

BUSY HOUR DETERMINATION
NETWORK ADMINISTRATION
NO. 1/1A ELECTRONIC SWITCHING SYSTEMS

1. GENERAL

- 1.001 This addendum supplements Section 231-070-580 Issue 1 September, 1980. Place this sheet ahead of Page 1 of the section.
- 1.002 This addendum is reissued to change the months to be used for busy hour studies. Revision arrows (►) are used to indicate the paragraphs changed.
- 1.003 This addendum is issued to supplement procedures specified in the AT&T Company Standard Bell System Practice (BSP) on No. 1/1A Electronic Switching System (ESS) Busy Hour Determination. Inquiries on the content of this addendum should be submitted to the General Headquarters Staff in accordance with BSP 000-010-015 and its associated addendum.
- 1.004 As recommended in the Standard BSP, 1ESS Central Office Equipment Report (COER) Busy Hour Determination (1ESS COER BHD) should be used to process busy hour determination studies.
- 1.005 For additional information on the definition of a busy season, see BSP 780-200-034. Busy hours for Non-EADAS and low-speed EADAS offices should normally begin on the hour.
- 1.006 Recommended use of component busy hour to office (CCS) busy hour (CBH/OBH) ratios are as follows:
- (a) Offices with EADAS interface:
The use of CBH/OBH ratios is not recommended. The CBH feature of 1ESS COER should be

employed resulting in the collection of actual CBH data.

- (b) Non-EADAS offices: For components with a busy hour falling outside the established CCS OBH, the development of a CBH/OBH ratio to obtain the desired data is recommended. However, in those cases where the total peg count BH (hour with the highest originating plus incoming (O+I) OBH calls, is different than the CCS OBH, a large portion of actual CBH data may be obtained by also inserting O+I BH data into the 1ESS COER system. Generally, the majority of CBHs will coincide with the O+I BH. If a reduction in the use of CBH/OBH ratios is desired, this alternative should be considered when (1) a majority of the CBHs fall within the O+I BH and (2) personnel and expenses are available to accommodate the additional COER processing time. The low cost of COER storage should eliminate it as an influencing factor when making this decision. The following recommendations apply when CBH/OBH ratios are used:

- (1) Work Sheet B from the standard BSP or its equivalent should be used to determine the ratios. When this record has been completed, a copy should

be sent to Network Design.

- (2) In order to assess theoretical component performance during its CBH based on CCS OBH data, adjustment of the CCS capacity specified in COER is recommended. The formula is as follows:

$$\text{Adjusted Capacity} = \text{Component CCS Capacity} \div \text{CBH/OBH Ratio}$$

2. CHANGES TO SECTION
BUSY HOUR STUDIES

A. General

2.001 Add to Paragraph 2.01 - For COER processing purposes, the months that constitute a busy season fall within the same data year. One of the following periods should be used as a data year:

- (a) December 23 to December 22 of the following year.
- (b) June 23 to June 22 of the following year.

Normally the period selected for an office should not be changed at a later date unless Network Administration and Network Design mutually agree on this action. IMPOR-TANT - For Non-EADAS offices, the mid busy season verification is not recommended and should not be performed. For offices served by EADAS, it is possible that verification studies may produce different CBHs. This would necessitate studies of longer duration (15 days). If the different CBHs persist throughout the study period, they should be activated for collection in LESS COER. Hours carrying the highest load should be classified as the CBH. Both new and current hours should be collected in LESS COER for the

remainder of the data year. Machine Load and Service Summaries (MLSS) should be activated in LESS COER for all hours collected. For high-speed EADAS offices, this includes overlapping hours, such as 10:00-11:00A and 10:30-11:30A. For new offices, BHD studies should be started within four weeks after the office is activated.

2.002 Add to Paragraph 2.02 - For offices with a high speed EADAS interface, the study specified in the Standard BSP should be processed by hours beginning on both the hour and half hour. In other words, data is processed and analyzed by 1 ESS COER BHD on a rolling hour basis.

Example:
8:00-9:00A, 8:30-9:30A, 9:00-10:00A,
9:30-10:30A and etc.

For Non-EADAS and low speed EADAS offices, the study should be processed on an hourly basis. As discussed in paragraph 1.005, the hours should normally begin on the hour.

2.003 Add to Paragraph 2.03 - For Non-EADAS offices, BHD studies should be concluded at the end of five days. For offices served by EADAS that are conducting studies of maximum duration, some of the study hours may be eliminated midway through the study. This can be accomplished by obtaining interim results for the first five days and identifying obvious candidates for removal. Hours containing CBHs should not be removed. For high speed EADAS offices, also retain hours starting 30 minutes before and ending 30 after the selected OBH and CBH study hours.

Example:
Selected study hour = 10:00-11:00A
LESS COER BHD study hours
9:30-10:30A, 10:00-11:00A and
10:30-11:30A

2.004 Add to Paragraph 2.04 - As specified in the proceeding paragraph, BHD studies should be concluded at the end of five days for Non-EADAS offices. For offices with a high speed EADAS interface, BHD data should be processed on a rolling hour basis (10:00 A-11:00 A, 10:30 A - 11:30A, etc). Low speed EADAS offices should be processed on an hourly basis. Regarding the Standard BSP directive on hours that carry approximately the same load regularly, they should be processed as follows:

- (a) Offices with EADAS Interface:
The additional hours should be processed as side hours in LESS COER with MLSS reports activated. The suspected busy hours should be collected throughout the entire busy season. If the prevailing BH is not evident, collection should continue throughout the data year.
- (b) Non-EADAS offices: Procedures defined in paragraph 1.007 apply.

2.005 Add to Paragraph 2.05 - As specified in the standard BSP, an additional BHD study should be processed when BH shifts are suspected or may occur. Activities that may warrant an additional study are as follows:

- (a) Large area cuts.
- (b) Addition of a large CO Centrex, Automatic Call Distribution or Electronic Tandem Switching customer.
- (c) Absorption of customers from a switching system that is being removed from service.

B. Types of Studies

2.006 Add to Paragraph 2.06 - The following provides guidelines on Service Busy Hour determination for offices that do not incur the selection criteria of blockage or delay:

- (e) Service Busy Hours (SBH): When exercising one or more of the following options on SBH selection, it should be remembered that future occurrences of blockage and/or delay may justify a SBH change. The procedures governing possible changes are defined in the following practices:
 - * BSP 231-001-005 Network Switching Performance Measurement Plan - Receiver Attachment Delay Recorder
 - * Service Evaluation Practice, Division F, Section 2B - Dial Tone Speed
 - * Service Evaluation Practice, Division F, Section 2C - Incoming Matching Loss
- (1) Dial Tone Speed: For offices that do not incur dial tone delay, the combined BH for customer digit receivers (CDRs) should normally be selected as the SBH. If the CCS OBH is determined to be more main station limiting then CDRs, then it may be selected as the SBH.
- (2) Receiver Attachment Delay Recorder (RADR): For offices that do not incur RADR delay, the CBH for each type of receiver should normally be selected as the SBH for each type of RADR test. If the Trunk Link Network BH is determined to be

more main station limiting than the receivers, then it may be selected as the SBH.

- (3) Incoming Matching Loss (IML):
For offices that do not incur IML, the CCS OBH should normally be selected as the SBH.

3. MANUAL BUSY HOUR STUDIES

A. Procedures

3.001 Add to Paragraph 3.01 - As recommended in paragraph 1.004, LESS COER BHD be used to process busy hour determination studies.

B. Work Sheet Preparations and Calculations

3.013 Add to Paragraph 3.13 - Procedures governing the use of CBH/OBH ratios are defined in paragraph 1.007. This also applies to paragraphs 3.14 and 3.15 in the standard BSP.

E. Ratio of Component Busy Hour to Office Busy Hour

3.014 Add to Paragraph 3.14 - See paragraph 3.013.

3.015 Add to Paragraph 3.15 - See paragraph 3.013.

6. SELECTION OF THE BUSY HOUR

A. General

6.001 Add to Paragraph 6.01 - Considerations for BH selection are modified as follows:

(a) Busy hours for Non-EADAS and low speed EADAS offices should normally begin on the hour.

(c) The CCS OBH should also be defined as the OBH in the COER system.

(d) Procedures governing the administration and use of CBHs and CBH/OBH ratios are defined in paragraph 1.007.

(g) Procedures governing the collection of hours that regularly carry approximately the same load are defined in paragraph 1.007.

B. Conflicts of Hours

6.003 Add to Paragraph 6.03 - In the LESS COER system, equipment and service busy hours should be defined as CBHs with all other hours defined as side hours.

7. LESS COER (PATROL) BUSY HOUR DETERMINATION (BHD)

A. General

7.001 Add to Paragraph 7.01 - The use of LESS COER BHD is recommended and should be used to process BHD studies.

7.003 Add to Paragraph 7.03 - LESS COER should be used for all 1/1A ESS offices.

B. Preparation for LESS COER BHD Study

7.004 Add to Paragraph 7.04 - Preparatory steps for conducting a BHD study are modified as follows:

(6) Data collection schedule forms should be submitted to the

Network Data Processing
 Coordination Center (NDPCC)
 three weeks before the beginning
 of the BHD study week.

8. REFERENCES

8.001 The following BSPs also discuss related or specific aspects of busy hour determination. If variations in this process are encountered, the procedures described in this addendum should prevail:

SECTION	TITLE
231-070-150	No. 1/1A ESS Administration Responsibilities
231-070-190	No.1/1A ESS Network Administration Operational Reviews
231-070-555	No. 1/1A ESS Central Office Equipment Reports
780-200-031	Busy Hour Determination - End Office
780-200-033	Ten High Day Data - End Office
780-200-034	Busy Season Determination - End Office