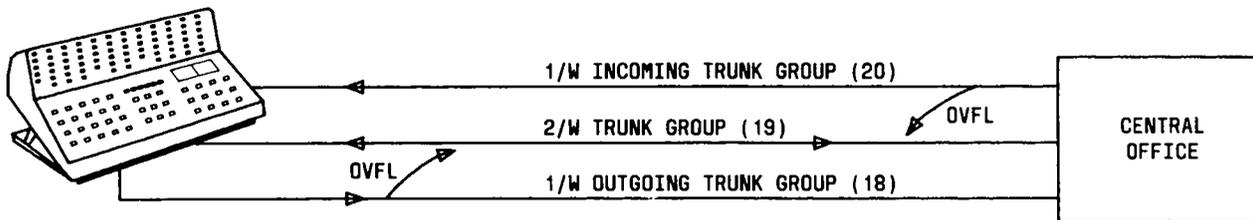


Fig. 1—Peak and Time-Coincident Register Assignments

T R A F F I C S U M M A R Y R E P O R T  
 GENERATED BY REQUEST

PPX ID # 86 COMPANY NAME- 70544

SYSTEM CONFIGURATION 5E008-0413.4  
 DAYS STUDIED 5 STA LINES 975  
 ECTS LINES ECTS STA  
 ATND PCSN 3 MCDULES 4  
 LINE CARR 19 TRUNK CARR 16

POLLING SCHEDULE:

	MON	TUE	WED	THU	FRI	SAT	SUN
	X	X	X	X	X		
POLL	1	2	3	4	5	6	8
TRANSLATION CHANGE MINOR					X		
POLLING INTERVAL(FPS)	24	24	24	24	72	0	0
TRAFFIC UPDATE	07:00	07:00	07:00	07:00	07:00	00:20	00:00
POLL TIME PBX	07:25	07:20	07:25	07:20	07:25	00:00	00:00
POLL TIME RMATS	22:42	22:42	22:43	22:43	22:44	00:00	00:00
DATE	09/09	09/10	09/11	09/12	09/15	00/00	00/00

DATE OF LAST POLL 09/15

SYSTEM ACTIVITY AND FEATURE USAGE PEG COUNTS

MEASUREMENT	1	2	3	4	5	6	7	8	AVG
-------------	---	---	---	---	---	---	---	---	-----

STATION FEATURE COUNTS

AUTO CALL PACK	88	101	123	152	147	0	0	0	122
CALL HOLD	217	231	184	172	183	0	0	0	197
CALL PICKUP	2511	2321	2258	2402	2688	0	0	0	2436
CALL WAIT ORIG	15	21	17	28	28	0	0	0	21
ANSWER HOLD	47	51	37	52	47	0	0	0	46
CALL FWD(ALL)	39	41	40	46	57	0	0	0	44
CALL FWD(EY/DA)	13	17	10	14	22	0	0	0	15
CALL FWD(DEACT)	62	67	53	65	80	0	0	0	65
SPEED CALL	320	291	339	403	527	0	0	0	386
CODE CALL	0	0	0	0	0	0	0	0	0
PAGING CODE DIAL	12	10	9	10	34	0	0	0	15
PAGING ANS PACK	1	7	3	4	3	0	0	0	3
CNCL OGT QUE/ACB	6	14	12	12	18	0	0	0	12

SYSTEM FEATURE COUNTS

PPOC LOAD IND A	0	0	0	1	0	0	0	0	0
TAAS CALL	0	0	0	0	0	0	0	0	0
TAAS CALL ABANDON	0	0	0	0	0	0	0	0	0
REM ACCESS RT CD	0	0	0	0	0	0	0	0	0
REM ACCESS WG CD	0	0	0	0	0	0	0	0	0
SMDR PLOCCAGE	0	0	0	0	0	0	0	0	0

Fig. 2—Traffic Summary Report—FP8 and FP12 Format (Sheet 1 of 14)

T P A F F I C S U M M A R Y R E P O R T

SYSTEM ACTIVITY AND FEATURE USAGE PEG COUNTS

MEASUREMENT	POLL								AVG
	1	2	3	4	5	6	7	8	

SYSTEM FEATURE COUNTS

CALL WT ORIG	1326	1332	1374	1518	1711	0	0	0	1452
--------------	------	------	------	------	------	---	---	---	------

ATTENDANT FEATURE COUNTS

ACTIVATE ACOT	0	0	0	0	0	0	0	0	0
DFACT ACOT	0	0	0	0	0	0	0	0	0
CONF CALL	0	0	0	0	0	0	0	0	0
CALLS ORIGINATED	0	0	0	0	0	0	0	0	0

MAIN/SAT FEATURE COUNTS  
INVALID AUTH CODE DIALLED-

BY STATION	27	31	20	17	21	0	0	0	23
BY TIE TRUNK	60	45	38	24	124	0	2	0	54
BY ATTENDANT	0	0	0	0	2	0	0	0	0
BY REM ACCESS	0	0	0	5	0	0	0	0	1

NETWORK COMPLETION ACCUMULATED COUNT

	POLL								AVG
	1	2	3	4	5	6	7	8	
DID TO BUSY STA	289	199	241	216	311	2	0	0	251
DID UNANSWERED	331	336	404	423	640	0	0	0	422
IN CALLS AFANDON	2	2	5	6	8	0	0	0	4
RNG PLK-MOD 2 FRM 1 CR 1-0	0	1	0	0	0	0	0	0	
RNG PLK-MOD 1 FRM 2 CR 4-0	0	0	18	0	0	0	0	0	
RNG ELK-MOD 2 FRM 2 CR 0-0	0	0	1	0	0	0	0	0	
RNG PLK-MOD 3 FRM 2 CR 0-0	0	0	1	0	0	0	0	0	
RNG PLK-MOD 0 FRM 2 CR 2-1	0	0	0	0	1	0	0	0	
RNG PLK-MOD 1 FRM 2 CP 4-1	0	0	0	0	1	0	2	0	

NETWORK ADMIN

TRK GRP	MEASUREMENT	TRK SIZE	POLL								ABBH
			1	2	3	4	5	6	7	8	
TIMESLOT	CCS		7301	7077	7227	7206	7432	0	0	0	7248
TIMESLOT	PFG		10823	9516	9268	12022	9998	0	0	0	9983
TNDM TRF	CCS		3652	3870	3592	3787	3486	0	0	0	3677

PROCESSOR OCCUPANCY

TRK GRP	MEASUREMENT	TRK SIZE	POLL								ABBH
			1	2	3	4	5	6	7	8	
TIMESLOT	PEG		10823	9516	11619	10722	9888	0	0	0	10373
TIMESLOT	CCS		7301	7077	6722	7206	7432	0	0	0	7147
OCCUPANCY	PCT		36.80	32.72	33.52	33.32	32.60	0.00	0.00	0.00	33.80
LD IND B	X100PEG		370	320	340	330	320	0	0	0	336

Fig. 2—Traffic Summary Report—FP8 and FP12 Format (Sheet 2 of 14)

PAGE 3

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## T R A F F I C S U M M A R Y R E P O R T

PROCESSOR OCCUPANCY		TRK POLL	1	2	3	4	5	6	7	8	ABH
TRK GRP	MEASUREMENT	SIZE									
	CALL PRC X100PEG		722	639	679	667	667	0	0	0	674
	ECTS STM X100PEG		0	0	0	0	0	0	0	0	0
	DT DELAY PEG		0	0	0	0	0	0	0	0	0
	DT REQST PEG		141	126	121	139	138	0	0	0	133

ATTENDANT POSN ADMIN		TRK POLL	1	2	3	4	5	6	7	8	ABH
TRK GRP	MEASUREMENT	SIZE									
WRKD GRP	CCS		47	45	51	48	36	0	0	0	45
TIME			1500	1500	1500	1500	1600	0	0	0	1520
MNND GRP	CCS		98	95	94	100	73	0	0	0	92
WRKD GRP	PLG		207	260	234	227	179	0	0	0	221
WK CNS 1	CCS		15	14	17	16	11	0	0	0	14
MN CNS 1	CCS		32	31	32	32	28	0	0	0	31
WK CNS 1	PLG		62	101	80	83	74	0	0	0	81
WK CNS 2	CCS		15	15	16	17	5	0	0	0	13
MN CNS 2	CCS		32	32	31	32	9	0	0	0	27
WK CNS 2	PEG		61	92	70	75	12	0	0	0	62
WK CNS 3	CCS		17	16	18	15	20	0	0	0	17
MN CNS 3	CCS		34	32	31	36	36	0	0	0	33
WK CNS 3	PLG		78	67	84	69	93	0	0	0	78
WK CNS 4	CCS		0	0	0	0	0	0	0	0	0
MN CNS 4	CCS		0	0	0	0	0	0	0	0	0
WK CNS 4	PEG		0	0	0	0	0	0	0	0	0
INCALL Q	CCS		3	4	6	10	5	0	0	0	5
INCALL Q	PLG		193	216	222	219	169	0	0	0	203
INCALL ABNDN	PEG		0	3	1	5	2	0	0	0	2
LDN CALL ANS	PEG		167	169	187	185	138	0	0	0	169
NCN LDN ANS	PEG		3	15	14	6	7	0	0	0	9
ATND RECALL	PEG		7	16	8	4	3	0	0	0	7
ATND ORIG	PLG		9	9	14	7	6	0	0	0	9

Fig. 2—Traffic Summary Report—FP8 and FP12 Format (Sheet 3 of 14)

PAGE 4

09/16/80 08:58

## T R A F F I C S U M M A R Y R E P O R T

## TRUNK GROUP MAINTENANCE BUSYOUTS AT PCLL TIME

TRK GRP	MEASUREMENT	TRK POLL SIZE	1	2	3	4	5	6	7	8
31	TIFTM				X					

## TRUNK GROUP COMBINATIONS

CCMEO 1		CCMEO 2		CCMEO 3	
TRK GRP	TRK TYPE	TRK GRP	TRK TYPE	TRK GRP	TRK TYPE
18	CO_1WC				
19	CO_2W				
20	CO_1WI				

MAIN-SATELLITE TRUNK GROUPS FOR SATELLITE A

NO MAIN-SATELLITE TRUNKS

MAIN-SATELLITE TRUNK GROUPS FOR SATELLITE B

NO MAIN-SATELLITE TRUNKS

MAIN-SATELLITE TRUNK GROUPS FOR SATELLITE C

NO MAIN-SATELLITE TRUNKS

MAIN-SATELLITE TRUNK GROUPS FOR SATELLITE D

NO MAIN-SATELLITE TRUNKS

Fig. 2—Traffic Summary Report—FP8 and FP12 Format (Sheet 4 of 14)

PAGE 5

09/16/80 08:58

## T R A F F I C S U M M A R Y R E P O R T

## TRUNK GROUP SUMMARY

TRK GRP	MEASUREMENT	TRK SIZE	POLL 1	2	3	4	5	6	7	8	ABBH	
15	INCOM	CCS	150	567	520	600	650	710	0	0	0	609
15	INCOM	PEG	150	690	589	766	764	803	0	0	0	722
16	DP_DR	CCS	20	25	22	25	19	27	0	0	0	23
16	DP_DR	PEG	20	426	383	433	419	415	0	0	0	415
17	TT_DR	CCS	24	342	276	282	301	293	0	0	0	296
17	TT_DR	PEG	24	4913	4147	4162	4552	4403	0	0	0	4435
18	CO_1WO	CCS	6	162	213	111	161	132	0	0	0	156
18	CO_1WO	PEG	6	165	211	106	155	130	0	0	0	153
18	CO_1WO	OVL	6	41	18	7	11	31	0	0	0	22
	TIME			2000	2000	1900	1900	2000	0	0	0	1960
19	CO_2WO	CCS	10	200	260	239	309	295	0	0	0	261
19	CO_2WO	PEG	10	135	191	134	195	111	0	0	0	153
19	CO_2WO	OVL	10	0	0	0	0	0	0	0	0	0
19	CO_2WO	CCSI	10	32	33	41	31	32	0	0	0	34
	TIME			2000	2000	1900	1900	2000	0	0	0	1900
20	CO_1WI	CCS	19	253	319	308	259	304	0	0	0	288
20	CO_1WI	PEG	19	142	160	125	94	133	0	0	0	130
	TIME			100	2000	2400	1900	2000	0	0	0	1680
21	WT_1WO	CCS	10	306	283	256	266	310	0	0	0	294
21	WT_1WO	PEG	10	165	142	166	142	161	0	0	0	155
21	WT_1WC	OVL	10	41	18	7	11	31	0	0	0	21
	TIME			2000	1900	100	2000	2400	0	0	0	1680
22	PCSACS	CCS	8	6	15	3	17	13	0	0	0	10
22	PCSACS	PEG	8	1	4	6	4	1	0	0	0	3
22	PCSACS	OVL	8	0	0	0	0	0	0	0	0	0
	TIME			900	500	700	300	2400	0	0	0	960
23	DID_WS	CCS	38	612	584	653	635	649	0	0	0	626
23	DID_WS	PEG	38	398	377	421	357	398	0	0	0	390
	TIME			2000	2400	2400	2400	2000	0	0	0	2240
24	TIE2DEW	CCS	19	300	360	239	309	295	0	0	0	300
24	TIE2DEW	PEG	19	135	191	134	195	211	0	0	0	173
24	TIE2DDW	OVL	19	0	0	0	0	0	0	0	0	0
24	TIE2DDW	CCSI	19	162	213	111	161	132	0	0	0	155

Fig. 2—Traffic Summary Report—FP8 and FP12 Format (Sheet 5 of 14)

## T R A F F I C S U M M A R Y R E P O R T

## TRUNK GROUP SUMMARY

TRK GRP	MEASUREMENT	TRK SIZE	POLL 1	2	3	4	5	6	7	8	ABR	
24	TIE2DDW TIME	INPG	19	69 2000	92 1900	61 1900	91 1900	111 100	0 0	0 0	0 0	84 1560
25	TIE2DDW	CCS	7	219	230	221	227	225	0	0	0	224
25	TIE2DDW	PEG	7	68	82	98	108	87	0	0	0	89
25	TIE2DDW	OVL	7	22	50	40	67	42	0	0	0	44
25	TIE2DDW	CCSI	7	85	92	110	124	124	0	0	0	107
25	TIE2DDW TIME	INPG	7	18 200	28 200	33 2400	57 2100	36 100	0 0	0 0	0 0	34 1000
26	TIE2DDW	CCS	19	529	559	559	567	493	0	0	0	541
26	TIE2DDW	PEG	19	298	366	292	361	316	0	0	0	326
26	TIE2DDW	OVL	19	16	17	23	10	7	0	0	0	14
26	TIE2DDW	CCSI	19	158	193	166	229	166	0	0	0	182
26	TIE2DDW TIME	INPG	19	154 100	147 2400	99 2400	155 2400	114 100	0 0	0 0	0 0	133 1480
27	TIE2DDW	CCS	14	340	378	306	320	308	0	0	0	330
27	TIE2DDW	PEG	14	220	230	194	242	174	0	0	0	212
27	TIE2DDW	OVL	14	4	5	3	1	1	0	0	0	2
27	TIE2DDW	CCSI	14	126	191	113	131	146	0	0	0	141
27	TIE2DDW TIME	INPG	14	106 2400	128 1900	85 2400	75 1900	67 2400	0 0	0 0	0 0	92 2200
28	TIE2DDW	CCS	21	667	592	642	621	643	0	0	0	633
28	TIE2DDW	PEG	21	484	491	434	462	480	0	0	0	474
28	TIE2DDW	OVL	21	47	8	30	20	16	0	0	0	24
28	TIE2DDW	CCSI	21	284	325	333	306	178	0	0	0	285
28	TIE2DDW TIME	INPG	21	212 2400	289 2000	223 2000	213 2000	205 100	0 0	0 0	0 0	228 1700
29	TIETM	CCS	18	345	288	250	366	313	0	0	0	312
29	TIETM	PEG	18	357	218	170	305	236	0	0	0	257
29	TIETM	OVL	18	0	0	0	0	0	0	0	0	0
29	TIETM	CCSI	18	208	194	153	320	240	0	0	0	223
29	TIETM TIME	INPG	18	263 2000	168 1900	127 2400	280 2100	193 2000	0 0	0 0	0 0	210 2080
30	TIETM	CCS	12	293	311	315	332	314	0	0	0	313
30	TIETM	PEG	12	215	185	220	222	217	0	0	0	211
30	TIETM	OVL	12	3	15	9	22	3	0	0	0	10
30	TIETM	CCSI	12	206	247	263	240	200	0	0	0	231

Fig. 2 —Traffic Summary Report—FP8 and FP12 Format (Sheet 6 of 14)

T R A F F I C S U M M A R Y R E P O R T

TRUNK GROUP SUMMARY

TRK GRP	MEASUREMENT	TRK SIZE	POLL 1	2	3	4	5	6	7	8	ARRH	
	TIME		1700	1200	1500	1700	1600	0	0	0	1540	
64	CO_1WI	CCS	1	2	0	0	1	3	0	0	1	
64	CO_1WI	PEG	1	3	0	0	1	2	0	0	1	
83	Q_TRK	CCS		0	0	0	0	0	0	0	0	
83	Q_TRK	PEG		3	0	0	1	2	0	0	0	
	TIME		1500	1959	2000	1700	1200	0	0	0	1671	
65	CO_1WI	CCS	1	0	0	0	0	0	0	0	0	
65	CO_1WI	PEG	1	0	0	0	0	0	0	0	0	
82	Q_TRK	CCS		0	0	0	0	0	0	0	0	
82	Q_TRK	PEG		0	0	0	0	0	0	0	0	
	TIME		2000	1959	2000	2200	2000	0	0	0	1991	
98	6_WAY	CCS	2	0	0	0	0	0	0	0	0	
98	6_WAY	PEG	2	0	0	0	0	0	0	0	0	
98	6_WAY	OVL	2	0	0	0	0	0	0	0	0	
96	Q_TRK	CCS		0	0	0	0	0	0	0	0	
96	Q_TRK	PEG		0	0	0	0	0	0	0	0	
89	Q_TRK	CCS		0	0	0	0	0	0	0	0	
89	Q_TRK	PEG		0	0	0	0	0	0	0	0	
81	Q_TRK	CCS		0	0	0	0	0	0	0	0	
81	Q_TRK	PEG		0	0	0	0	0	0	0	0	
TRUNK GROUP COMBO 1 ASSOC TRK GRPS:			18	19	20							
1	COMBO	CCS		900	809	607	707	578	0	0	720	
18	CO_1WO	CCS	6	176	187	162	190	171	0	0	177	
18	CO_1WO	PEG	6	160	170	147	173	155	0	0	161	
18	CO_1WO	OVL	6	167	148	92	143	171	0	0	144	
19	CO_2WO	CCS	10	223	191	134	195	211	0	0	191	
19	CO_2WO	CCSI	10	39	28	33	38	23	0	0	32	
19	CO_2WO	INPG	10	65	47	55	63	38	0	0	54	
20	CO_1WI	CCS	19	501	431	311	322	196	0	0	352	
20	CO_1WI	PEG	19	835	715	520	534	325	0	0	586	
	TIME			1500	1600	1959	2000	1700				1753

Fig. 2—Traffic Summary Report—FP8 and FP12 Format (Sheet 7 of 14)

T R A F F I C S U M M A R Y R E P O R T

POLI 1 2 3 4 5 6 7 8  
 AFS PLAN IN EFFECT 1 1 1 1 1 1

ACCUMULATED PEG COUNTS AUTOMATIC ROUTE SELECTION

PLAN ROUTE		PREFERENCE									
		1	2	3	4	5	6	7	8	9	10
1	2 PEG	1576	0	0	0	0	0	0	0	0	0
1	2 OVFL	0	0	0	0	0	0	0	0	0	0
1	3 PEG	1738	467	11	0	0	0	0	0	0	0
1	3 OVFL	0	13	0	0	0	0	0	0	0	0
1	4 PEG	971	2	0	0	0	0	0	0	0	0
1	4 OVFL	9	0	0	0	0	0	0	0	0	0
1	6 PEG	1815	25	0	0	0	0	0	0	0	0
1	6 OVFL	89	0	0	0	0	0	0	0	0	0
1	7 PEG	5974	4	0	0	0	0	0	0	0	0
1	7 OVFL	13	0	0	0	0	0	0	0	0	0
1	8 PEG	151	3	0	0	0	0	0	0	0	0
1	8 OVFL	0	0	0	0	0	0	0	0	0	0
2	2 PEG	0	0	0	0	0	0	0	0	0	0
2	2 OVFL	0	0	0	0	0	0	0	0	0	0
2	3 PEG	0	0	0	0	0	0	0	0	0	0
2	3 OVFL	0	0	0	0	0	0	0	0	0	0
2	4 PEG	0	0	0	0	0	0	0	0	0	0
2	4 OVFL	0	0	0	0	0	0	0	0	0	0
2	6 PEG	0	0	0	0	0	0	0	0	0	0
2	6 OVFL	0	0	0	0	0	0	0	0	0	0
2	7 PEG	0	0	0	0	0	0	0	0	0	0
2	7 OVFL	0	0	0	0	0	0	0	0	0	0
2	8 PEG	0	0	0	0	0	0	0	0	0	0
2	8 OVFL	0	0	0	0	0	0	0	0	0	0
3	2 PEG	0	0	0	0	0	0	0	0	0	0
3	2 OVFL	0	0	0	0	0	0	0	0	0	0
3	3 PEG	0	0	0	0	0	0	0	0	0	0
3	3 OVFL	0	0	0	0	0	0	0	0	0	0

Fig. 2—Traffic Summary Report—FP8 and FP12 Format (Sheet 8 of 14)

PAGE - 9

09/16/80 06:57

## T R A F F I C S U M M A R Y R E P O R T

PATTERN	AUTOMATIC ALTERNATE ROUTING			
	ACCUMULATED PEG COUNTS			
	PREFERENCE			
	1	2	3	4
6 PEG	309	4	2	0
6 OVFL	14	0	0	0
7 PEG	553	1	0	0
7 OVFL	4	0	0	0
8 PEG	215	0	0	0
8 OVFL	4	0	0	0
10 PEG	339	0	0	0
10 OVFL	1	0	0	0
11 PEG	134	0	0	0
11 OVFL	4	0	0	0
14 PEG	3	0	0	0
14 OVFL	2	2	0	0
20 PEG	29	2	0	0
20 OVFL	0	0	0	0
21 PEG	16	0	0	0
21 OVFL	18	0	0	0
22 PEG	36	14	0	0
22 OVFL	0	0	0	0
23 PEG	25	0	0	0
23 OVFL	0	0	0	0
24 PEG	15	13	0	0
24 OVFL	0	0	0	0
25 PEG	7	0	0	0
25 OVFL	0	0	0	0
26 PEG	0	0	0	0
26 OVFL	0	0	0	0
27 PEG	1	0	0	0
27 OVFL	0	0	0	0

Fig. 2—Traffic Summary Report—FP8 and FP12 Format (Sheet 9 of 14)

## T R A F F I C S U M M A R Y R E P O R T

## A C A A U D I T T R A I L

POLL 5

ACA PEG COUNT

0

TRK TEST PEG COUNT

1

DATE

TIME

TRK

ACCESS CODE

TRK INDEX

TESTED

REFERAL

POLL 4

ACA PEG COUNT

0

TRK TEST PEG COUNT

20

DATE

TIME

TRK

ACCESS CODE

TRK INDEX

TESTED

REFERAL

POLL 3

ACA PEG COUNT

0

TRK TEST PEG COUNT

92

DATE

TIME

TRK

ACCESS CODE

TRK INDEX

TESTED

REFERAL

POLL 2

ACA PEG COUNT

0

TRK TEST PEG COUNT

16

DATE

TIME

TRK

ACCESS CODE

TRK INDEX

TESTED

REFERAL

POLL 1

ACA PEG COUNT

0

TRK TEST PEG COUNT

97

DATE

TIME

TRK

ACCESS CODE

TRK INDEX

TESTED

REFERAL

Fig. 2—Traffic Summary Report—FP8 and FP12 Format (Sheet 10 of 14)

T R A F F I C S U M M A R Y R E P O R T

LINE/TRUNK USAGE ANAL

MOD 0 FRAME 0 TRUNK CARR 1

CKT	POLL	1	2	3	4	5	6	7	8	AVG
0		0	0	0	0	0	0	0	0	0
1		0	0	0	0	0	0	0	0	0
2		0	0	0	0	0	0	0	0	0
3		0	0	0	0	0	0	0	0	0
4		0	1	0	0	0	0	0	0	0
5		0	2	0	1	1	0	0	0	0
6		0	0	2	0	0	0	0	0	0
7		0	1	0	1	0	0	0	0	0
8		0	0	0	0	0	0	0	0	0
9		0	0	0	0	0	0	0	0	0
10		1	4	1	0	0	0	0	0	1
11		0	0	0	0	0	0	0	0	0
12		0	2	0	0	0	0	0	0	0
13		0	0	0	0	0	0	0	0	0
14		0	2	0	0	0	0	0	0	0
15		0	0	0	2	0	0	0	0	0
16		17	19	6	10	11	0	0	0	14
17		16	4	1	0	0	0	0	0	4
18		1	0	0	0	0	0	0	0	0
19		1	0	0	0	0	0	0	0	0
20		0	0	0	0	0	0	0	0	0
21		0	0	0	0	0	0	0	0	0
22		0	0	0	0	0	0	0	0	0
23		0	0	0	0	0	0	0	0	0
24		0	0	0	2	0	0	0	0	0
25		0	0	0	0	0	0	0	0	0
26		0	0	0	0	0	0	0	0	0
27		0	0	0	0	0	0	0	0	0
28		0	0	0	0	0	0	0	0	0
29		0	0	0	0	0	0	0	0	0
30		0	0	0	0	0	0	0	0	0
31		0	0	0	0	0	0	0	0	0

MOD 0 FRAME 0 TRUNK CARR 2

CKT	POLL	1	2	3	4	5	6	7	8	AVG
0		0	0	0	0	0	0	0	0	0
1		0	0	0	0	0	0	0	0	0
2		0	0	0	0	0	0	0	0	0
3		0	0	0	0	0	0	0	0	0
4		0	0	0	0	0	0	0	0	0
5		0	0	0	0	0	0	0	0	0

Fig. 2—Traffic Summary Report—FP8 and FP12 Format (Sheet 11 of 14)

## T R A F F I C S U M M A R Y R E P O R T

## LOAD BALANCE ANAL

TRK GRP 1 NOT ASSIGNED			TRK GRP 2 ALL TRKS							
MOD	0	NETWORK ADMIN POLL 1	2	3	4	5	6	7	8	APBH
TIMESLOT	CCS	1754	1693	1764	1737	1728	0	0	0	1735
INTRAMOD INTERCOM	CCS	27	14	17	30	23	0	0	0	22
INTRAMOD LINE_TG1	CCS	0	0	0	0	0	0	0	0	0
INTPAMOD LINE_TG2	CCS	197	199	162	201	211	0	0	0	192
INTRAMOD TG1_LINE	CCS	0	0	0	0	0	0	0	0	0
INTRAMOD TG2_LINE	CCS	36	37	35	49	48	0	0	0	40
INTRAMOD TNDM T12	CCS	0	0	0	0	0	0	0	0	0
INTRAMOD TNDM T21	CCS	467	432	478	427	410	0	0	0	442
MOD 1 NETWORK ADMIN POLL 1			2	3	4	5	6	7	8	APBH
TIMESLOT	CCS	2206	2144	2271	2246	2305	0	0	0	2234
INTRAMOD INTERCOM	CCS	49	58	63	60	85	0	0	0	63
INTRAMOD LINE_TG1	CCS	0	0	0	0	0	0	0	0	0
INTRAMOD LINE_TG2	CCS	344	352	377	422	401	0	0	0	379
INTRAMOD TG1_LINE	CCS	0	0	0	0	0	0	0	0	0
INTRAMOD TG2_LINE	CCS	77	74	63	45	78	0	0	0	67
INTRAMOD TNDM T12	CCS	0	0	0	0	0	0	0	0	0
INTRAMOD TNDM T21	CCS	396	411	389	383	362	0	0	0	388
MOD 2 NETWORK ADMIN POLL 1			2	3	4	5	6	7	8	APBH
TIMESLOT	CCS	1644	1602	1709	1661	1770	0	0	0	1677
INTRAMOD INTERCOM	CCS	19	23	12	12	25	0	0	0	18
INTRAMOD LINE_TG1	CCS	0	0	0	0	0	0	0	0	0
INTRAMOD LINE_TG2	CCS	189	205	188	354	292	0	0	0	245
INTRAMOD TG1_LINE	CCS	0	0	0	0	0	0	0	0	0
INTRAMOD TG2_LINE	CCS	34	38	14	31	49	0	0	0	33
INTRAMOD TNDM T12	CCS	0	0	0	0	0	0	0	0	0
INTRAMOD TNDM T21	CCS	324	410	353	387	348	0	0	0	366
MOD 3 NETWORK ADMIN POLL 1			2	3	4	5	6	7	8	APBH
TIMESLOT	CCS	1699	1666	1492	1597	1659	0	0	0	1622
INTRAMOD INTERCOM	CCS	32	26	9	25	45	0	0	0	27
INTRAMOD LINE_TG1	CCS	0	0	0	0	0	0	0	0	0
INTRAMOD LINE_TG2	CCS	235	321	247	183	230	0	0	0	241
INTRAMOD TG1_LINE	CCS	0	0	0	0	0	0	0	0	0
INTRAMOD TG2_LINE	CCS	20	28	28	30	16	0	0	0	24
INTRAMOD TNDM T12	CCS	0	0	0	0	0	0	0	0	0
INTRAMOD TNDM T21	CCS	289	335	243	326	300	0	0	0	298

Fig. 2—Traffic Summary Report—FP8 and FP12 Format (Sheet 12 of 14)

PAGE 13

09/16/80 09:04

## T F A F F I C S U M M A R Y R E P O R T

## LOAD BALANCE ANAL

TRK GRP 1 NOT ASSIGNED				TRK GRP 2 ALL TPKS										
LINK GRP	0- 1	SIZE	20 POLL	1	2	3	4	5	6	7	8	ABEF		
LINK TRF /GRP	CCS	321	306	299	268	369	0	0	0	0	0	312		
INTERMOD INTERCOM	CCS	61	48	80	58	68	0	0	0	0	0	63		
INTERMOD LINE_TG1	CCS	0	0	0	0	0	0	0	0	0	0	0		
INTERMOD LINE_TG2	CCS	41	86	46	45	62	0	0	0	0	0	56		
INTERMOD TG1_LINE	CCS	0	0	0	0	0	0	0	0	0	0	0		
INTERMOD TG2_LINE	CCS	125	120	111	111	179	0	0	0	0	0	129		
INTERMOD TNDM T12	CCS	0	0	0	0	0	0	0	0	0	0	0		
INTERMOD TNDM T21	CCS	94	52	62	54	60	0	0	0	0	0	64		
LINK GRP 0- 2				SIZE	20 POLL	1	2	3	4	5	6	7	8	ABRH
LINK TRF /GRP	CCS	261	290	300	278	255	0	0	0	0	0	276		
INTERMOD INTERCOM	CCS	32	46	55	53	43	0	0	0	0	0	45		
INTERMOD LINE_TG1	CCS	0	0	0	0	0	0	0	0	0	0	0		
INTERMOD LINE_TG2	CCS	69	58	19	30	56	0	0	0	0	0	46		
INTERMOD TG1_LINE	CCS	0	0	0	0	0	0	0	0	0	0	0		
INTERMOD TG2_LINE	CCS	81	70	152	114	115	0	0	0	0	0	106		
INTERMOD TNDM T12	CCS	0	0	0	0	0	0	0	0	0	0	0		
INTERMOD TNDM T21	CCS	79	116	74	81	41	0	0	0	0	0	78		
LINK GRP 0- 3				SIZE	20 POLL	1	2	3	4	5	6	7	8	ABBH
LINK TRF /GRP	CCS	317	341	334	308	321	0	0	0	0	0	324		
INTERMOD INTERCOM	CCS	41	39	39	50	48	0	0	0	0	0	43		
INTERMOD LINE_TG1	CCS	0	0	0	0	0	0	0	0	0	0	0		
INTERMOD LINE_TG2	CCS	66	49	43	54	34	0	0	0	0	0	49		
INTERMOD TG1_LINE	CCS	0	0	0	0	0	0	0	0	0	0	0		
INTERMOD TG2_LINE	CCS	101	103	122	71	79	0	0	0	0	0	95		
INTERMOD TNDM T12	CCS	0	0	0	0	0	0	0	0	0	0	0		
INTERMOD TNDM T21	CCS	109	150	130	133	160	0	0	0	0	0	136		
LINK GRP 1- 2				SIZE	20 POLL	1	2	3	4	5	6	7	8	ABEF
LINK TRF /GRP	CCS	331	347	401	347	322	0	0	0	0	0	349		
INTERMOD INTERCOM	CCS	54	46	55	62	57	0	0	0	0	0	54		
INTERMOD LINE_TG1	CCS	0	0	0	0	0	0	0	0	0	0	0		
INTERMOD LINE_TG2	CCS	57	69	32	48	71	0	0	0	0	0	55		
INTERMOD TG1_LINE	CCS	0	0	0	0	0	0	0	0	0	0	0		
INTERMOD TG2_LINE	CCS	134	165	210	132	95	0	0	0	0	0	147		
INTERMOD TNDM T12	CCS	0	0	0	0	0	0	0	0	0	0	0		
INTERMOD TNDM T21	CCS	86	67	104	105	99	0	0	0	0	0	92		

Fig. 2—Traffic Summary Report—FP8 and FP12 Format (Sheet 13 of 14)

## T R A F F I C S U M M A R Y R E P O R T

## LOAD BALANCE ANAL

TRK GRP 1 NOT ASSIGNED

TRK GRP 2 ALL TRKS

LINK GRP	1- 3	SIZE	20	POLL	1	2	3	4	5	6	7	8	ABBE
LINK TRF /GRP	CCS	390	318	330	361	365	0	0	0	0	0	0	352
INTERMOD INTERCOM	CCS	56	62	73	63	86	0	0	0	0	0	0	69
INTERMOD LINE_TG1	CCS	0	0	0	0	0	0	0	0	0	0	0	0
INTERMOD LINE_TG2	CCS	114	85	75	84	82	0	0	0	0	0	0	28
INTERMOD TG1_LINE	CCS	0	0	0	0	0	0	0	0	0	0	0	0
INTERMOD TG2_LINE	CCS	119	70	125	106	99	0	0	0	0	0	0	99
INTERMOD TNDM T12	CCS	0	0	0	0	0	0	0	0	0	0	0	0
INTERMOD TNDM T21	CCS	101	101	77	108	98	0	0	0	0	0	0	97
LINK GRP	2- 3	SIZE	20	POLL	1	2	3	4	5	6	7	8	ABBE
LINK TRF /GRP	CCS	285	197	200	214	260	0	0	0	0	0	0	229
INTERMOD INTERCOM	CCS	48	26	43	58	41	0	0	0	0	0	0	43
INTERMOD LINE_TG1	CCS	0	0	0	0	0	0	0	0	0	0	0	0
INTERMOD LINE_TG2	CCS	37	39	32	29	72	0	0	0	0	0	0	41
INTERMOD TG1_LINE	CCS	0	0	0	0	0	0	0	0	0	0	0	0
INTERMOD TG2_LINE	CCS	95	54	86	61	106	0	0	0	0	0	0	80
INTERMOD TNDM T12	CCS	0	0	0	0	0	0	0	0	0	0	0	0
INTERMOD TNDM T21	CCS	105	68	39	67	41	0	0	0	0	0	0	64

Fig. 2—Traffic Summary Report—FP8 and FP12 Format (Sheet 14 of 14)

PAGE 1

01/23/81 13:15

T R A F F I C S U M M A R Y R E P O R T

GENERATED BY REQUEST

RMATS FACILITY-GEORGIA 3 UNIT 2

PBX ID # 3 COMPANY NAME-PBX- 74391

SYSTEM CONFIGURATION SE011-04L1.1  
 DAYS STUDIED 5 STA LINES 753  
 ECTS LINES 33 ECTS STA 36  
 ATND POSN 5 MODULES 1  
 LINE CARR 13 TRUNK CARR 5  
 IND ECF LOADS 0 RM ECF LOADS 8

H/M FEATURES

PM STATUS--LDB--PMS--MSG WAIT-- LC BILL--ECF--CNT REST--WAKE-UP  
 PMS ACT ACT ACT PMS ACT PMS ACT ACT PMS ACT ACT  
 X X X X X X X X

POLLING SCHEDULE: MON TUE WED THU FRI SAT SUN  
 X X X X X

POLL	1	2	3	4	5	6	7	8
TRANSLATION CHANGED AT 18:11 ON			1/15					
POLLING INTERVAL(HRS)	24	72	24	24	24	0	0	0
TRAFFIC UPDATE	17:50	17:50	17:50	17:49	17:50	00:00	00:00	00:00
POLL TIME PEX	18:05	18:06	18:07	18:09	18:09	00:00	00:00	00:00
POLL TIME RMATS	18:07	18:07	18:07	18:06	18:07	00:00	00:00	00:00
DATE	01/16	01/19	01/20	01/21	01/22	00/00	00/00	00/00
			DATE OF LAST POLL			01/22		

SYSTEM ACTIVITY AND FEATURE USAGE PEG COUNTS

MEASUREMENT	POLL								E	AVG
	1	2	3	4	5	6	7	8		

STATION FEATURE COUNTS

AUTO CALL BACK	19	30	37	23	24	0	0	0	0	26
CALL HOLD	15	11	16	13	19	0	0	0	0	14
CALL PICKUP	945	1764	974	1002	973	0	0	0	0	1131
ANSWER HOLD	1	0	0	1	2	0	0	0	0	0
CALL FWD(ALL)	20	21	11	22	18	0	0	0	0	18
CALL FWD(BY/DA)	2	1	3	3	1	0	0	0	0	2
CALL FWD(DEACT)	28	11	11	26	29	0	0	0	0	21
SPEED CALL	9	8	1	6	1	0	0	0	0	5
PAGING CODE DIAL	129	255	152	196	136	0	0	0	0	179
PAGING ANS BACK	63	161	98	120	59	0	0	0	0	96
CNCL OGT QUE/ACB	3	3	3	2	3	0	0	0	0	2

SYSTEM FEATURE COUNTS

Fig. 3—Traffic Summary Report—FP11 Format (Sheet 1 of 6)

## T R A F F I C S U M M A R Y R E P O R T

## SYSTEM ACTIVITY AND FEATURE USAGE PEG COUNTS

MEASUREMENT	POLL								AVG
	1	2	3	4	5	6	7	8	

## SYSTEM FEATURE COUNTS

REM ACCESS RT CD	7	29	1	11	18	0	0	0	13
REM ACCESS WG CD	1	0	0	2	2	0	0	0	1
CALL WAITING	580	808	492	521	532	0	0	0	586
VALID SEC CODE	14	25	4	7	12	0	0	0	12

## ATTENDANT FEATURE COUNTS

ACTIVATE ACOT	0	1	0	0	0	0	0	0	0
CALLS ORIG/START	86	269	113	82	77	0	0	0	125

## ECTS STATION FEATURE COUNTS

AUTO CALL BACK	3	3	3	0	1	0	0	0	2
CALL HOLD	1	0	0	0	0	0	0	0	0
CALL PICKUP	7	16	1	3	8	0	0	0	7
CALL FWD(ALL)	2	2	0	0	0	0	0	0	0
CALL FWD(BY/DA)	2	7	0	0	1	0	0	0	2

## B/M SYSTEM ACCUMULATED FEATURE COUNTS

E/M CNS EMERG ACS	4	14	3	2	6	0	0	0	5
HSKPR CODE VALID	650	1857	650	604	582	0	0	0	868
HSKPR CODE INVAL	181	548	186	130	130	0	0	0	235
SGLE LINE RESTRIC	16	40	27	19	13	0	0	0	23
BLKD CALLS (REST)	266	612	152	54	54	0	0	0	227
PIC PRNTR DOWN	0	0	0	0	1	0	0	0	0
ECF CHAN FAIL	0	0	0	0	1	0	0	0	0

## PMS MESSAGE COUNTS

## NETWORK COMPLETION ACCUMULATED COUNT

MEASUREMENT	POLL								AVG
	1	2	3	4	5	6	7	8	
DID TO BUSY STA	54	106	56	54	67	0	0	0	67
DID UNANSWERED	135	203	123	119	131	0	0	0	142
IN CALLS ABANDON	17	80	44	29	30	0	0	0	40
RNG BLK-MOD 0 CAB 2 CR 3-0	0	1	0	0	0	0	0	0	
RNG BLK-MOD 0 CAB 3 CR 3-0	0	0	0	1	1	0	0	0	

## NETWORK ADMIN

TRK GRP	MEASUREMENT	TRK POLL SIZE	POLL							
			1	2	3	4	5	6	7	8

Fig. 3—Traffic Summary Report—FP11 Format (Sheet 2 of 6)



## T R A F F I C S U M M A R Y R E P O R T

PACKET 9 OCCUPANCY PROFILE											
TRK GRP	MEASUREMENT	TRK POLL SIZE	1	2	3	4	5	6	7	8	ABBR
INTERVAL # 24	PCT	43.00	43.42	43.68	41.82	41.02	0.00	0.00	0.00	42.58	
INTERVAL # 25	PCT	44.20	44.32	42.38	42.60	43.30	0.00	0.00	0.00	43.36	
INTERVAL # 26	PCT	45.44	43.96	41.28	41.18	43.00	0.00	0.00	0.00	42.98	
INTERVAL # 27	PCT	44.56	46.80	42.04	43.06	41.28	0.00	0.00	0.00	43.54	
INTERVAL # 28	PCT	41.94	44.42	40.60	42.56	41.10	0.00	0.00	0.00	42.14	
INTERVAL # 29	PCT	41.68	43.00	41.08	41.54	41.58	0.00	0.00	0.00	41.78	
INTERVAL # 30	PCT	42.52	41.24	42.30	41.80	42.26	0.00	0.00	0.00	42.02	
INTERVAL # 31	PCT	40.04	40.48	41.52	41.48	42.30	0.00	0.00	0.00	41.16	
INTERVAL # 32	PCT	40.08	39.24	42.34	40.32	42.60	0.00	0.00	0.00	40.92	
INTERVAL # 33	PCT	44.70	40.00	43.26	42.52	40.40	0.00	0.00	0.00	42.18	
INTERVAL # 34	PCT	44.44	40.16	41.34	40.88	43.10	0.00	0.00	0.00	41.98	
INTERVAL # 35	PCT	42.20	39.46	40.80	40.58	41.62	0.00	0.00	0.00	40.94	
INTERVAL # 36	PCT	42.14	38.66	42.38	41.36	39.52	0.00	0.00	0.00	40.82	
TIME		1650	1650	1150	1152	1550	0	0	0	1430	

ATTENDANT POSN ADMIN											
TRK GRP	MEASUREMENT	TRK POLL SIZE	1	2	3	4	5	6	7	8	ABBR
WRKD GRP	CCS		73	70	73	60	66	0	0	0	66
ACTV GRP	CCS		106	100	108	98	90	0	0	0	100
INCALL Q	CCS		10	25	6	14	26	0	0	0	16
INCALL Q	PEG		388	452	434	427	356	0	0	0	411
WRKD GRP	PEG		418	449	447	422	352	0	0	0	417
WK CNS 1	CCS		22	23	27	22	23	0	0	0	23
WK CNS 1	PEG		153	190	152	162	141	0	0	0	159
WK CNS 2	CCS		0	0	0	0	0	0	0	0	0
WK CNS 2	PEG		0	0	0	0	0	0	0	0	0
WK CNS 3	CCS		0	0	0	0	0	0	0	0	0
WK CNS 3	PEG		0	0	0	0	0	0	0	0	0
WK CNS 4	CCS		22	21	24	18	14	0	0	0	19
WK CNS 4	PEG		155	127	156	96	69	0	0	0	120
WK CNS 5	CCS		29	26	22	20	29	0	0	0	25
WK CNS 5	PEG		110	132	139	164	142	0	0	0	137
INCALL ABNDN	PEG		2	4	5	7	11	0	0	0	5
LDN CALL ANS	PEG		264	313	292	278	247	0	0	0	278
NON LDN ANS	PEG		0	0	0	0	0	0	0	0	0
ATND RECALL	PEG		6	10	5	7	7	0	0	0	7
ATND ORG/STRPEG			9	4	6	8	2	0	0	0	5

H/M SYSTEM ADMIN											
TRK GRP	MEASUREMENT	TRK POLL SIZE	1	2	3	4	5	6	7	8	ABBR

Fig. 3—Traffic Summary Report—FP11 Format (Sheet 4 of 6)

T R A F F I C S U M M A R Y R E P O R T

TRK GRP	H/M SYSTEM ADMIN MEASUREMENT	TRK POLL SIZE								9	ABBR
			1	2	3	4	5	6	7		
	PRINTER OR CCS	36	36	36	36	36	0	0	0	36	
	PRINTER OR PEG	0	0	0	0	0	0	0	0	0	
	ATND CNS H/M CCS	1	2	2	1	1	0	0	0	1	
	ATND CNS H/M PEG	2	10	15	1	6	0	0	0	6	
	STA CNS H/M CCS	10	34	3	2	13	0	0	0	12	
	STA CNS H/M PEG	33	14	79	60	5	0	0	0	38	
	ATND CNS CHK CCS	0	1	0	0	0	0	0	0	0	
	ATND CNS CHK PEG	0	1	0	0	0	0	0	0	0	
	STA CNS CHK CCS	9	34	2	2	13	0	0	0	12	
	STA CNS CHK PEG	3	7	33	26	1	0	0	0	14	
	TOTL CNS BTN PEG	2048	2519	2373	2141	1978	0	0	0	2211	
	H/M PRTR 1 CCS	3	72	0	0	1	0	0	0	15	
	H/M PRTR 1 PEG	543	0	82	10	68	0	0	0	140	
	H/M PRTR 2 CCS	0	0	0	0	0	0	0	0	0	
	H/M PRTR 2 PEG	0	0	0	0	0	0	0	0	0	
	H/M PRTR 3 CCS	0	0	0	0	0	0	0	0	0	
	H/M PRTR 3 PEG	0	0	0	0	0	0	0	0	0	
	H/M PRTR 4 CCS	0	0	0	0	0	0	0	0	0	
	H/M PRTR 4 PEG	6	6	0	0	8	0	0	0	4	
	H/M PRTR 5 CCS	0	0	0	0	0	0	0	0	0	
	H/M PRTR 5 PEG	0	0	0	0	0	0	0	0	0	
	MED BFR BUSY PCT	0.00	0.00	0.00	0.00	0.00	480.00	140.60	140.40	0.00	
	MED BFR SIEZE PEG	0	0	0	0	0	0	0	0	0	
	MED BFR FAIL PEG	0	0	0	0	0	0	0	0	0	
	EC SEND DLY CCS	3	3	6	2	3	0	0	0	3	
	EC SEND PEG	1758	1776	1752	1758	1728	0	0	0	1754	
	EC SEND CCS	7	7	7	7	7	0	0	0	7	
	RM ECF CNTRL PEG	10	11	11	11	9	0	0	0	10	

Fig. 3—Traffic Summary Report—FP11 Format (Sheet 5 of 6)

T R A F F I C S U M M A R Y R E P O R T

H/M SYSTEM ADMIN		TRK POLL									
TRK	MEASUREMENT	SIZE	1	2	3	4	5	6	7	8	ABSH
IND ECF CNTRLPEG			0	0	0	0	0	0	0	0	0
IND ECF BLKD PEG			0	0	0	0	0	0	0	0	0

FILE ID 3 SUMMARY REPORT COMPLETE

Fig. 3—Traffic Summary Report—FP11 Format (Sheet 6 of 6)

RMATS II TRAFFIC

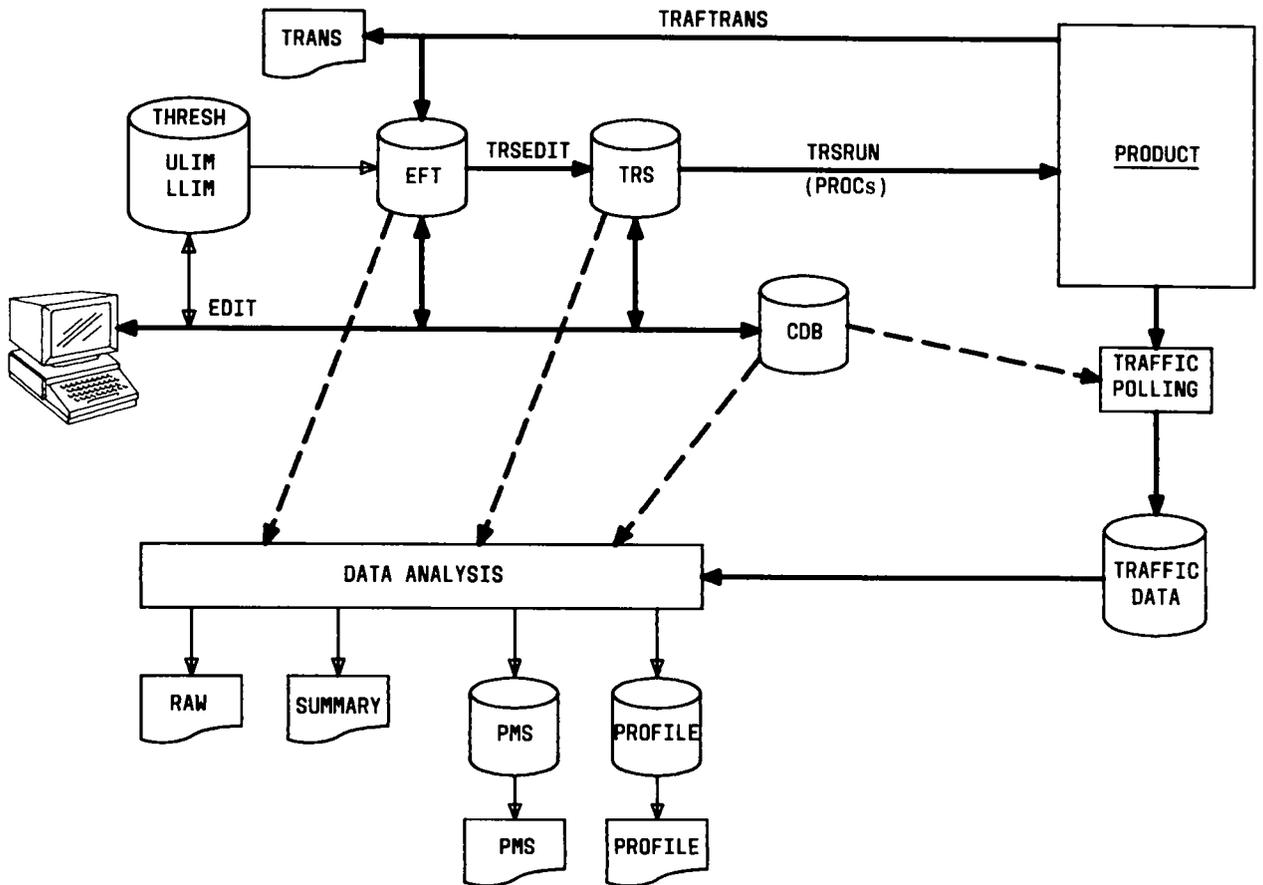


Fig. 4—Traffic Module—RMATS II, Release 2

REPORT DATE 4/30/83

## TRANSLATION REPORT

CUSTOMER

MAIN LDN

AP LDN

MA LDN

ENG

CLERK

PRODUCT TYPE D600 IP 8 SYSTEM CONFIGURATION  
 SUBTYPE 2P ISSUE 3.0 MEMORY F CUST ADMIN  
 STATION LINES 389 ECTS STATIONS 177 CLLC 1D60ESTVK  
 MODULES 1

## PRODUCT TRANSLATIONS:

CUSTOMER NAME  
 PROCESSOR 5E IP 8 ISSUE 3123 MEMORY F MODULES 1  
 LINE CARRIERS 7 TRUNK CARRIERS 6 CONSOLES 1  
 ADMINISTERED LINES 395  
 ECTS STATIONS 184 ECTS LINES 220

WARNING: The Issue in the CDB is different from the translation data!!!  
 WARNING: The number of Station Lines in CDB is different than the number of  
 Administered Lines in the translation data!!!  
 WARNING: The number of ECTS Stations in the CDB is different than the number in  
 the translation data!!!

## TRUNK TRANSLATIONS:

TGP	DAC	FAC	ENCODE	DIR	QTY	DESCRIPTION
12		OTQ	6	OG	6	GENERAL PURPOSE QUEUING TRUNKS
15		ICM	2		24	INTERCCM
16		DPR	1		20	DIAL PULSE DIGIT REGISTER
17		TTR	2		7	TOUCH-ICNE DIGIT REGISTER
18	101	CC?	19	2W	5	2-WAY ATTENDANT COMPLETING IN/DOD
19		WATS	26	IC	2	1-WAY INCOMING ATTENDANT COMPLETING
22	115	CC?	17	OG	17	1-WAY OUTGOING DOD
23	116	CO?	17	OG	4	1-WAY OUTGOING DOD
25	114	CC?	19	2W	1	2-WAY ATTENDANT COMPLETING IN/DOD
26	94	FX	22	OG	3	1-WAY OUTGOING DOD
27	81	WATS	27	OG	4	1-WAY OUTGOING DOD
28	82	WATS	27	OG	2	1-WAY OUTGOING DOD
29	83	WATS	27	OG	3	1-WAY OUTGOING DOD
30	84	WATS	27	OG	3	1-WAY OUTGOING DOD
31	85	WATS	27	OG	3	1-WAY OUTGOING DOD
32	107	WATS	26	IC	2	1-WAY INCOMING ATTENDANT COMPLETING

Fig. 5—Translation Report—RMATS II, Release 2 (Sheet 1 of 3)

TGP	DAC	FAC	ENCODE	DIR	QTY	DESCRIPTION
33	100	WATS	26	IC	5	1-WAY INCOMING ATTENDANT COMPLETING
34	100	WATS	26	IC	4	1-WAY INCOMING ATTENDANT COMPLETING
38	110	WATS	26	IC	5	1-WAY INCOMING ATTENDANT COMPLETING
38	111	WATS	26	IC	4	1-WAY INCOMING ATTENDANT COMPLETING
37	112	WATS	26	IC	2	1-WAY INCOMING ATTENDANT COMPLETING
38	113	WATS	26	IC	2	1-WAY INCOMING ATTENDANT COMPLETING
39	88	CO?	52	2W	1	REPCIE PCS ACCESS TRUNK
40	117	DID	31	IC	20	WINK START DID
41	87	TIE	36	2W	1	2-WAY DIAL REPEATING BOTH WAYS
42			67		0	AUDIC
43			52		1	RECCRED ANNOUNCEMENT INTERFACE
44			92		1	
45		TTS	55		4	TOUCH-TONE SENDER
46			65		1	LC15 CONTACT INTERFACE
47		CO?	16	IC	9	1-WAY INCOMING ATTENDANT COMPLETING
242		OIQ	6	OG	6	GENERAL PURPOSE QUEUING TRUNKS

## QUEUE TRANSLATION:

TRUNK GROUP	PRIORITY	QUEUE SIZE	NONPRIORITY	QUEUE SIZE	MAIN/SAT
22		0	5		0
23		0	3		0
26		0	2		0
27		0	3		0
28		0	2		0
29		0	2		0
30		0	2		0
31		0	3		0

## TRUNK GROUP COMBINATIONS ASSIGNMENT:

&lt;no assignment&gt;

Fig. 5—Translation Report—RMATS II, Release 2 (Sheet 2 of 3)

## ENGINEERABLE FACILITIES TABLE BASED ON TRANSLATION:

1>	-	-	-	PROC	-	Proc occpy	hi	-	70	
2>	-	-	-	TIME	-	TimeslotCCS	hi	-	3300	
3>	-	-	-	ATT	-	Attendants	L12S	no	12	1
4>	15			ICM	-	2-InCPreccs	F01	hi	533	24
5>	16	-	-	DPR	-	1-DPorRegs	L1S	hi	370	20
6>	17	-	-	TIR	-	2-Recvrs	L1S	hi	72	7
7>	45	-	-	TIS	-	55-Senders	L1S	hi	24	4
8>	18	101		CO?	2W	19-	-	no		5
9>	22	115	n5	CO?	CG	17-	-	no		17
10>	23	116	n3	CC?	OG	17-	-	no		4
11>	25	114		CO?	2W	19-	-	no		1
12>	39	88		CO?	2W	50-	-	no		1
13>	47			CO?	IC	18-	-	no		9
14>	26	94	n2	FX	OG	22-	Q102	hi	80	3
15>	19			WATS	IC	26-	F01	no	5	2
16>	27	81	n3	WATS	OG	27-	Q102	hi	116	4
17>	28	82	n2	WATS	OG	27-	Q102	hi	41	2
18>	29	83	n2	WATS	OG	27-	Q102	hi	80	3
19>	30	84	n2	WATS	OG	27-	Q102	hi	80	3
20>	31	85	n3	WATS	OG	27-	Q102	hi	80	3
21>	32	107		WATS	IC	26-	P01	no	5	2
22>	33	108		WATS	IC	26-	P01	no	46	5
23>	34	109		WATS	IC	26-	P01	no	29	4
24>	35	110		WATS	IC	26-	P01	no	46	5
25>	36	111		WATS	IC	26-	P01	no	29	4
26>	37	112		WATS	IC	26-	P01	no	5	2
27>	38	113		WATS	IC	26-	P01	no	5	2
28>	40	117		DID	IC	31-	F01	hi	418	20
29>	41	87		TIE	2W	36-	F03	hi	1	1
30>	255	119		MISC	IC	5-		no		1

RMATS&gt;

Fig. 5—Translation Report—RMATS II, Release 2 (Sheet 3 of 3)



## T R A F F I C   S U M M A R Y   R E P O R T

CUSTOMER

MAIN LN

AE LDN

MA LDN

ENG

CLERK

PRODUCT TYPE	D600	FP	8	SYSTEM CONFIGURATION			
SUETYPE	2B			ISSUE	3.0	MEMORY	F
STATION LINES	389			ECTS STATIONS	177	CLLC	11600SIVE
							CUST ADMIN
							MCIUIES 1

START DATE: 4/10/83    END DATE: 4/23/83    FORMAT: daily

## FEATURE UTILIZATION

## PROCESSOR

1    Proc Overload

## NETWORK

37	LID Busy
102	LID Lor't Ans
76	Incoming Calls Abandoned

## SYSTEM FEATURES

0	TAAS CALL
29	TAAS CALL Abandon
0	REM ACC (Right Code)
0	REM ACC (Wrong Code)
0	SMDR REC-Block
0	SMDR #2 REC-Block

## STATION FEATURES

7	Auto Callback
146	Call Hold
625	Call Pickup
1	Call Wait Orig (ty sta)
20	Answer hold
35	Call Fwd- All
6	Call Fwd- FYDA
31	Call Fwd- Deact
81	Speed Call
0	Code Call
0	Paging, Code Dialed
0	Paging, Answerback
2	Cancel CGT Queue

Fig. 7—Traffic Summary Report—RMATS II, Release 2 Format (Sheet 1 of 6)

## ATTENDANT FEATURES

0	ACT Control TG Access
0	DEACT Control TG Access
0	Conf-Call
196	Call Wait Orig (by atnd)
0	Atnd Orig Calls (start) Key

## ECTS FEATURES

1	ECTS- Auto Callback
0	ECTS- Call Hold
33	ECTS- Call Pickup
0	ECTS- Call wait- Org
0	ECTS- Answer Hold
0	ECTS- Call Fwd - All
0	ECTS- Call Fwd EYDA

## TANDEM NETWORK

0	Invalid Auth Code - Station
0	Invalid Auth Code - Tie Trk
0	Invalid Auth Code - Attend
0	Invalid Auth Code - Remote Trk

## REMOTE PORT

0	Valid Remote Access Security
0	Invalid Remote Access Security

Reported values are per day averages, averaged over 6 days.

Fig. 7—Traffic Summary Report—RMATS II, Release 2 Format (Sheet 2 of 6)

TIME SICT MISMATCH BLOCKAGE  
 FIG COUNT

DATE	FIGURE
4/11/83	0
4/12/83	0
4/13/83	0
4/14/83	0
4/18/83	0
4/20/83	0
4/21/83	0
4/22/83	0

RING GROUP BLOCKAGE

LOCATION	OCCURRENCES	DATE
----------	-------------	------

no ring group blockage occurred.

ACA AUDIT TRAIL

no polled data found.

TRUNK GROUP MAINTENANCE BUSY\_OUTS AT POLL TIME

TRF	DESCRIPTION	CTY	DATES
26	FX CG 22-	3	4/11, 4/13, 4/14, 4/18, 4/20, 4/21, 4/22
31	WATS CG 27-	3	4/11, 4/14

Fig. 7—Traffic Summary Report—RMATS II, Release 2 Format (Sheet 3 of 6)

DAILY PEAK AND TIME COINCIDENT MEASUREMENTS

CALENDAR:

Sun	Mon	Tue	Wed	Thu	Fri	Sat
4/10	4/11	4/12	4/13	4/14	4/15	4/16
4/17	4/18	4/19	4/20	4/21	4/22	4/23

NUMBER OF HOURS INCLUDED IN POLL:

Sun	Mon	Tue	Wed	Thu	Fri	Sat
-	72	19	22	24	-	-
-	78	-	16	24	24	-

POLL TIME:

Sun	Mon	Tue	Wed	Thu	Fri	Sat
-	2210	0	2210	2210	-	-
-	2211	-	2211	2211	2212	-

RECURRING TASKS TIME:

Sun	Mon	Tue	Wed	Thu	Fri	Sat
-	2200	0	2200	2200	-	-
-	2200	-	2200	2200	2200	-

ALARMS REPORT:

Sun	Mon	Tue	Wed	Thu	Fri	Sat
-	.	.	sq	.	-	-
-	ax	-	sdr	x	x	-

- no data present
- . no flags
- s short hour flag
- d data reinitialized flag
- z zero flag
- e minor alarm
- A major alarm
- x minor translation change
- h major translation change
- r reload flag

Fig. 7—Traffic Summary Report—RMATS II, Release 2 Format (Sheet 4 of 6)

## PEAK AND TIME COINCIDENT MEASUREMENTS

	Sun	Mon	Tue	Wed	Thu	Fri	Sat	ABBH
Peak 1: Processor Occupancy %							( 3, 4)	
-	35.56	36.32	35.87	36.15	-	-	-	35.96
-	36.18	-	37.29	35.93	39.25	-	-	37.16
TC 1: Time Slot					CCS		( 3, 1)	
-	1353	1492	1418	1597	-	-	-	1365.00
-	1177	-	1298	1377	1407	-	-	1314.75
TC 2: Time Slot					PIG		( 3, 3)	
-	1650	1289	1935	1969	-	-	-	1685.75
-	1339	-	1642	1706	1787	-	-	1618.50
TC 3: Overflow					PIG		( 3, 5)	
-	340	340	350	360	-	-	-	347.50
-	330	-	330	330	380	-	-	342.50
TC 4: Stimulus					PIG		( 3, 6)	
-	156	120	172	190	-	-	-	159.50
-	131	-	152	156	169	-	-	152.00
TC 5: ECIS Control - Total					PIG		( 3, 7)	
-	16	14	22	21	-	-	-	17.75
-	16	-	16	19	20	-	-	17.50
TC 6: Dial tone delay							( 3, 8)	
-	0	0	0	0	-	-	-	0.00
-	0	-	0	0	0	-	-	0.00
TC 7: Dial tone measured							( 3, 9)	
-	53	39	56	61	-	-	-	52.25
-	40	-	51	55	53	-	-	49.75
TC 8: Time of Day Clock							( 2, 1)	
-	1700	1000	1200	1159	-	-	-	1264.75
-	1200	-	1700	1600	1100	-	-	1400.00
Peak 2: Time Slot							( 3, 1)	ABBH
-	1353	1522	1418	1597	-	-	-	1472.50
-	1196	-	1495	1527	1577	-	-	1448.75
TC 1: Time Slot					PIG		( 3, 3)	
-	1650	1957	1835	1969	-	-	-	1852.75
-	1179	-	1843	1831	1903	-	-	1689.00
TC 2: Tandem Traffic					CCS		( 3, 2)	
-	0	0	0	0	-	-	-	0.00
-	0	-	0	0	0	-	-	0.00
TC 3: Processor Occupancy %							( 3, 4)	
-	35.56	36.32	35.87	36.15	-	-	-	35.91
-	34.25	-	35.50	35.93	39.20	-	-	36.17
TC 4: Intercom					CCS		( 5, 15) Q1Y=24	
-	123	121	153	110	-	-	-	128.25
-	104	-	157	115	117	-	-	123.25
TC 5: Intercom					PIG		( 6, 15) Q1Y=24	
-	247	242	307	284	-	-	-	270.00
-	182	-	285	264	306	-	-	259.25
TC 6: Time of Day Clock							( 2, 1)	
-	1700	1200	1200	1159	-	-	-	1314.75
-	1600	-	1600	1200	1200	-	-	1400.00

Fig. 7—Traffic Summary Report—RMATS II, Release 2 Format (Sheet 5 of 6)

	Sun	Mon	Tue	Wed	Thu	Fri	Sat		AEBB
Peak 3: All Consoles worked	-	8	21	22	28	-	(20, 1)	QTY=1	19.75
-	-	19	-	20	18	17	-	-	18.50
TC 1: All Consoles Attended	-	35	36	36	36	-	(20, 2)	QTY=1	35.75
-	-	36	-	36	36	36	-	-	36.00
TC 2: All Consoles worked	-	66	84	101	86	-	(20, 3)	QTY=1	84.25
-	-	70	-	93	71	95	-	-	82.25
TC 3: Incoming Call Queue	-	1	9	5	8	-	(20, 4)	-	5.75
-	-	4	-	5	3	5	-	-	4.25
TC 4: Incoming Call Queue	-	64	83	95	88	-	(20, 5)	-	82.50
-	-	73	-	92	73	94	-	-	83.00
TC 5: Incoming Call Queue- ATT Abandon	-	10	3	7	10	-	(20, 6)	QTY=1	9.00
-	-	5	-	5	14	3	-	-	5.75
TC 6: Attendant Calls LDN Answer	-	22	33	40	33	-	(20, 7)	QTY=1	32.00
-	-	18	-	28	28	38	-	-	28.00
TC 7: Attendant Calls Non-LDN Answer	-	37	48	44	42	-	(20, 8)	QTY=1	42.75
-	-	47	-	57	39	49	-	-	48.00
TC 8: Attendant Recall	-	1	0	1	1	-	(20, 9)	QTY=1	0.75
-	-	1	-	3	0	2	-	-	1.50
TC 9: Attendant Originated	-	0	0	0	0	-	(20, 10)	QTY=1	0.00
-	-	0	-	0	0	0	-	-	0.00
TC 10: Time of Day Clock	-	1700	1500	1100	1150	-	( 2, 1)	-	1364.75
-	-	1400	-	1500	1400	1200	-	-	1375.00
TC 11: Console 1 Worked	-	8	21	22	28	-	(21, 1)	-	19.75
-	-	19	-	20	18	17	-	-	18.50
TC 12: Console 1 attended	-	35	36	36	36	-	(22, 1)	-	35.75
-	-	36	-	36	36	36	-	-	36.00
TC 13: Console 1 worked	-	92	84	101	86	-	(23, 1)	-	90.75
-	-	70	-	93	71	95	-	-	82.25
Peak 4: Intercom	-	115	124	153	141	-	( 5, 15)	QTY=24	133.25
-	-	107	-	157	136	141	-	-	135.25
TC 1: Intercom	-	267	264	307	246	-	( 6, 15)	QTY=24	271.00
-	-	218	-	285	301	283	-	-	271.75
TC 2: Time of Day Clock	-	1700	1100	1200	1500	-	( 2, 1)	-	1375.00
-	-	1700	-	1600	1100	1100	-	-	1375.00

Fig. 7—Traffic Summary Report—RMATS II, Release 2 Format (Sheet 6 of 6)

trvreport m b main=

P.M.S. REVIEW REPORT

CUSTOMER MAIN LDN  
 AE IDN MA LDN ENG CLERK  
 STUDY PERIOD (1 day) 4/21/83 - 4/21/83 REVIEW FREQUENCY Daily  
 REPORT STATUS Current DISPOSITION no

SYSTEM CONFIGURATION  
 PRODUCT TYPE DE20 FP 8 ISSUE 3.0 MEMORY F CUST ADMIN  
 SUPTYPE 2B CLLC 1100ESIVK  
 STATION LINES ECTS STATIONS MCIUES 1

TGP	DAC	QUEUE	RA	FAC	DE	DESCRIPTION	SVC	CHK	THRESHOLDS		AVG		VI	EX
									LLIM	UIIM	QTY	LOAD		
-	-	-	-	FRCC	-	Proc occpcy		hi	-	70		36	-	0
-	-	-	-	TIME	-	TimeslotCCS		hi	-	3300		1527	-	0
-	-	-	-	ATT	-	Attendants	D12S	no		12	1	18	-	1
15				ICM	-	2-InCMrecs	P01	hi		503	24	136	-	0
16				DPR	-	1-DPprRegs	D1S	hi		370	20	1	-	0
17				TIR	-	2-Recvrs	D1S	hi		72	7	69	-	0
18	101			CO	2W	19-	P01	hi		46	5	61	hi	1
19				WATS	IC	26-	P01	no		5	2	29	-	1
22	115	n5		CO	OG	17-	Q102	hi		594	17	431	-	0
23	116	n3		CO	OG	17-	Q102	hi		116	4	3	-	0
25	114			CO	2W	19-	P01	hi		1	1	0	-	0
26	94	n2		FX	OG	22-	Q102	hi		80	3	6	-	2
27	81	n3		WATS	OG	27-	Q102	hi		116	4	122	hi	1
28	82	n2		WATS	OG	27-	Q102	hi		41	2	28	-	0
29	83	n2		WATS	OG	27-	Q102	hi		80	3	37	-	0
30	84	n2		WATS	OG	27-	Q102	hi		80	3	49	-	0
31	85	n3		WATS	OG	27-	Q102	hi		80	3	64	-	0
32	107			WATS	IC	26-	P01	no		5	2	0	-	0
33	108			WATS	IC	26-	P01	no		46	5	45	-	0
34	109			WATS	IC	26-	P01	no		29	4	122	-	1
35	110			WATS	IC	26-	P01	no		46	3	116	-	1
36	111			WATS	IC	26-	P01	no		29	4	16	-	0
37	112			WATS	IC	26-	P01	no		5	2	10	-	1
38	113			WATS	IC	26-	P01	no		5	2	4	-	0
39	87			CC	2W	30-	P01	hi		1	1	0	-	0
40	117			DID	IC	31-	P01	hi		418	20	413	-	0
41	88			TIE	2W	30-	P03	hi		1	1	0	-	0
45	-	-		TTS	-	55-Senders	D1S	hi		24	4	12	-	0
47				CO	IC	16-	P01	hi		130	0	0	-	2
255	119			MISC	IC	5-		no			1	0	-	-

Note: Low threshold violations can not occur, if study period = 1 day.

Fig. 8—Performance Monitoring Study Review Report

NETWORK USAGE AND CAPACITY DETERMINATION

TRAFFIC SUMMARY REPORT SECTION	OUTGOING TRUNK CCS	LINK TRAFFIC PER GROUP CCS (NOTE 1)	TIME SLOT CCS	MAINTENANCE NO. OF MODULES X 108 CCS
-----------------------------------	-----------------------	---	------------------	--

TRUNK GROUP SUMMARY

CO - 1WO	633
- 2W - (OUT ONLY)	-
WT - 1WO	572
- 2W - (OUT ONLY)	-
FX - 1WO	-
- 2W - (OUT ONLY)	-
TIE - 1WO	-
- 2W - (OUT ONLY)	1329
MISC. (NOTE 2)	321

LOAD BALANCE ANAL

LINK GROUP - 0-1	312
- 0-2	276
- 0-3	324
- 0-4	-
- 1-2	349
- 1-3	352
- 1-4	-
- 2-3	229
- 2-4	-
- 3-4	-

NETWORK ADMINISTRATION  
SYSTEM CONFIGURATION

7248

432

TOTAL (a) 2855 (b) 1842 (c) 7248 (d) 432  
 NETWORK USAGE = (c) 7248 MINUS (b) 1842 MINUS (d) 432 = (e) 4974  
 PROPORTION OUTGOING = (a) 2855 DIVIDED BY (e) 4974 = (f) 0.57  
 SYSTEM CAPACITY = ENTER TABLE B, SECTION 554-111-615 AT (f) 0.57 AND  
 4 MODULES. AT INTERSECTION = (g) 10,087

NOTES:

1. SYSTEMS WITH MORE THAN FIVE MODULES USE AS MANY WORKSHEETS AS REQUIRED.
2. MISCELLANEOUS TRUNKS INCLUDE DP DR, TT DR, SENDERS, OHQ CCS, CCSA (OUT) AND MAIN/SATELLITE (OUT).

Fig. 9—Network Usage and Capacity Determination

TABLE A1

APPARENT LOAD ADJUSTMENT FACTOR	
PERCENT BLOCKING	AAF
1	1.007
2	1.017
3	1.021
4	1.029
5	1.036
6	1.044
7	1.052
8	1.059

TABLE A2

APPARENT CCS	PEAKEDNESS OF APPARENT LOAD DUE TO RETRIALS						
	BLOCKING LEVEL						
	.001	.01	.03	.05	.10	.20	.40
300	1.03	1.06	1.10	1.12	1.16	1.19	1.19
400	1.03	1.06	1.10	1.12	1.16	1.19	1.18
500	1.03	1.07	1.10	1.13	1.16	1.19	1.18
600	1.03	1.07	1.11	1.13	1.16	1.19	1.17

EXPANDED ALTERNATE ROUTING CAPACITY TABLES

PEAKEDNESS OF OFFERED LOAD: 1.15										PEAKEDNESS OF OFFERED LOAD: 1.05											
TRUNK 6					TRUNK 7					TRUNK 19					TRUNK 20						
BL	OFFD CCS	CARRIED		OVERFLOW		OFFD CCS	CARRIED		OVERFLOW		BL	OFFD CCS	CARRIED		OVERFLOW		OFFD CCS	CARRIED		OVERFLOW	
		LT	TOTL	CCS	PF		LT	TOTL	CCS	PF			LT	TOTL	CCS	PF		LT	TOTL	CCS	PF
.51	376	28	184	192	1.72	448	29	219	228	1.76	.06	527	11	496	32	2.60	562	12	528	34	2.66
.52	386	29	185	201	1.71	459	29	220	239	1.75	.07	543	13	505	38	2.62	578	13	538	41	2.68
.53	396	29	186	210	1.70	471	30	221	250	1.74	.08	559	14	515	45	2.63	595	14	547	48	2.69
.54	407	29	187	220	1.69	483	30	222	261	1.73	.09	575	15	523	52	2.65	612	15	556	55	2.70
.55	418	30	188	230	1.68	496	30	223	273	1.72	.10	591	16	532	59	2.66	628	16	565	63	2.71

NEAL-WILKINSON TRUNK CAPACITY TABLES  
FULL-ACCESS TRUNK GROUPS  
LOW DAY-TO-DAY VARIATION ALLOWANCE

TABLE NUMBER						PEAKEDNESS FACTOR: 1.9
NO. TRKS.	B.11	B.12	B.13	B.14	B.15	
1	0	0	0	0	0	
2	0	0	0	0	0	
3	0	0	0	0	0	
4	0	0	0	0	0	53
5	68	72	76	79	83	
6	95	100	105	110	115	
7	125	131	137	143	149	
8	156	163	170	176	183	
9	188	196	203	211	218	
10	221	229	237	246	254	
11	254	263	273	282	291	
12	288	298	307	317	326	

Fig. 10—Load Adjustment and Capacity Tables

**TABLE A**  
**REGISTER TYPES AND PACKET ASSIGNMENT**

PACKET NUMBER	REGISTER TYPES	FEATURE PACKAGE
2	Load Balance	7, 8, 9, 11, 12
3	Line and Trunk Carrier Usage	7, 8, 9, 11, 12
4	Automatic Circuit Assurance (ACA)	8
5	Accumulated Values Time-Slot Blockage Ringing Group Blockage	8, 11, 12
6	Peak Values Time-Coincident Values Trunk Group Busy-Out Map	8, 11, 12
7	Automatic Route Selection (ARS)	8, 11, 12
8	Automatic Alternate Routing (AAR)	8
9	Processor Occupancy Profile Data	11 (8 and 12, Issue 1.5)

TABLE B

## ACCUMULATED REGISTER LIST

REG	NAME	EXPLANATION
FEATURE PACKAGES 8, 11, AND 12		
1-17	System Flags	This register sets values on a per-packet basis to indicate changes effected within the PBX which may distort the traffic study data.
18	Polling Interval	This register indicates the number of hours since the last poll.
19	Poll Time—PBX	This register indicates the value stored (time) for the PBX system clock at the time of the traffic poll.
20	Traffic Update	This register indicates the value stored (time) for the PBX system clock when the last hourly processing was completed.
21	Processor Load Indicator A Processor Overload	Scores each time that a maintenance routine has not been run for 450 ms and is forced into operation.
22	DID to Busy Station	Scores when a DID call to a station encounters busy tone.
23	DID Unanswered	Scores when a DID call to a station is unanswered.
24	Incoming Attendant Call Queue Abandon	Scores when a queued call is abandoned before the attendant answers and when a Trunk Answer From Any Station call is abandoned. (Does not include DID or intercom calls).
25	Trunk Answer From Any Station—Call	Scores when the code for Trunk Answer From Any Station is dialed.
26	Trunk Answer From Any Station—Call Abandon	Scores when a call is abandoned before the code for Trunk Answer From Any Station is dialed.
27	Remote Access—Right Code	Scores when the right remote access authorization code is dialed.
28	Remote Access—Wrong Code	Scores when a wrong Remote Access authorization code is dialed. Dial tone time-outs are also recorded (when time-out occurs before an access code is dialed).
29	Station Message Detail Recording (SMDR)—Record Blockage	Scores when the SMDR feature cannot access a record.

TABLE B (Contd)

## ACCUMULATED REGISTER LIST

REG	NAME	EXPLANATION
FEATURE PACKAGES 8, 11, AND 12 (Contd)		
30	Automatic Callback— Calling	Scores when the access code for Automatic Call-back—Calling is dialed.
31	Call Hold	Scores when the Call Hold feature code is dialed.
32	Call Pickup	Scores when the Call Pickup feature code is dialed.
33	Originating Call Waiting by Station	Scores when a station user dials the Originating Call Waiting code.
34	Answer Hold	Scores when the answer hold code of the Call Waiting feature is dialed.
35	Activate Call Forwarding— All Calls	Scores when the access code to activate Call Forwarding—All Calls is dialed.
36	Call Forwarding—BY/DA	Scores when the access code to activate Call Forwarding—Busy and Don't Answer is dialed.
37	Cancel Call Forwarding	Scores when the code to cancel the Call Forwarding feature is dialed.
38	Speed Calling	Scores when the Speed Calling feature code is dialed.
39	Code Calling Access	Scores when the access code for the Code Calling Access feature is dialed.
40	Paging Code	Scores when the dial access code for Paging is dialed.
41	Paging—Answer-back	Scores when the Paging—Answer-back code is dialed.
42	Cancel Outgoing Trunk Queuing/Automatic Callback Calling	Scores when the code to cancel Outgoing Trunk Queuing and/or Automatic Callback—Calling is dialed.
43	Activate Attendant Control of Trunk Group Access	Scores when the attendant activates Attendant Control of Trunk Group Access.
44	Deactivate Attendant Control of Trunk Group Access	Scores when the attendant deactivates Attendant Control of Trunk Group Access.
45	Conference Call	Scores when the attendant adds a station or a trunk to a conference arrangement.

TABLE B (Contd)

## ACCUMULATED REGISTER LIST

REG	NAME	EXPLANATION
FEATURE PACKAGES 8, 11, AND 12 (Contd)		
46	Call Waiting	Scores whenever: (1) a call waiting code is dialed by a station, (2) attendant camp-on is activated, and (3) Terminating Call Waiting is activated.
47	Attendant. Originated Calls — START Key	Scores when an attendant depresses the START key.
48	ECTS — Automatic Callback — Calling	Scores when the Automatic Callback — Calling feature is activated by an ECTS button depression.
49	ECTS — Call Hold	Scores when Call Hold is activated by an ECTS button depression.
50	ECTS — Call Pickup	Scores when Call Pickup is activated by an ECTS button depression.
51	ECTS — Call Waiting — Originating	Scores when Originating Call Waiting is activated by an ECTS button depression.
52	ECTS — Answer Hold	Scores when the ECTS answer-HOLD button of the Call Waiting feature is depressed.
53	ECTS — Call Forward- ing — All Calls	Scores when Call Forwarding — All Calls is activated by an ECTS button depression.
54	ECTS Call Forwarding — BY/DA	Scores when Call Forwarding — Busy/Don't Answer is activated by an ECTS button depression.
55	SPARE	Unassigned
FEATURE PACKAGE 8 ONLY		
56	Authorization Code Invalid by Station	Scores each time a PBX station user dials an invalid authorization code.
57	Authorization Code Invalid by Tie Trunk	Scores each time a tie trunk user dials an invalid authorization code.
58	Authorization Code Invalid by Attendant	Scores each time an attendant dials an invalid authorization code.
59	Authorization Code Invalid by Remote Access Trunk	Scores each time a remote access trunk user dials an invalid authorization code.

**TABLE B (Contd)**  
**ACCUMULATED REGISTER LIST**

REG	NAME	EXPLANATION
<b>FEATURE PACKAGE 11 ONLY</b>		
60	H/M Console Emergency Access	Scores each time the Emergency Access to Attendant feature was dialed correctly, not necessarily successful access to the attendant.
61	PMS Data Entry	Scores each time the Data Entry feature is activated. This feature allows a predesignated station to enter hospital and patient data in the PMS computer via an access code.
62	Housekeeper Code Valid	Scores each time a valid maid access code is dialed. The maid access code includes maid access, designated station access, and housekeeper printer requests.
63	Housekeeper Code Invalid	Scores each time an invalid maid access code is dialed.
64	Single Line Restriction	The number of manual activations of any of the six station restrictions when applied to a single line.
65	Group Restriction	The number of activations of any of the six station restrictions when applied to a group.
66	Blocked Calls (Restricted)	Scores each time an outward call (dial 8 or 9) was blocked due to outward restriction being applied.
67	LCB Feature Access	Scores each time Local Call Billing (LCB) is activated via TEL CHGS, CHECK-OUT or NIGHT AUDIT.
68	Local Call Billed	Scores the number of local calls billed, all stations.
69	Local MSG Units	Scores the number of message units billed, all stations.
70	LDB Feature Access	Scores each time Long Distance Billing (LDB) was activated via TEL CHGS, CHECK-OUT, or NIGHT AUDIT.
71	LDB Buffer Percent Busy	This measurement indicates the peak occupancy of LDB buffers, as a percent of total slots.
72	LDB Blocked — No Buffer	Scores each time a message arrived and no buffers available.
73	LDB Printer Fails	Scores each time the LDPR printer fails. This represents an error condition and results in the TSPS link being torn down.

TABLE B (Contd)

## ACCUMULATED REGISTER LIST

REG	NAME	EXPLANATION
FEATURE PACKAGE 11 ONLY (Contd)		
74	LDB TSPS Room Error	This measurement indicates the number of invalid room number or vacant room conditions. This count may represent illegal calls by employees or guests.
75	PIC Printer Fails	Scores each time the printer is in a failure state.
76	PIC Printer Down	Scores each time the printer is out of service.
77	TSPS Channel Fails	Scores each time a TSPS channel fails.
78	TSPS Channel Down	Scores each time a TSPS channel is out of service.
79	ECF Channel Fails	Scores each time an Energy Control channel fails.
80	ECF Channel Down	Scores each time an Energy Control channel is out of service.
81	PMS Stops	Scores each time communication ceased between the DIMENSION PBX and Property Management System.
82	PMS Fails	Scores each time a PMS channel fails.
83	PMS Down	Scores each time a PMS channel is out of service.
84 Through 95 (5 Spare)	PMS Message Counts	Peg count of PMS send and receive activity stated separately for each feature. For each feature, there is a single count for both send and receive. The features are Room Status, Maid Status, Check-in/Out, Local Call Billing, Controlled Restriction, Status Inquiry, Message Waiting, Room Data Image, Calling Number Message, Room Change, and Data Entry.
96	PMS Error Message	Scores each time an error message is sent across the link. This is an indication of a hardware/software problem in communicating with the PMS.
97	WAKEUP Feature Access	Scores each time a wakeup call is initiated from the console.
FEATURE PACKAGES 8, 11, AND 12		
98	VALID Security Code	Scores each time a legal remote access code is accepted by the DIMENSION PBX. This is to aid in the security of RMATS-equipped DIMENSION PBXs.
99	INVALID Security Code	Scores each time an illegal remote access code is received by the DIMENSION PBX.

**TABLE C**  
**SYSTEM FLAGS**  
**AS A RESULT OF MAJOR AND MINOR TRANSLATION CHANGES**  
**TYPE OF DATA AND PACKETS AFFECTED**

PACKET NUMBER	TYPE OF DATA	MAJOR CHANGE	MINOR CHANGE
2	Load Balance	X	X
3	Carrier Usage	X	—
4	ACA Data	—	—
5	Accumulated Values Time-Slot Blockage Ringing Group Blockage	—	X
6	Peak and Time-Coincident Values and Trunk Group Busy-Out Map	X	X
7	ARS Values	X	X
8	AAR Data	X	X
9	Processor Occupancy Profile Data	—	—

TABLE D

## PEAK AND TIME-COINCIDENT TRAFFIC MEASUREMENT ITEMS

TYPE 1 — TRUNK GROUP COMBINATION MEASUREMENTS		
ITEM	NAME	EXPLANATION
1	Trunk Group Combination-1 Total CCS	Records the total usage for trunk groups within a trunk group combination.
2	Trunk Group Combination-1 Incoming CCS	Records the total incoming usage for trunk groups within a trunk group combination.
3	Trunk Group Combination-1 Outgoing CCS	Records the total outgoing usage for trunk groups within a trunk group combination.
4	Trunk Group Combination-2 Total CCS	Same as Item 1.
5	Trunk Group Combination-2 Incoming CCS	Same as Item 2.
6	Trunk Group Combination-2 Outgoing CCS	Same as Item 3.
7	Trunk Group Combination-3 Total CCS	Same as Item 1.
8	Trunk Group Combination-3 Incoming CCS	Same as Item 2.
9	Trunk Group Combination-3 Outgoing CCS	Same as Item 3.
TYPE 2 — MISCELLANEOUS		
ITEM	NAME	EXPLANATION
1	Time of Day	Records the time of day (PBX time) that the peak occurred. <b>Note:</b> This measurement may be assigned time coincident with any peak measurement.
2	ARS Plan	Records the ARS Plan in effect when the associated trunk group peak occurred. <b>Note:</b> This measurement should be assigned time coincident with trunk group peak measurements.

TABLE D (Contd)

## PEAK AND TIME-COINCIDENT TRAFFIC MEASUREMENT ITEMS

TYPE 3 — NETWORK AND PROCESSOR MEASUREMENTS		
ITEM	NAME	EXPLANATION
1	Time-Slot CCS	Records time-slot usage in CCS.
2	Tandem Traffic CCS	Records tandem traffic usage in CCS (trunk-to-trunk).
3	Time-Slot Peg	Scores when a time slot is seized.
4	Processor Occupancy Percent	Records the percentage of time the processor is busy with call processing and scanning. <b>Note:</b> Reading will be a 4-digit percent, ie, if no calls are being processed, the register may read 5000* = 50% for scanning.  * This number will vary depending on the memory size.
5	Processor Overflow Peg	Scores on each 10-millisecond cycle when the processor is too busy to call in the maintenance program.
6	Call Processor Stimulus Peg	Scores each time a call processor stimulus is handled.
7	ECTS Controller Stimulus Peg	Scores each time an ECTS controller stimulus is handled.
8	Total Dial Tone Delays Greater Than 3 Seconds	Records the number of sampled dial tone requests that were studied by the traffic measurement program (item 9) and were found to be delayed more than 3 seconds.
9	Total Dial Tone Bids Measured	Records the number of sampled dial tone requests studied by the Traffic Measurement program. Every sixteenth station-originated dial tone request is sampled. Item 8 divided by item 9 times 100 yields the percent of dial tone delay greater than 3 seconds.
TYPE 4 — UNASSIGNED		
TYPE 5 — TRUNK GROUP USAGE		
ITEM	NAME	EXPLANATION
8-99	Total Trunk Group Usage	Records total usage in CCS on a specific trunk group.
TYPE 6 — TRUNK GROUP CARRIED PEG COUNT		
ITEM	NAME	EXPLANATION
15-99	Trunk Group Peg	Scores each time a trunk within a trunk group is accessed.

TABLE D (Contd)

## PEAK AND TIME-COINCIDENT TRAFFIC MEASUREMENT ITEMS

TYPE 7 — TRUNK GROUP OVERFLOW		
ITEM	NAME	EXPLANATION
18-99	Trunk Group Overflow	Scores when an attempt is made to seize a trunk within a trunk group and all trunks are busy.
TYPE 8 — TRUNK GROUP USAGE — INCOMING ON 2-WAY FACILITY		
ITEM	NAME	EXPLANATION
18-99	Incoming Trunk Group Usage	Records <i>incoming usage only</i> in CCS for 2-way trunk facilities.
TYPE 9 — TRUNK GROUP INCOMING CARRIED PEG COUNT ON 2-WAY FACILITY		
ITEM	NAME	EXPLANATION
18-99	Incoming Trunk Group Peg	Scores each time an incoming call accessed (ie, central office [CO], tie trunk) a 2-way trunk facility.
TYPE 20 — ATTENDANT GROUP MEASUREMENTS		
ITEM	NAME	EXPLANATION
1	Worked Group Usage	Records attendant time-slot usage in CCS for all attendant positions (ie, provides a summation of busy call time for all attendant positions) while handling calls.
2	Manned Group Usage	Records the total manned time in CCS for all attendant positions when the headset is plugged in.
3	Worked Group Peg	Records the number of attendant-handled calls for all attendants. The measurement reflects the number of times the attendants depress a loop key or a START key.
4	Incoming Attendant Call Queue Usage	Records usage in CCS for all calls which access the incoming attendant call queue. The measurement reflects the total wait time for all calls placed in the Incoming Attendant Call Queue.
5	Incoming Attendant Call Queue Peg	Scores each time an incoming attendant call is placed in queue. Includes station to attendant calls.
6	Incoming Call Queue Attendant Abandon	Scores each time a <i>trunk</i> call abandons from the attendant queue before the attendant answers the call. This measurement includes Trunk Answer From Any Station calls abandon, but <b>does not include</b> station to attendant calls abandon.

TABLE D (Contd)

## PEAK AND TIME-COINCIDENT TRAFFIC MEASUREMENT ITEMS

TYPE 20 — ATTENDANT GROUP MEASUREMENTS (Contd)		
ITEM	NAME	EXPLANATION
7	LDN Calls Answered Peg	Scores each time the attendant answers an incoming CO and DID trunk call. (Does not include WATS, FX, common control switching arrangement [CCSA], or tie trunks).
8	Non-LDN Calls Answered Peg	Scores each time the attendant answers a WATS, FX, CCSA, or tie trunk call (Non-CO and Non-DID). This measurement does not include intercom calls to the attendant.
9	Attendant Recall Peg	Scores each time the attendant answers an attendant recall type call, ie, when a station calls the attendant with a third party on soft hold and the attendant answers.
10	Attendant-Originated Calls — Peg (START Key)	Scores each time the attendant originates a call using the START key.
TYPE 21 — ATTENDANT CONSOLE USAGE MEASUREMENTS		
ITEM	NAME	EXPLANATION
1-40	Worked CCS — per Console	Records attendant time-slot usage in CCS for each attendant position. Provides a summation of busy call time for each attendant position — consoles 1 through 40.
TYPE 22 — MANNED CONSOLE USAGE MEASUREMENTS		
ITEM	NAME	EXPLANATION
1-40	Manned CCS — per Console	Records the total manned time in CCS for each attendant position when the headset is plugged in (consoles 1 through 40).
TYPE 23 — ATTENDANT CONSOLE PEG MEASUREMENTS		
ITEM	NAME	EXPLANATION
1-40	Worked Peg — Console	Records the number of attendant-handled calls for each attendant position. The measurement reflects the number of times the attendant depresses a loop key or a START key (consoles 1 through 40).

TABLE D (Contd)

## PEAK AND TIME-COINCIDENT TRAFFIC MEASUREMENT ITEMS

TYPE 24 THROUGH TYPE 29 UNASSIGNED		
TYPE 30 — PRIORITY DELUXE QUEUE USAGE MEASUREMENTS (FP8)		
ITEM	NAME	EXPLANATION
18-99	Priority Deluxe Queue Usage	Records the total time spent in queue (in CCS) for all calls in the associated trunk group.
TYPE 31 — PRIORITY DELUXE QUEUE PEG COUNT MEASUREMENTS (FP8)		
ITEM	NAME	EXPLANATION
18-99	Priority Deluxe Queue Peg	Scores each time a call is placed in queue for the associated trunk group.
TYPE 32 — PRIORITY DELUXE QUEUE OVERFLOW MEASUREMENTS (FP8)		
ITEM	NAME	EXPLANATION
18-99	Priority Deluxe Queue Overflow Peg	Scores each time an attempt is made to place a call in queue for the associated trunk group and the queue is full (ie, the call is blocked because no queue records are available).
TYPE 33 — PRIORITY DELUXE QUEUE ABANDON MEASUREMENTS (FP8)		
ITEM	NAME	EXPLANATION
18-99	Priority Deluxe Queue Abandon Peg	Scores each time a call abandons from queue for the associated trunk group without getting service.
TYPE 34 — PRIORITY DELUXE QUEUE TIME-OUT MEASUREMENTS (FP8)		
ITEM	NAME	EXPLANATION
18-99	Priority Deluxe Queue Time-out Peg	Scores each time a call remains in queue for the associated trunk group longer than the time-out interval set in PROC 410.
TYPE 35 THROUGH TYPE 39 UNASSIGNED		
TYPE 40 — NONPRIORITY DELUXE QUEUE USAGE MEASUREMENTS (FP8)		
ITEM	NAME	EXPLANATION
18-99	Nonpriority Deluxe Queue Usage	Records the total time spent in queue (in CCS) for all calls in the associated trunk group.

TABLE D (Contd)

## PEAK AND TIME-COINCIDENT TRAFFIC MEASUREMENT ITEMS

TYPE 41 — NONPRIORITY DELUXE QUEUE PEG COUNT MEASUREMENTS (FP8)		
ITEM	NAME	EXPLANATION
18-99	Nonpriority Deluxe Queue Peg Count	Scores each time a call is placed in queue for the associated trunk group.
TYPE 42 — NONPRIORITY DELUXE QUEUE OVERFLOW MEASUREMENTS (FP8)		
ITEM	NAME	EXPLANATION
18-99	Nonpriority Deluxe Queue Overflow Peg	Scores each time an attempt is made to place a call in queue for the associated trunk group and the queue is full (ie, the call is blocked, because no queue records are available).
TYPE 43 — NONPRIORITY DELUXE QUEUE ABANDON MEASUREMENTS (FP8)		
ITEM	NAME	EXPLANATION
18-99	Nonpriority Deluxe Queue Abandon Peg	Scores each time a call abandons from queue for the associated trunk group without getting service.
TYPE 44 — NONPRIORITY DELUXE QUEUE TIME-OUT MEASUREMENTS (FP8)		
ITEM	NAME	EXPLANATION
18-99	Nonpriority Deluxe Queue Time-Out Peg	Scores each time a call remains in queue for the associated trunk group longer than the time interval set in PROC 410.
TYPE 45 THROUGH TYPE 49 UNASSIGNED		
TYPE 50 — DID TO MAIN MEASUREMENTS		
ITEM	NAME	EXPLANATION
1	DID to Main Peg Count	Scores each time a DID trunk call terminates at the main PBX.
TYPE 51 — DID TO SATELLITE MEASUREMENTS		
ITEM	NAME	EXPLANATION
1-4	DID to Satellite Peg Count	Scores each time a DID trunk call terminates at a satellite PBX.
TYPE 52 — RECALL SATELLITE MEASUREMENTS		
ITEM	NAME	EXPLANATION
1-4	Recall-From-Satellite Peg Count	Scores each time the main PBX attendant receives a recall from a satellite station.

TABLE D (Contd)

## PEAK AND TIME-COINCIDENT TRAFFIC MEASUREMENT ITEMS

TYPE 53 THROUGH TYPE 59 UNASSIGNED		
TYPE 60 — RETAIL ATTENDANT MEASUREMENTS		
ITEM	NAME	EXPLANATION
1	Centralized Attendant Service (CAS) Usage	Records in CCS the total wait time for all calls in the CAS queue. This measurement is only applicable to branch locations.
2	Centralized Attendant Service (CAS) Peg Count	Scores at main each time a call is directed to the CAS attendant from the branch.
3	Centralized Attendant Service (CAS) Abandon	Scores at branch each time a call abandons the CAS queue before being served, ie, before a release link trunk (RLT) became available.
4	Release Link Trunk — Attendant Peg Count	Scores at branch each time a call received over an RLT is answered by the attendant.
TYPE 61 — UNIFORM CALL DISTRIBUTION MEASUREMENTS		
ITEM	NAME	EXPLANATION
1-12	UCD Groups 1 Through 12 Peg Counts	Scores once every 2 seconds when the Uniform Call Distribution (UCD) queue is equal to or above the threshold level set for the queue.
TYPE 62 THROUGH TYPE 69 UNASSIGNED		
TYPE 70 — HOSPITALITY/MANAGEMENT CONSOLE TOTALS (FP11)		
ITEM	NAME	EXPLANATION
1	Attendant Console H/M CCS	Total time attendant console spent in H/M mode.
2	Station Console H/M CCS	Total time station console (front desk) spent in H/M mode.
3	Attendant Console Check-In/Out CCS	Measures time attendant console spent in check-in/out (admit/discharge) mode.
4	Station Console Check-In/Out CCS	Measures time station console spent in check-in/out (admit/discharge) mode.
5	Attendant Console H/M Peg	Scores when attendant console activates an H/M feature.
6	Station Console H/M Peg	Scores when station console activates an H/M feature.

TABLE D (Contd)

## PEAK AND TIME-COINCIDENT TRAFFIC MEASUREMENT ITEMS

TYPE 70 — HOSPITALITY/MANAGEMENT CONSOLE TOTALS (FP11)		
ITEM	NAME	EXPLANATION
7	Attendant Console Check-In/Out Peg	Scores when the attendant console activates check-in/out mode.
8	Station Console Check-In/Out Peg	Scores when the station console activates check-in/out mode.
9	Total Console Button Peg	Scores on all button activations on attendant console.
TYPE 71 — H/M PRINTER TOTALS (FP11)		
ITEM	NAME	EXPLANATION
1	Printer CCS	Measures printer usage of dial pulse originating registers.
2	Printer Peg	Scores when printer seizes a dial pulse originating register.
TYPE 72 — H/M PRINTER USAGE		
ITEM	NAME	EXPLANATION
1-15	H/M Printer CCS	Measures the individual usage of H/M printers.
TYPE 73 — H/M PRINTER PEG COUNT		
ITEM	NAME	EXPLANATION
1-15	H/M Printer Peg	Scores each time an individual H/M printer is seized.
TYPE 74 — PERIPHERAL INTERFACE CIRCUIT BUFFERS (FP11)		
ITEM	NAME	EXPLANATION
1	Small Buffer Busy Percent	The peak percent of buffer slots in use for the small buffer.
2	Medium Buffer Busy Percent	The peak percent of buffer slots in use for the medium buffer.
3	Large Buffer Busy Percent	The peak percent of buffer slots in use for the large buffer.
4	Small Buffer Seize Peg	Scores each time the small buffer is seized.

TABLE D (Contd)

## PEAK AND TIME-COINCIDENT TRAFFIC MEASUREMENT ITEMS

TYPE 74 — PERIPHERAL INTERFACE CIRCUIT BUFFERS (FP11) (Contd)		
ITEM	NAME	EXPLANATION
5	Medium Buffer Seize Peg	Scores each time the medium buffer is seized.
6	Large Buffer Seize Peg	Scores each time the large buffer is seized.
7	Small Buffer Failure Peg	Scores each time the small buffer seizure fails. First attempts are counted.
8	Medium Buffer Failure Peg	Scores each time the medium buffer seizure fails. First attempts are counted.
9	Large Buffer Failure Peg	Scores each time the large buffer seizure fails. First attempts are counted.
TYPE 75 — PIC FEATURE USAGE (FP11)		
ITEM	NAME	EXPLANATION
1	PMS Send Delay CCS	Measures PMS message delay processed by the PIC.
2	EC Send Delay CCS	Measures the energy control message delay.
3	LDB Receive Delay CCS	Measures the usage of messages received in the TSPS queue.
4	PMS Receive Delay CCS	Measures the usage of the PMS receive queue activity.
TYPE 76 — PIC FEATURE PEGs (FP11)		
ITEM	NAME	EXPLANATION
1	PMS Send Peg	Scores with all send activity of PMS queue.
2	EC Send Peg	Scores on all send messages for energy communications (EC) to the CRT.
3	LDB Receive Peg	Scores when TSPS messages are received.
4	PMS Receive Peg	Scores for all receive activity for PMS queue.

TABLE D (Contd)

## PEAK AND TIME-COINCIDENT TRAFFIC MEASUREMENT ITEMS

TYPE 77 — ENERGY COMMUNICATIONS FEATURE (FP11)		
ITEM	NAME	EXPLANATION
1	Room ECF Control Peg	Scores each time a tone is applied to guestroom energy control circuit.
2	Individual ECF Control Peg	Scores each time a tone is applied to an individual load energy control circuit.
3	Individual ECF Blocked Peg	Scores each time a tone blockage occurs on nonguest shared lines.
TYPE 78 — WAKEUP FEATURE (FP11)		
ITEM	NAME	EXPLANATION
1	Wakeup Delayed 5 Peg	Scores when calls are blocked during a given 5-minute cycle for the Wakeup feature.
2	Wakeup Complete 5 Peg	Scores when calls complete for a given 5-minute cycle for the Wakeup feature.
3	Wakeup BY/DA Peg	Scores on retries due to busys and don't answers for the Wakeup feature.
4	Wakeup Attempt Peg	Scores the total attempts for the hour interval of the Wakeup feature.

TABLE E

## ETN TRAFFIC REGISTERS

TRUNK GROUP	CCS	PEG	OVFL	IN CCS	IN PEG	ABAND	TIME OUT
1-Way Outgoing	X	X	X				
1-Way Incoming	X	X					
2-Way	X	X	X	X	X		
Priority Queue	X	X	X			X	X
Nonpriority Queue	X	X	X			X	X

TABLE F

## TRUNK-TYPE ENCODE MESSAGES

TRUNK-TYPE ENCODE MESSAGES	
TRUNK TYPE MESSAGE	TRUNK-TYPE DESCRIPTION
<b>MISCELLANEOUS</b>	
INCOM	Intercom
DP-DR	Dial Pulse Digit Register
TT-DR	TOUCH-TONE Dialing Digit Register
AT-DR	Attendant Digit Register
SLOOP	Switched Loop
6-WAY	Attendant Conference
Q-TRK	General Purpose Queuing Trunks
<b>CCSA</b>	
CCSA2WDD	2-Way CCSA Delay Dial In/Out
CCSA1WOD	2-Way CCSA Delay Dial Out/Wink In
CCSA2WOD	2-Way CCSA Dial Tone Out/Delay Dial In
CCSA2W	2-Way CCSA Dial Tone Out/Wink In
<b>REGULAR CO</b>	
CO-1WI	1-Way Incoming Attendant Completing
CO-1WO	1-Way Outgoing DOD
CO-1WOP	1-Way Out DOD With Party Test
CO-2W	2-Way Attendant Completing In/DOD
CO-2WP	2-Way With Party Test
<b>FOREIGN EXCHANGE</b>	
FX-1WI	1-Way Incoming Attendant Completing
FX-1WO	1-Way Outgoing DOD
FX-1WOP	1-Way Out DOD With Party Test
FX-2W	2-Way Attendant Completing In/DOD
FX-2WP	2-Way With Party Test
<b>WATS</b>	
WT-1WI	1-Way Incoming Attendant Completing
WT-1WO	1-Way Outgoing DOD
WT-1WOP	1-Way Out DOD With Party Test
WT-1WA	Automatic INWATS
<b>DID</b>	
DID-IS	Immediate Start DID
DID-WS	Wink Start DID

TABLE F (Contd)

## TRUNK-TYPE ENCODE MESSAGES

TRUNK-TYPE ENCODE MESSAGES (Contd)	
TRUNK TYPE MESSAGE	TRUNK-TYPE DESCRIPTION
<b><i>TIE TRUNKS</i></b>	
TT1IDR	1-Way In Dialing Repeating
TT-10AU	1-Way Out Automatic
TT-1ODR	1-Way Out Dial Repeating
TT-1IAU	1-Way In Automatic
TT-2WDR	2-Way Dial Repeating Both Ways
TT-2WAD	2-Way Dial Repeating In/Auto Out
TT-2WAD	2-Way Auto In/Dial Repeating Out
TT-2WAU	2-Way Auto Both Ways
TT1IDR-D	1-Way In Dial Repeating—Delay Dial
TIE2DDW	2-Way, Wink In/Delay Dial or Wink Out
TIE1IW	1-Way In, Wink
TIE1ODDW	1-Way Out, Delay Dial or Wink
TT2WDR-D	2-Way Dial Repeating—Delay Dial In
TT2WDA-D	2-Way Dial RPTG In/Auto Out—Delay Dial In
TIE TM	2-Way Delay Dial or Wink Out/Dial Repeating Delay Dial In
TIE DRA CLASS	Dial Repeating/Auto Trunk Class
TIE DD CLASS	Delay Dial Trunk Class
<b><i>SPECIAL TRUNKS AND INTERFACES</i></b>	
GWTRK	Guest Wakeup Trunk
BCSACS	Remote BCS Access Trunk
TELDIC	Telephone Dictation Interface
RECANC	Recorded Announcement Interface
LC-13	
LS-PAGE	Loudspeaker Paging Interface
CAS-LINK	CAS AMP Interface
RLS-LINK	Release Link Trunk for CAS
NICKT	ANI Interface
S-MS-INT	STA MSG REG Interface
TOL-TRM	Toll Terminal Trunk
UCD-LINT	UCD Lamp Interface
MUC-INTE	Music on Hold Interface
CODECALL	Code Call Interface
TT_SEND	TOUCH-TONE Dialing Sender

TABLE F (Contd)

## TRUNK-TYPE ENCODE MESSAGES

TRUNK-TYPE ENCODE MESSAGES (Contd)	
TRUNK TYPE MESSAGE	TRUNK-TYPE DESCRIPTION
<b><i>SPECIAL TRUNKS AND INTERFACES (Contd)</i></b>	
HW_DGCOL	Hardware Digit Collection
REM_ACC	Remote Access Voice Switched Gain Trunk
CON_INT	LC15 Contact Interface
INC_RLS	CAS Incoming Release Link Trunk
AUDIO	Audio Interface
REC_ANN	UCD Recorded Announcement
MS_1WI	Main/Satellite 1-Way In Immediate Start
MS_1WOI	Main/Satellite 1-Way Out Immediate Start
MS_2W	Main/Satellite 2-Way Immediate Start
MS_1WI	Main/Satellite 1-Way In Wink
MS_1WO	Main/Satellite 1-Way Out Wink
MS_2W	Main/Satellite 2-Way Wink
MS_1WI	Main/Satellite 1-Way In Delay Dial
MS_1WO	Main/Satellite 1-Way Out Delay Dial
MS_2W	Main/Satellite 2-Way Delay Dial
VSG_2W	Voice Switched Gain 2-Way (CO or WATS)
VSG_1W	Voice Switched Gain 1-Way (CO or WATS)

**TABLE G**  
**CUSTOMER DATA BASE INFORMATION**

RELEASE		FIELD ID	FIELD NAME	DESCRIPTION
1	2			
X	X	name	Customer Name.	Up to 30 characters.
X	X	main	Customer LDN.	(NPA)NNX-LINE. The listed directory #. Used by RMATS II personnel and software to identify the products. Area code is optional.
X	X	cllc	Common Language Location code.	Up to 11 capital alphanumeric characters. Used by service order functions to identify products.
X	X	port	Port Phone #.	Optional access code followed by (NPA)NNX-LINE: the number of the product's RMATS II port. Area code is optional.
X	X	code	Security Code.	A 4-character field used as a password for RMATS II access to the product.
X	X	ac	Account Code.	Up to ten alphanumeric characters -- used for accounting purposes.
X	X	type	Product Type.	Allowed values: Release 1 -- DIMENSION 100, 400, 600, 2000, Custom PBXs, DExtn, CACS, Release 2 -- R1 values plus ECSA, DPREL.
X	X	fp	Feature Package.	Feature packages 1 through 5, 7 through 13, or 15 for DIMENSION PBX; 13 for ECSA; 14 for DPREL.
X	X	hw*	Hardware Configuration.	A, B, C, D, E or F for the first character, indicating memory size, followed by an optional D indicating dual processors for DIMENSION PBXs.
X	X	issue	Issue.	Optional L or I followed by N.N where N is a number between 0 and 99. Specifies generic software release.
	X	stype*	Subtype.	Subtypes CM, DR, 1B, 2B -- provides more information about product characteristics.
X	X	nae	Account Exec Name.	Up to 30 characters -- Account Executive name.
X	X	tae	Account Exec Phone.	xNNNN or (NPA)NNX-LINExNNNN, NPA and xNNNN are optional. AE telephone number.

\*Traffic item entry.

TABLE G (Contd)

## CUSTOMER DATA BASE INFORMATION

RELEASE		FIELD ID	FIELD NAME	DESCRIPTION
1	2			
X	X	nma	Marketing Administrator Name.	Up to 30 characters — MA name.
X	X	tma	Marketing Administrator Phone.	xNNNN or (NPA)NNX-LINExNNNN, NPA and xNNNN are optional. MA telephone number.
X	X	disp	Dispatch LDN.	xNNNN or (NPA)NNX-LINExNNNN, NPA and xNNNN are optional. The LDN for calling to dispatch a craft person.
X	X	cntct	Contact LDN.	xNNNN or (NPA)NNX-LINExNNNN, NPA and xNNNN are optional. Used to contact an appropriate person on the customer premises.
X	X	addr	Customer's Address.	Up to 80 characters.
X	X	mday	Maintenance Polling Days.	Combination of days in a week, MTWRFSN or mtwrfsn (* for all).
X	X	mhour	Maintenance Polling Hours.	Ranges of hours (between 0 and 23) separated by commas.
X	X	mtint	Time Between Maintenance Polls.	HH:MM
X	X	dpaf*	Do You Want Daily Polling Activated?	Y or y for yes, N or n for no. Default = n.
X	X	note	Notes.	Up to 80 characters. Comment field.
X	X	sohld	Do You Want Service Order Saved?	Y or y for yes, N or n for no. If "y", all service orders will be saved; if "n", only the most recent 15 service orders will be saved. Default = n.
		asap	Associated APs.	A list of LDNs of the form: (NPA)NNX-LINE, separated by commas. Populated in switch product records, contains the 'pseudo' LDN of any APs that may be associated with the switch.

\*Traffic item entry.

TABLE G (Contd)

## CUSTOMER DATA BASE INFORMATION

RELEASE		FIELD ID	FIELD NAME	DESCRIPTION
1	2			
		asea	Associated ECSA.	A list of LDNs of the form: (NPA)NNX-LINE, separated by commas (usually one entry at most). Populated in switch product record; contains the 'pseudo' LDN of the ECSA, if any, associated with the switch.
		asdc	Associated DCS Nodes.	A list of LDNs of the form: (NPA)NNX-LINE, separated by commas. For each PBX node of DCS, contains the LDNs of the other nodes.
		pldn	Parent LDN.	For ECSAs, the LDN of the parent product.
X	X	caef	Customer Administration Equipment Flag.	Y or y for yes, N or n for no. Indicates whether the customer has a CACS or CAP, and, for DPREL, a tape drive unit. Default = n.
X	X	cut	Cut Date.	MM/DD/YY, the date the product is placed into service.
X	X	disc	Disconnect Date.	MM/DD/YY, the date the product is removed from service.
X	X	serv	Customer Service State.	O for ordered, I for installed, S for in service, B for blowback, D for disconnected. Default = 0.
X	X	lmos	LMOS.	LMOS ID number — 1 through 8 digits (identifies rsb).
X	X	bars	BARS.	Characters 1 through 10. Y (or other entry) indicates BARS link is used for this product. Empty field indicates link not used.
X	X	nmc	MC Name.	Up to 30 characters: name of the maintenance center.
X	X	tmc	MC Phone.	xNNNN or (NPA)NNX-LINExNNNN, NPA and xNNNN are optional. MC telephone number.
X	X	nbirc	BIRC Name.	Up to 30 characters — name of the Business Installation and Repair Center serving product.
X	X	tbirc	BIRC Phone.	xNNNN or (NPA)NNX-LINExNNNN, NPA and xNNNN are optional. BIRC telephone number.
X	X	tape2	Date Door Tape Last Updated.	MM/DD/YY. Provides the date the door tape was last updated.

TABLE G (Contd)

## CUSTOMER DATA BASE INFORMATION

RELEASE		FIELD ID	FIELD NAME	DESCRIPTION
1	2			
X	X	tape3	Date Third Tape Last Updated.	MM/DD/YY. Provides the date the third tape was last updated.
X	X	mod*	Number of Modules.	Number between 0 and 99 (DIMENSION PBX only).
X	X	stn*	Number of Stations.	Number between 0 and 9999 (DIMENSION PBX).
X	X	mets*	Number of ECTS /METS Stations.	Number between 0 and 9999.
X	X	cit	Customer Industry Type.	Three-character code specifying the type of business of the customer — optional.
X	X	clerk*	Employee Code for Traffic Clerk.	Up to eight characters — clerk ID.
X		msg-c*	Do Messages Go to Clerk?	Y or y for yes, N or n for no. Default = n.
X		rpt-c*	Do Reports Go to Clerk?	Y or y for yes, N or n for no. Default = n.
X	X	eng*	Employee Code for Traffic Engineer.	Up to eight characters — engineer ID.
X		msg-e*	Do Messages Go to Engineer?	Y or y for yes, N or n for no. Default = n.
X		rpt-e*	Do Reports Go to Engineer?	Y or y for yes, N or n for no. Default = n.
X	X	pmssp*	Study Period of PMS.	A number 1 through 6 or d for daily. Specifies the performance monitoring duration. Default = 4.
X	X	pmsrf*	Review Frequency of PMS.	A number 1 through 6 or d for daily. Specifies the performance monitoring frequency. Default = 4.
X	X	bday*	Business Days.	A combination of MTWRFSNmtwrfsn to denote the business days for the customer.

\*Traffic item entries.

TABLE G (Contd)

## CUSTOMER DATA BASE INFORMATION

RELEASE		FIELD ID	FIELD NAME	DESCRIPTION
1	2			
X	X	bhour*	Business Hours.	Hours (between 0 and 23) to denote the business hours for a customer.
	X	ptz*	Product Time Zone.	A number between -12 and 13 indicating the offset from Greenwich time of the time zone the product is in; followed by 'y' if Day Light Savings Time, 'n' otherwise.
X	X	tpad*	Traffic Poll Activation Date.	MM/DD/YY date to start traffic poll.
X	X	tpef*	Traffic Poll Activation Flag.	Y or y for yes, N or n for no. Default = n.
X	X	hsst*	One Time HS Starting Date.	MM/DD/YY, date to begin hourly polling.
X		rhsst*	Recurring HS Starting Date.	MM/DD/YY, date to begin hourly polling for yearly recurring studies.
X	X	npmsr*	Next PMS Review Date.	MM/DD/YY, date to start next PMS.
X		pollf	Poll Enable Flag.	Not used.
X	X	edid	ID of User Editing the Record.	Up to eight-character user ID. Used as a locking mechanism to prevent simultaneous editing of the record. Populated only when a user is editing the record.

Traffic item entries.

**TABLE H**  
**DEFAULT GRADE OF SERVICE AND THRESHOLD**

ENTITY	SERVICE LEVEL	CHECK	LOWER LIMIT	UPPER LIMIT
Processor	—	Hi	—	70%
Time Slots	—	Hi	—	1500 or 3300*
Attendant	D12S	No	—	—
DP Registers	D1S	Hi	—	Carrying Capacity
TT Receivers	D1S	Hi	—	" "
TT Senders	D1S	Hi	—	" "
DID —	P.01	Hi	—	" "
TCO — Incoming	P.01	Hi	—	" "
TCO — 2 Way	P.01	Hi	—	" "
TCO — Outgoing	P.02	Hi	—	" "
CO — Incoming	P.01††	Hi	—	" "
CO — 2 Way	P.01††	Hi	—	" "
CO — Outgoing	P.02††	Hi	—	" "
FX — Incoming	P.03††	Hi	—	" "
FX — 2 Way	P.03††	Hi	—	" "
FX — Outgoing	P.03††	Hi	—	" "
TIE — Incoming	P.03††	Hi	—	" "
TIE — 2 Way	P.03††	Hi	—	" "
TIE — Outgoing	P.03††	Hi	—	" "
APLT — Incoming	P.03	Hi	—	" "
APLT — 2 Way	P.03	Hi	—	" "
APLT — Outgoing	P.03	Hi	—	" "
WATS — Incoming	P.01††	No	—	" "
WATS — Outgoing	P.05††	No	—	" "

\*Time Slots: Use 1500 for DIMENSION 100, 400, 400E, and 600 PBXs with single bus and PRELUDE†. Use 3300 for DIMENSION 600 PBX with dual bus and single module DIMENSION 2000 PBX. Use 3300 times the number of modules for multimodule DIMENSION 2000 PBX.

†Trademark of AT&T.

††When priority or nonpriority deluxe queuing is used, the service level is Q102.

TABLE I

## INITIAL ENGINEERABLE FACILITIES TABLE FOR "DIMENSION" PBX

	TGP	DAC	QUEUE	RA	FAC	DR	DESCRIPTION	SVC	CHK	LLIM	ULIM	QTY
1>	—	—	—	—	PROC	—	Proc occpcy		hi	—	70	
2>	—	—	—	—	TIME	—	TimeslotCCS		hi	—	3300	
3>	—	—	—	—	ATT	—	Attendants	D12S	no		12	1
4>	15				ICM	—	0-InCMrecs	P01	hi		533	24
5>	16	—	—	—	DPR	—	1-DPporRegs	D1S	hi		370	20
6>	17	—	—	—	TTR	—	2-Recvrs	D1S	hi		72	7
7>	45	—	—	—	TTS	—	55-Senders	D1S	hi		24	4
8>	18	101			CO?	2W	19-	—	no			5
9>	22	115	n5		CO?	OG	17-	—	no			17
10>	23	116	n3		CO?	OG	17-	—	no			4
11>	25	114			CO?	2W	19-	—	no			1
12>	39	88			CO?	2W	50-	—	no			1
13>	47				CO?	IC	16-	—	no			9
14>	26	94	n2		FX	OG	22-	Q102	hi		80	3

TABLE J

## EDITED ENGINEERABLE FACILITIES TABLE FOR "DIMENSION" PBX

	TGP	DAC	QUEUE	RA	FAC	DR	DESCRIPTION	SVC	CHK	LLIM	ULIM	QTY
1>	—	—	—	—	PROC	—	Proc occpcy		hi	—	70	
2>	—	—	—	—	TIME	—	TimeslotCCS		hi	—	3300	
3>	—	—	—	—	ATT	—	Attendants	D12S	no		12	1
4>	15				ICM	—	0-InCMrecs	P01	hi		533	24
5>	16	—	—	—	DPR	—	1-DPporRegs	D1S	hi		370	20
6>	17	—	—	—	TTR	—	2-Recvrs	D1S	hi		72	7
7>	45	—	—	—	TTS	—	55-Senders	D1S	hi		24	4
8>	18	101			CO	2W	19-	P01	hi		46	5
9>	22	115	n5		CO	OG	17-	Q102	hi		594	17
10>	23	116	n3		CO	OG	17-	Q102	hi		116	4
11>	25	114			CO	2W	19-	P01	hi		1	1
12>	39	87			CO	2W	50-	P01	hi		1	1
13>	47				CO	IC	16-	P01	hi		130	9
14>	26	94	n2		FX	OG	22-	Q102	hi		80	3

TABLE K

## DEFAULT TRAFFIC REGISTER ASSIGNMENTS

"DIMENSION" 2000 PBX FP8, FP11, FP12					
COMMON EQUIPMENT			DEFAULT REGISTER ASSIGNMENTS		
TGP	FAC*	DR	PEAK	TC	MEASUREMENT DESCRIPTION
—	TIME	—	3, 1	— 3, 3 3, 2 3, 4 5, 15 6, 15 2, 1	Time Slot CCS Time Slot Peg Tandem Traffic Processor Occupancy % Intercom Record CCS Intercom Record Peg Time of Day
—	PROC	—	3, 4	— 3, 1 3, 3 3, 5 3, 6 3, 7 3, 8 3, 9 2, 1	Processor Occupancy % Time Slot CCS Time Slot Peg Processor Overflow Peg Call Processor Peg ECTS Controller Peg Dial Tone Delays > 3 Seconds Dial Tone Bids Time of Day
—	ATT	—	20, 1	— 20, 2 20, 3 20, 4 20, 5 20, 6 20, 7 20, 8 20, 9 20, 10 2, 1 21, 1-40 22, 1-40 23, 1-40	Attendant Group Worked CCS (Position Busy) Group Available CCS (Headset In) Group Worked Peg Incoming Queue CCS Incoming Queue Peg Incoming Queue Abandon Peg LDN Calls Answered Peg Non-LDN Calls Answered Peg Recall Peg Orig Calls— Start Key Peg Time of Day Worked CCS— Consoles 1-40 Available CCS— Consoles 1-40 Worked Peg— Consoles 1-40
x	OTQ	OG	5, x	—	Queue Group CCS for One of Several Studied Queues Assigned to TGP x
15	ICM	—	5, 15	— 6, 15	Intercom Record CCS Intercom Record Peg
16	DPR	—	5, 16	— 6, 16	Dial Pulse Register Group CCS DPR Group Peg
17	TTR	—	5, 17	— 6, 17	TOUCH TONE Dialing Rcvr Group CCS TTR Group Peg
a	TTS	—	5, a	— 6, a	TOUCH-TONE Dialing Sender Group CCS TTS Group Peg

TABLE K (Contd)

DEFAULT TRAFFIC REGISTER ASSIGNMENTS

"DIMENSION" 2000 PBX FP8, FP11, FP12					
COMMON EQUIPMENT			DEFAULT REGISTER ASSIGNMENTS		
TGP	FAC*	DR	PEAK	TC	MEASUREMENT DESCRIPTION
b c d	CON	2W IC OG	1, r	— 1, s 1, t 5, c* 6, c 5, b 6, b 8, b 9, b 7, b 5, d 6, d 7, d 2, 1	CO Combination N Total CCS Incoming CCS Outgoing CCS IC Group CCS IC Group Peg 2W Group CCS 2W Group Peg 2W Grp Incoming CCS 2W Grp Incoming Peg 2W Grp Overflow Peg OG Group CCS OG Group Peg OG Grp Overflow Peg Time of Day
—	CON	IC	1, s	— 1, t 2, 1	CO Combination N Incoming CCS Outgoing CCS Time of Day
—	CON	OG	1, t	— 1, s 2, 1	CO Combination N Outgoing CCS Incoming CCS Time of Day

\* In the case of 2-group CO combinations, either group c or group d and their TC measures do not apply. In the case of 4-, 5- or 6-group CO combinations, the TC measures for each additional 2W, IC, or OG group are added to the setup by RMATS II. At most, three CO trunk combinations are allowed. The relationship of combination numbers to item codes is:

COMBINATION	TYPE 1, ITEM CODE:		
	r: TOTAL	s: INCOMING	t: OUTGOING
1	1	2	3
2	4	5	6
3	7	8	9

TABLE K (Contd)

## DEFAULT TRAFFIC REGISTER ASSIGNMENTS

"DIMENSION" 2000 PBX FP8, FP11, FP12					
COMMON EQUIPMENT			DEFAULT REGISTER ASSIGNMENTS		
TGP	FAC*	DR	PEAK	TC	MEASUREMENT DESCRIPTION
e	OTH1C	IC	5, e	— 6, e	Trunk Group CCS Group Peg
f	OTH2W	2W	5, f	— 6, f 7, f 8, f 9, f	Trunk Group CCS Group Peg Group Overflow Peg Group Incoming CCS Group Incoming Peg (without queuing)
g	OTHOG	OG	5, g	— 6, g 7, g 2, 1	Trunk Group CCS Group Peg Group Overflow Peg Time of day (without queuing)
h	OTHOG	OG	5, h	— 6, h 7, h 5, x 2, 1	Trunk Group CCS Group Peg Group Overflow Peg Studied Queue CCS for OTQ Assigned to TGP x Time of day
i	OTH2W	2W	5, i	— 6, i 7, i 8, i 9, i 5, x	Trunk Group CCS Group Peg Group Overflow Peg Group Incoming Peg Group Incoming Peg Studied Queue CCS for OTQ Assigned to TGP x

\*The types of facility (FAC) are known by the following designations:

FAC	FACILITY DESIGNATION		
	OTH1C	OTH2W	OTHOG
DID	X		
MISC WATS	X X		X X
TIE CCSA FX CO	X X X X	X X X X	X X X X

TABLE L

**TRAFFIC SUMMARY REPORT OPTIONS  
FOR "DIMENSION" PBX FP8**

POLLED DATA SET	COMMAND FIELD	AVAILABLE FORMATS	
		DAILY (D)	HOURLY (H)
Accumulative Values	accum	x	
Peak and TC Values	pkte	x	x
Time Slot Blockage	tsb	x	
Ring Group Blockage	rgb	x	
Trunk Grp Busyout Map	tgb	x	
ARS Values	ars	x	
AAR Values	aar	x	
ACA Records	aca	x	
Processor Occupancy Profile	pop	x	
Load Balance	lb	x	
Carrier Usage All except Processor Occupancy Profile, Load Balance, and Carrier Usage	cu all	x	x

TABLE M

**TRAFFIC PROFILE DATA FOR "DIMENSION" PBX (NOTE)**

MEASUREMENT	TYPE ITEM	WEEKLY STATISTICS
Processor Occupancy %	(3.4)	High Day
Percent Fill (requires product type, subtype and # modules)	(3.1)/(36 × # Time Slots)	High Day Average Low Day
Call Usage CCS	(3.1)	High Day Average Low Day
Number of Stations in Service	CDB Field	CDB Snapshot

**Note:** In the case of DIMENSION 600 PBX products, the CDB Subtype is used to distinguish between 1B (single bus 64 time slots) and 2B (dual bus 128 time slots). DIMENSION 100/400 PBX implies 64 time slots and DIMENSION 2000/Custom PBX implies 128 time slots per module.

TABLE N

MEASUREMENT THRESHOLDS IN CARRIED CCS  
 LOW DAY-TO-DAY VARIATION OF DEMAND  
 BASED ON RETRIAL CAPACITY TABLES

TRKS	BLOCKING LEVEL																				TRKS
	.01	.02	.03	.04	.05	.06	.07	.08	.09	.10	.11	.12	.13	.14	.15	.16	.17	.18	.19	.20	
1	0	1	1	1	2	2	2	2	3	3	3	4	4	4	4	5	5	5	6	6	1
2	6	8	10	11	13	14	15	16	17	18	19	20	21	22	23	24	25	26	26	27	2
3	17	22	25	28	31	33	35	37	39	40	42	44	45	46	48	49	50	52	53	54	3
4	32	40	45	49	52	56	58	61	64	66	68	70	72	74	76	77	79	81	82	84	4
5	51	60	67	72	77	81	84	88	91	93	96	98	101	103	105	107	109	111	113	115	5
6	71	83	91	97	103	107	112	115	119	122	125	128	131	133	136	138	140	142	145	147	6
7	93	107	116	124	130	135	140	144	148	152	155	159	162	165	167	170	172	175	177	179	7
8	116	132	143	151	158	164	169	174	179	183	187	190	193	196	199	202	205	208	210	212	8
9	140	158	170	179	187	194	200	205	210	214	218	222	225	229	232	235	238	241	243	246	9
10	165	185	198	208	217	224	230	236	241	246	250	254	258	262	265	268	271	274	277	280	10
11	191	212	226	238	247	254	261	267	273	278	282	287	291	295	298	302	305	308	311	314	11
12	217	240	256	267	277	285	292	299	305	310	315	320	324	328	332	335	339	342	345	348	12
13	245	269	285	298	308	317	324	331	337	343	348	353	357	362	366	369	373	376	380	383	13
14	272	298	315	328	339	348	356	363	370	376	381	386	391	395	400	404	407	411	414	417	14
15	300	327	345	359	371	380	389	396	403	409	415	420	425	430	434	438	442	445	449	452	15
16	327	357	376	390	402	412	421	429	436	442	448	454	459	464	468	472	476	480	484	487	16
17	355	386	407	422	434	445	454	462	469	476	482	488	493	498	503	507	511	515	518	522	17
18	384	417	438	454	466	477	487	495	503	510	516	522	527	532	537	541	546	550	553	557	18
19	413	447	469	485	499	510	520	529	536	544	550	556	562	567	572	576	581	585	588	592	19
20	442	478	500	518	531	543	553	562	570	578	584	590	596	601	606	611	615	620	624	627	20
21	472	509	532	550	564	576	586	596	604	611	618	625	631	636	641	646	650	655	659	663	21
22	502	540	564	582	597	609	620	629	638	646	653	659	665	671	676	681	685	690	694	698	22
23	531	571	596	615	630	642	653	663	672	680	687	694	700	706	711	716	721	725	729	733	23
24	562	602	628	647	663	676	687	697	706	714	722	728	735	740	746	751	756	760	764	768	24
25	592	634	660	680	696	709	721	731	740	749	756	763	769	775	781	786	791	795	800	804	25

TABLE N (Contd)

MEASUREMENT THRESHOLDS IN CARRIED CCS  
 LOW DAY-TO-DAY VARIATION OF DEMAND  
 BASED ON RETRIAL CAPACITY TABLES

TRKS	BLOCKING LEVEL																			TRKS	
	.01	.02	.03	.04	.05	.06	.07	.08	.09	.10	.11	.12	.13	.14	.15	.16	.17	.18	.19		.20
26	623	665	692	713	729	743	755	765	775	783	791	798	804	810	816	821	826	831	835	839	26
27	653	697	725	746	763	777	789	799	809	818	825	833	839	845	851	857	861	866	871	875	27
28	684	729	758	779	796	810	823	834	843	852	860	868	874	881	886	892	897	902	906	910	28
29	714	761	790	812	830	844	857	868	878	887	895	902	909	916	922	927	932	937	942	946	29
30	745	793	823	845	863	878	891	902	913	922	930	937	944	951	957	962	968	972	977	981	30
31	776	825	856	878	897	912	925	937	947	956	965	972	979	986	992	998	1003	1008	1013	1017	31
32	807	858	889	912	931	946	960	971	982	991	1000	1007	1015	1021	1027	1033	1038	1043	1048	1053	32
33	839	890	922	945	964	980	994	1006	1016	1026	1035	1043	1050	1056	1063	1068	1074	1079	1084	1088	33
34	870	922	955	979	998	1014	1028	1040	1051	1061	1070	1078	1085	1092	1098	1104	1109	1115	1119	1124	34
35	902	955	988	1013	1032	1049	1063	1075	1086	1096	1105	1113	1120	1127	1133	1139	1145	1150	1155	1159	35
36	934	988	1021	1046	1066	1083	1097	1110	1121	1131	1140	1148	1156	1162	1169	1175	1180	1186	1191	1195	36
37	969	1020	1055	1080	1100	1117	1132	1144	1156	1166	1175	1183	1191	1198	1204	1210	1216	1221	1226	1231	37
38	1001	1053	1088	1114	1134	1152	1166	1179	1191	1201	1210	1218	1226	1233	1240	1246	1252	1257	1262	1266	38
39	1033	1086	1122	1148	1169	1186	1201	1214	1225	1236	1245	1254	1261	1269	1275	1281	1287	1292	1298	1302	39
40	1065	1121	1157	1183	1204	1222	1237	1250	1261	1272	1281	1290	1297	1305	1311	1318	1323	1329	1334	1338	40
41	1097	1156	1191	1218	1239	1257	1272	1285	1297	1307	1317	1325	1333	1341	1347	1353	1359	1365	1370	1375	41
42	1129	1189	1225	1253	1274	1292	1307	1320	1332	1343	1352	1361	1369	1376	1383	1389	1395	1400	1406	1410	42
43	1162	1222	1259	1287	1308	1321	1341	1355	1367	1378	1387	1396	1404	1412	1418	1425	1431	1436	1441	1446	43
44	1195	1254	1292	1320	1342	1360	1376	1390	1402	1413	1422	1431	1439	1447	1454	1460	1466	1472	1477	1482	44
45	1227	1287	1325	1353	1376	1395	1411	1424	1437	1448	1457	1466	1475	1482	1489	1496	1502	1507	1512	1517	45
46	1260	1320	1359	1387	1410	1429	1445	1459	1472	1483	1493	1502	1510	1518	1525	1531	1537	1543	1548	1553	64
47	1292	1353	1393	1421	1445	1464	1480	1494	1507	1518	1528	1537	1545	1553	1560	1567	1573	1579	1584	1589	47
48	1324	1387	1427	1456	1479	1499	1515	1529	1542	1553	1563	1573	1581	1589	1596	1603	1609	1614	1620	1625	48
49	1357	1421	1461	1490	1514	1533	1550	1565	1577	1589	1599	1608	1617	1624	1632	1638	1644	1650	1656	1661	49
50	1390	1454	1495	1525	1549	1568	1585	1600	1613	1624	1634	1644	1652	1660	1667	1674	1680	1686	1691	1696	50

TABLE N (Contd)

**MEASUREMENT THRESHOLDS IN CARRIED CCS  
LOW DAY-TO-DAY VARIATION OF DEMAND  
BASED ON RETRIAL CAPACITY TABLES**

TRKS	BLOCKING LEVEL																				TRKS
	.01	.02	.03	.04	.05	.06	.07	.08	.09	.10	.11	.12	.13	.14	.15	.16	.17	.18	.19	.20	
51	1422	1488	1529	1559	1584	1603	1620	1635	1648	1660	1670	1679	1688	1696	1703	1710	1716	1722	1727	1732	51
52	1455	1522	1563	1594	1618	1638	1655	1670	1683	1695	1705	1715	1724	1732	1739	1746	1752	1758	1763	1768	52
53	1488	1555	1597	1629	1653	1673	1690	1705	1719	1730	1741	1750	1759	1767	1775	1781	1788	1793	1799	1804	53
54	1521	1589	1631	1663	1688	1708	1726	1741	1754	1766	1776	1786	1795	1803	1810	1817	1823	1829	1835	1840	54
55	1554	1623	1666	1698	1722	1743	1761	1776	1789	1801	1812	1822	1830	1839	1846	1853	1859	1865	1871	1876	55
56	1587	1656	1700	1732	1757	1778	1796	1811	1825	1837	1847	1857	1866	1874	1882	1889	1895	1901	1906	1912	56
57	1620	1690	1734	1767	1792	1813	1831	1846	1860	1872	1883	1893	1902	1910	1917	1924	1931	1937	1942	1947	57
58	1653	1724	1768	1801	1827	1848	1866	1882	1895	1907	1918	1928	1937	1946	1953	1960	1967	1973	1978	1983	58
59	1686	1758	1803	1836	1861	1883	1901	1917	1931	1943	1954	1964	1973	1981	1989	1996	2002	2008	2014	2019	59
60	1719	1792	1837	1870	1896	1918	1936	1952	1966	1978	1989	1999	2009	2017	2025	2032	2038	2044	2050	2055	60
61	1752	1826	1871	1905	1931	1953	1971	1987	2001	2014	2025	2035	2044	2053	2060	2067	2074	2080	2086	2091	61
62	1785	1860	1906	1939	1966	1988	2007	2023	2037	2049	2061	2071	2080	2088	2096	2103	2110	2116	2122	2127	62
63	1817	1894	1940	1974	2001	2023	2042	2058	2072	2085	2096	2106	2116	2124	2132	2139	2146	2152	2157	2163	63
64	1850	1928	1975	2009	2036	2058	2077	2093	2108	2120	2132	2142	2151	2160	2168	2175	2181	2188	2193	2199	64
65	1883	1962	2009	2043	2071	2093	2112	2129	2143	2156	2167	2178	2187	2196	2203	2211	2217	2223	2229	2235	65
66	1916	1997	2044	2078	2106	2128	2148	2164	2179	2191	2203	2213	2223	2231	2239	2246	2253	2259	2265	2270	66
67	1949	2031	2079	2113	2141	2164	2183	2200	2214	2227	2239	2249	2258	2267	2275	2282	2289	2295	2301	2306	67
68	1982	2065	2113	2148	2176	2199	2218	2235	2250	2263	2274	2285	2294	2303	2311	2318	2325	2331	2337	2342	68
69	2015	2100	2148	2182	2211	2234	2254	2270	2285	2298	2310	2320	2330	2339	2347	2354	2361	2367	2373	2378	69
70	2048	2134	2183	2217	2246	2269	2289	2306	2321	2334	2346	2356	2366	2374	2382	2390	2397	2403	2409	2414	70
71	2082	2168	2217	2252	2281	2304	2324	2341	2356	2369	2381	2392	2401	2410	2418	2426	2432	2439	2445	2450	71
72	2116	2202	2252	2287	2316	2340	2360	2377	2392	2405	2417	2428	2437	2446	2454	2461	2468	2475	2481	2486	72
73	2150	2236	2286	2322	2351	2375	2395	2412	2427	2441	2453	2463	2473	2482	2490	2497	2504	2511	2516	2522	73
74	2184	2270	2321	2357	2386	2410	2430	2448	2463	2476	2488	2499	2509	2518	2526	2533	2540	2546	2552	2558	74
75	2218	2304	2355	2392	2421	2445	2466	2483	2498	2512	2524	2535	2545	2553	2562	2569	2576	2582	2588	2594	75

TABLE N (Contd)

MEASUREMENT THRESHOLDS IN CARRIED CCS  
 LOW DAY-TO-DAY VARIATION OF DEMAND  
 BASED ON RETRIAL CAPACITY TABLES

TRKS	BLOCKING LEVEL																				TRKS
	.01	.02	.03	.04	.05	.06	.07	.08	.09	.10	.11	.12	.13	.14	.15	.16	.17	.18	.19	.20	
76	2252	2338	2390	2427	2457	2481	2501	2519	2534	2548	2560	2570	2580	2589	2597	2605	2612	2618	2624	2630	76
77	2286	2372	2424	2462	2492	2516	2536	2554	2570	2583	2595	2606	2616	2625	2633	2641	2648	2654	2660	2666	77
78	2320	2407	2459	2497	2527	2551	2572	2590	2605	2619	2631	2642	2652	2661	2669	2677	2684	2690	2696	2702	78
79	2354	2441	2494	2532	2562	2587	2607	2625	2641	2654	2667	2678	2688	2697	2705	2713	2720	2726	2732	2737	79
80	2388	2475	2528	2567	2597	2622	2643	2661	2676	2690	2702	2713	2723	2733	2741	2748	2755	2762	2768	2773	80
81	2422	2509	2563	2602	2632	2657	2678	2696	2712	2726	2738	2749	2759	2768	2777	2784	2791	2798	2804	2809	81
82	2456	2544	2598	2637	2668	2693	2714	2732	2748	2761	2774	2785	2795	2804	2813	2820	2827	2834	2840	2845	82
83	2490	2578	2632	2672	2703	2728	2749	2767	2783	2797	2810	2821	2831	2840	2848	2856	2863	2870	2876	2881	83
84	2524	2612	2667	2707	2738	2763	2785	2803	2819	2833	2845	2857	2867	2876	2884	2892	2899	2906	2912	2917	84
85	2558	2647	2702	2742	2773	2799	2820	2838	2854	2869	2881	2892	2902	2912	2920	2928	2935	2941	2948	2953	85
86	2592	2681	2737	2777	2808	2834	2856	2874	2890	2904	2917	2928	2938	2948	2956	2964	2971	2977	2983	2989	86
87	2626	2716	2772	2812	2844	2869	2891	2910	2926	2940	2953	2964	2974	2983	2992	3000	3007	3013	3019	3025	87
88	2659	2750	2807	2847	2879	2905	2927	2945	2961	2976	2988	3000	3010	3019	3028	3036	3043	3049	3055	3061	88
89	2693	2785	2841	2882	2914	2940	2962	2981	2997	3011	3024	3035	3046	3055	3064	3071	3079	3085	3091	3097	89
90	2727	2820	2876	2918	2950	2976	2998	3016	3033	3047	3060	3071	3082	3091	3100	3107	3115	3121	3127	3133	90
91	2761	2854	2911	2953	2985	3011	3033	3052	3068	3083	3096	3107	3117	3127	3135	3143	3150	3157	3163	3169	91
92	2795	2889	2946	2988	3020	3046	3069	3088	3104	3118	3131	3143	3153	3163	3171	3179	3186	3193	3199	3205	92
93	2829	2933	2981	3023	3055	3082	3104	3123	3140	3154	3167	3179	3189	3199	3207	3215	3222	3229	3235	3241	93
94	2863	2958	3016	3058	3091	3117	3140	3159	3175	3190	3203	3215	3225	3235	3243	3251	3258	3265	3271	3277	94
95	2897	2993	3051	3093	3126	3153	3175	3194	3211	3226	3239	3250	3261	3270	3279	3287	3294	3301	3307	3313	95
96	2931	3027	3086	3128	3161	3188	3211	3230	3247	3261	3275	3286	3297	3306	3315	3323	3330	3337	3343	3349	96
97	2965	3062	3121	3164	3197	3224	3246	3266	3282	3297	3310	3322	3333	3342	3351	3359	3366	3373	3379	3385	97
98	2999	3097	3156	3199	3232	3259	3282	3301	3318	3333	3346	3358	3368	3378	3387	3395	3402	3409	3415	3421	98
99	3033	3131	3191	3234	3268	3295	3318	3337	3354	3369	3382	3394	3404	3414	3423	3431	3438	3445	3451	3457	99
100	3067	3166	3226	3269	3303	3330	3353	3373	3390	3404	3418	3430	3440	3450	3459	3467	3474	3481	3487	3493	100

TABLE O

## RMATS I — SYSTEM THRESHOLDS

ITEM	OPTION 1	OPTION 2	REMARKS
Processor Occupancy	5% Higher than actual reading.	70% — Raise by increments to maximum of 75%.	Compare actual readings to expected percent derived by design engineer.
Time Slot Usage	10% Higher than highest time slot CCS of a module. Apply to all modules in same system (3600 CCS maximum).	Unbalanced system; 3600 CCS for 128 time slots.	A module can carry 3672 CCS on the 128 time slots.
Link Usage	Use table value (Section 554-111-615, Link Capacity Table).	Adjust table value upward by 5%	Any exception should be investigated immediately.
TOUCH-TONE dialing Receivers and Senders	5% Higher than CCS value in table.	10% Higher than CCS value in table.	Use TOUCH-TONE Sender and Receiver Capacity Table (Section 554-111-610)
Ring Group Blocking	A value of 4 is used for a system.	Same as option 1.	A value of 3 is tolerable for a 24-hour period.
Attendant Consoles	Calculate customer AWT and $\bar{d}$ . Set threshold 10% higher.	Assign INC Q CCS or INCALL ABNDN as peak register, and use arbitrary figure.	Use Erlang-C — CCS Capacity Table from Section 788-100-142 to find CCS used in option 1. Position requirements should be determined using Section 788-100-112.
One-Way Trunks	Customer's desired blocking level (recommend 2%) outgoing.	Customer's desired blocking level + 4%.	Use threshold table based on retrial capacity table. Option 1 — investigate when threshold is exceeded more than 20% of the time.
Combo Trunk Grp.	Same as above.	Same as above.	Same as above. Consider as one trunk group.
FX Tie Lines, OUTWATS	Marketing or customer cost input.	Same as option 1.	Use threshold table based on retrial capacity table.
800 Service, DID	Recommend 1% incoming.	Same as 1-W trunks.	Same as above.