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This is an unofficial announcement of Commission action. Release of the full text of a Commission order constitutes official action. See MCI v. FCC, 515 F.2d 385 (D.C. Circ. 1975).

June 14, 1990

FCC RELEASES REPORT ON QUALITY OF SERVICE

The FCC has released a report entitled "Update on Quality of Service for the Bell Operating Companies," prepared by Jonathan Kraushaar of the Industry Analysis Division of the Common Carrier Bureau.

This report summarizes data submitted by the Bell Operating Companies on their quality of service. Five main categories of information filed are described along with the trended results. Data from 1985 to 1989 is presented in tabular form and composites of key items are presented graphically.

The report is available for reference in room 537, Industry Analysis Division, Common Carrier Bureau, 1919 M Street, N. W. Copies may be purchased by calling International Transcription Services (ITS) at (202) 857-3800.

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For further information contact Jonathan Kraushaar in the Bureau's Industry Analysis Division at (202) 632-0745.



UPDATE ON QUALITY OF SERVICE
FOR THE BELL OPERATING COMPANIES

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Common Carrier Bureau

Federal Communications Commission

*Washington, D. C. 20554

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UPDATE ON QUALITY OF SERVICE FOR THE BELL OPERATING COMPANIES

By Jonathan M. Kraushaar

Common Carrier Bureau -- Industry Analysis Division

Federal Communications Commission

INTRODUCTION AND OVERVIEW

This report presents quality of service data submitted by the Bell Operating Companies (BOCs). It updates a similar report released in March 1989. The report reviews the BOC's quality of service filing requirements and discusses the five main categories of information currently received.

The quality of service data received to date is summarized in the attached graphs and tables. The graphs illustrate the movement of the measurements over the five years included in the reporting period. Tables 1-11 provide trended data for each item collected. Tables 12-20 summarize the data received during each reporting period.

Aggregated service quality measures generally have improved or remained above values reported in 1985, although on time service provisioning measurements for residential customers have gone down slightly. On a composite basis, the BOCs reported that on time service orders for residential customers went from 98.0% in 1985 to 97.6% in 1989. Exceptions to the general character of the data can be seen in the trended data for individual companies in the attached tables.

BACKGROUND

In conjunction with AT&T's divestiture of its local operating companies, the Commission issued an order in December 1983 authorizing the transfer of ownership of facilities. That order also provided for an evolving monitoring

program which would provide a basis for detecting adverse trends in service quality. Initial data provided by the companies were often reported inconsistently and were therefore difficult to analyze and evaluate. The initial reporting requirement required monthly submissions and was somewhat burdensome on the carriers.

During 1985, the quality of service submission requirements were modified to reduce unnecessary paperwork and to ensure that the information needed by the Commission would be provided, where possible, in a more uniform format. Although a consistent format is necessary for reporting summary results, the data received is limited to that which is already collected by the BOCs for their own use. Five reporting categories are common to all companies. The companies also prepare a one or two page summary sheet covering key quality of service measurements. Reports are currently received twice a year, typically in March and August.

ITEMS MONITORED

The quality of service items currently being monitored are broadly grouped into five main categories: 1) customer satisfaction levels; 2) percent of switching machines performing at or above dial tone speed objectives; 3) percent of offices meeting all transmission objectives; 4) percent of on time service orders; and 5) percent of calls encountering equipment failure or blocking.

1. Customer Satisfaction

Customer satisfaction levels are determined by company surveys that are an outgrowth of predivestiture methods developed by Bell Laboratories. Satisfaction levels for residential, small business, and large business customers have been requested. Some companies provide data for slightly different subcategories. For example, Pacific Bell uses three subcategories of business customers: general business, priority business and major business. For the purpose of this report, Pacific Bell's general business subcategory is now included as small business and the major business subcategory is included as large business. (In the March 1989 staff report, the general business subcategory was included as medium business). Data for the priority business category has not been included as the number of reported items in this category is relatively small.

Due to their subjective nature, these surveys generally are not expected to provide conclusive results when changes in the quality of service are slight or gradual. Nonetheless, the companies place a high reliance on these measures. In accordance with the Commission's general policy not to create unnecessary reporting requirements and to use existing measures whenever possible, the survey results have been incorporated into the monitoring requirements along with four more objective measures.

Please note that the results shown for Pacific Bell are the average of their provisioning, maintenance and market focus indices. Bell Atlantic customer satisfaction indices represent the average values indicated for installation, maintenance and service center subcategories, where overall customer satisfaction levels were not provided. Other companies provided composite information on customer satisfaction indices.

2. Dial Tone Response

The length of time it takes for a customer to obtain a dial tone, sometimes referred to as dial tone delay, has historically been one of the most obvious and immediate problems which could cause customer dissatisfaction. It is monitored by all companies using fairly consistent objective standards. Severe dial tone delay in a number of central offices during the late 1960's was one of the factors leading to the Commission's Docket 19129 investigation of AT&T. The companies now provide data on the percentage of offices meeting the well established three second dial tone delay objective. This general standard was adopted prior to divestiture and is apparently still maintained. The primary variation noted among companies pertains to the way a company measures and calculates compliance with this standard. Although such variations may be expected between companies, each company is required to document changes in its standards when it files any new data.

The data on dial tone delay reflects the percentage of switching machines or offices meeting objectives. With the advent of new electronic digital switching, dial tone delay has shown noticeable improvement and is therefore less likely to become a source of customer dissatisfaction. The advent of such electronic equipment has improved day-to-day service. Failures when they do occur, are now more likely to be severe. Such infrequent catastrophic events are more difficult to interpret in a continuing monitoring program and thus have not been incorporated into these measurements.

3. Transmission Quality

The data on transmission quality, like the data on dial tone response, reflects the percentage of entities meeting objectives. There are four major components of transmission quality. They are noise, balance, loss, and distortion. Perceptible noise or inadequate signal amplitude are obviously objectionable. Balance and distortion measurements are also needed although problems in these areas may be harder for customers to identify. Information on the percentage of offices meeting all company established transmission level standards associated with these four criteria, as well as the standards themselves have been requested. The transmission quality measurement shown in the attached tables is the lowest of the subcategories provided.

Although the measured transmission characteristics and the techniques for collecting and processing the data are similar for all reporting

companies, not all companies are basing their transmission quality measurements on all four components. Thus, some companies may be reporting the percent of measured central offices meeting only one or two of the key criteria. In addition, Pacific Bell has not provided any transmission quality data for several of the reporting periods covered by this report. Bell Atlantic reports transmission quality for all applicable components. Because the balance component is typically lower than the others, Bell Atlantic's composite performance for transmission quality may appear to be somewhat lower than the rest of the BOCs. Another factor relates to differences in the objective criteria used by the companies to determine whether an entity is categorized as passing or failing transmission tests. Thus, interpretation of the data should focus on any trends rather than absolute levels or direct comparisons between companies.

4. On Time Service Orders

The percentage of on time service orders is also being monitored. This measurement reflects the date promised to the customer for a service order and is not a uniform standard time interval. It should be evident that delays in receiving promised service could be perceived as a failure by the serving company management. The companies have generally been consistent in their reporting procedures. However, the underlying data from the BOCs are not always presented in the same format. Also, definitions and reporting subcategories vary, as is the case with many of the other data elements shown in this report. For the purpose of summarizing the data, however, the reported results for on time service orders have been shown in three overall categories: residential, access service, and a "catch-all" labeled business/special services. These subcategories were used by the majority of reporting companies. The on time service subcategories for residential customers and business/special services are the only subcategories exhibiting a lower level at end of year 1989 than 1985 when the data was first collected.

Subcategories of data provided by some companies did not exactly match the summarized subcategories. For example, Bell Atlantic provided information in a single category designated "on time access line/ special service provisioning." Their information was shown in both the access and business special services subcategories. For Pacific Bell, the index for on time service orders shown in the business special services subcategory is the average of the lowest values in their business and special service subcategories. Several corrections were made to Pacific Bell's data in this category which update and revise data erroneously reported in the previous quality of service summary.

5. Equipment Failure and Blocking

The final category of service quality being measured is the percentage of calls which cannot be completed due to equipment problems or lack of adequate facilities. The toll network has historically been designed so that less than one percent of all calls encounter such problems. For

local networks this percentage may be slightly higher but should not exceed five percent. End-to-end blocking is difficult to evaluate because more than one trunk connected in tandem may be used in completing calls. A relatively new system called Service Evaluation System II (SES II) is used by some of the operating companies. This system monitors a sampling of calls traversing the network and evaluates the status of each call just prior to completion. Failure in call setup results in the call being blocked. Such uncompleted calls increase the blocking percentage. Larger blocking percentages signify a deterioration in service. This report summarizes call completion rates which are calculated as 100% minus the call blocking rate. Call completion rates, as used in this report, thus represent the percentage of call attempts not encountering blockage within the network. Since all companies are not using SES II, it is not possible to assure complete consistency for this data category.

Two of the regional companies, Ameritech and US West have used an alternative monitoring system to SES II from the outset. These carriers are providing data on equipment blockage within switching machines, a measurement which does not fully evaluate failure due to insufficient circuits or equipment problems on transmission facilities. Southwestern Bell has also adopted this latter approach. For these companies, measurements reflect a composite of interLata and intraLata calls indicating the percent of offices not meeting company established performance levels. Although this type of information pertains to calls not finding their way through the network, it has a different meaning than the SES II results and is not provided separately for interLata and intraLata calls. For Ameritech, US West, and Southwestern Bell, the information is included in place of the SES II results for interLata calls. (Southwestern Bell recently changed its basis for reporting call completion data.) In these cases no intraLata data is shown. The information in this category is based on sampling processes which may differ from company to company. Despite the above imperfections, this category still provides a broad indication of trends in call completion rates.

ADDITIONAL NOTES AND DATA QUALIFICATIONS

The quality of service data presented here was intended to be viewed in the context of the Commission's original concerns regarding broad future service deterioration trends associated with the divestiture. Trends may be difficult to detect from the individual reports provided by the companies because the indices almost always register over 90 percent. Nonetheless, a key concern of the Commission is to compare current and baseline results and to identify any adverse trends. Absent any cataclysmic event, service deterioration measured on a company-wide basis is most likely to occur gradually.

While perception surveys are an important part of company quality monitoring programs, the significance of these measures when taken alone should be viewed carefully. These surveys tend to be less objective and may be influenced by many extraneous factors, such as a customer's past experiences with service and his general expectations. In addition, customers may not be able to separately identify problems and service perceptions of local carriers from problems and perceptions of interexchange carriers.

Another concern relates to the robustness of the data and significance of small changes in the results. It appears that the companies are currently operating in a range of performance which is well above that which would elicit a significant amount of customer complaint. Therefore, small fluctuations in this range may not have any clear significance but continuing small declines could serve as an alert to adverse trends. Data shown in the tables in this report have been rounded to the nearest tenth of a percent; however composite results shown in the graphs may reflect the averaged results to a greater number of significant digits.

No system is foolproof and, as in any highly aggregated data summary, individual adverse elements may easily be masked. For example, the results from and responsiveness to restoring service in the case of a natural disaster or fire is generally not reflected in this kind of data. In addition, many of the companies have not reported data reflecting the effect of the recent telephone strike in late 1989, indicating that the data is unavailable. It is thus not clear to what extent any declines noted for the second half of 1989 are attributable to the strike. Had this data been provided, it would have yielded greater confidence in the data by giving a greater feel for the impact of a known adverse event on the measurements.

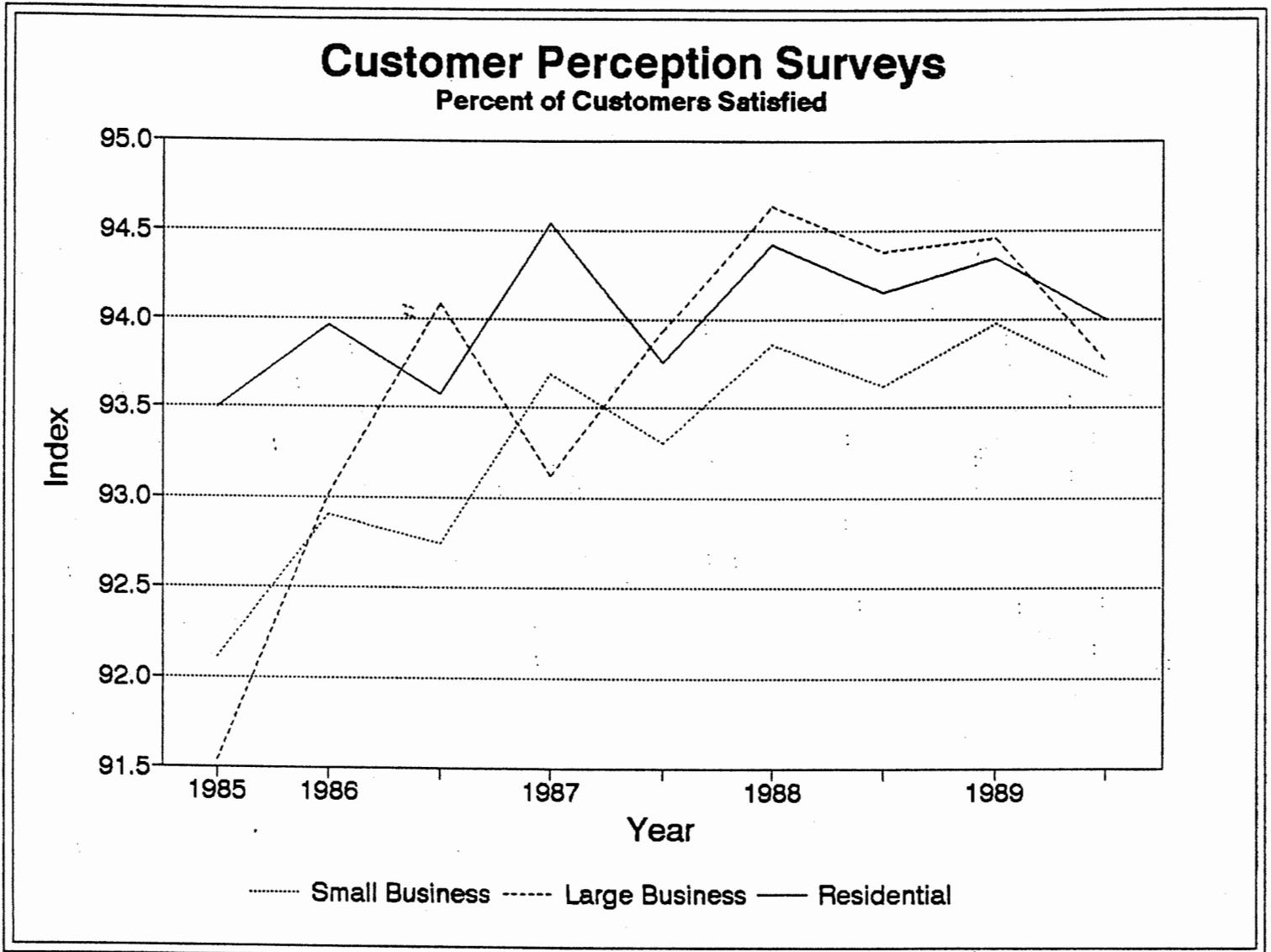
Although objective standards are supposed to remain fixed, it is possible that they may be changed. Although the carriers are expected to provide

the standards associated with each index, examination of the data leading to the preparation of this report revealed that a number of carriers have not provided complete information on their standards. The companies have been asked whether any of their methodologies or standards have changed since the data has been provided. The companies have generally indicated that the procedures and standards have not changed. However, in some cases, the character of the data appears to suggest otherwise. Because of these problems, the extent of any trend may be more difficult to assess than the presence of a trend.

There are inherent pitfalls in any measurement system. Although the present monitoring system contains reporting inconsistencies, and some data omissions (marked "NA" on the attached tables) it appears that the quality of service data now collected begins to address the question of whether there is any noticeable trend in service quality. The data presented here and any results derived therefrom, should be used with caution and should not be a substitute for more detailed data that may be collected at the state public utility commissions. It should also be clearly understood that the information collected here is not appropriate to address the existence of localized problems or to make direct comparisons of data between companies in a given submission. In addition, comparison of long term trends between companies should be made with caution but may lead to useful insights.

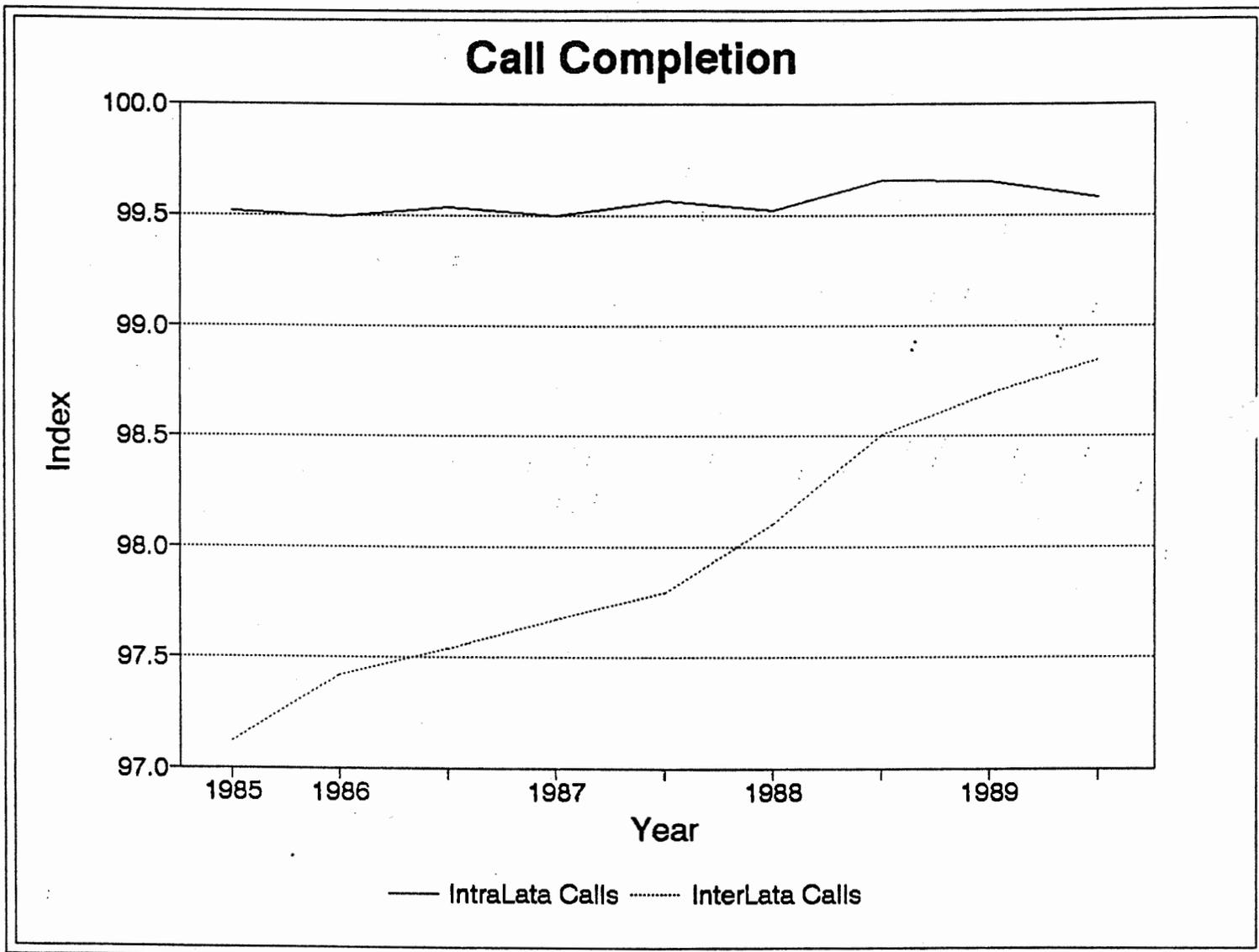
The statistical information presented in this report provides an overall summary of the Bell Operating Companies' quality of service data collected by the FCC's Industry Analysis Division. The reports underlying this summary provide a greater level of detail and are available in the Division's Public Reference Room, Room 537 at 1919 M Street, N. W. Washington D. C. 20554. For more information Jonathan Kraushaar may be contacted at (202) 632-0745.

Chart 1



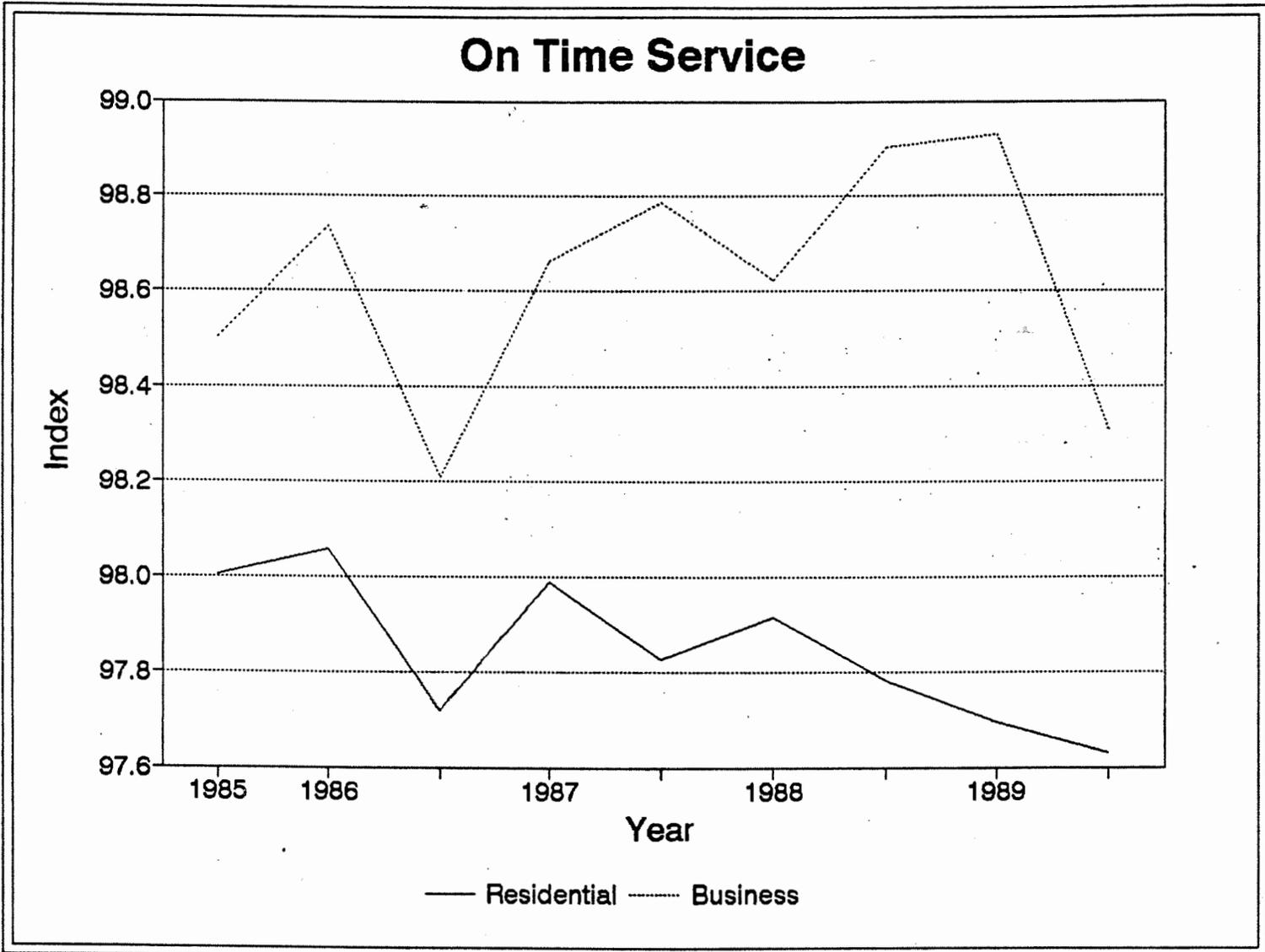
Please refer to text for accompanying notes and data qualifications.

Chart 2



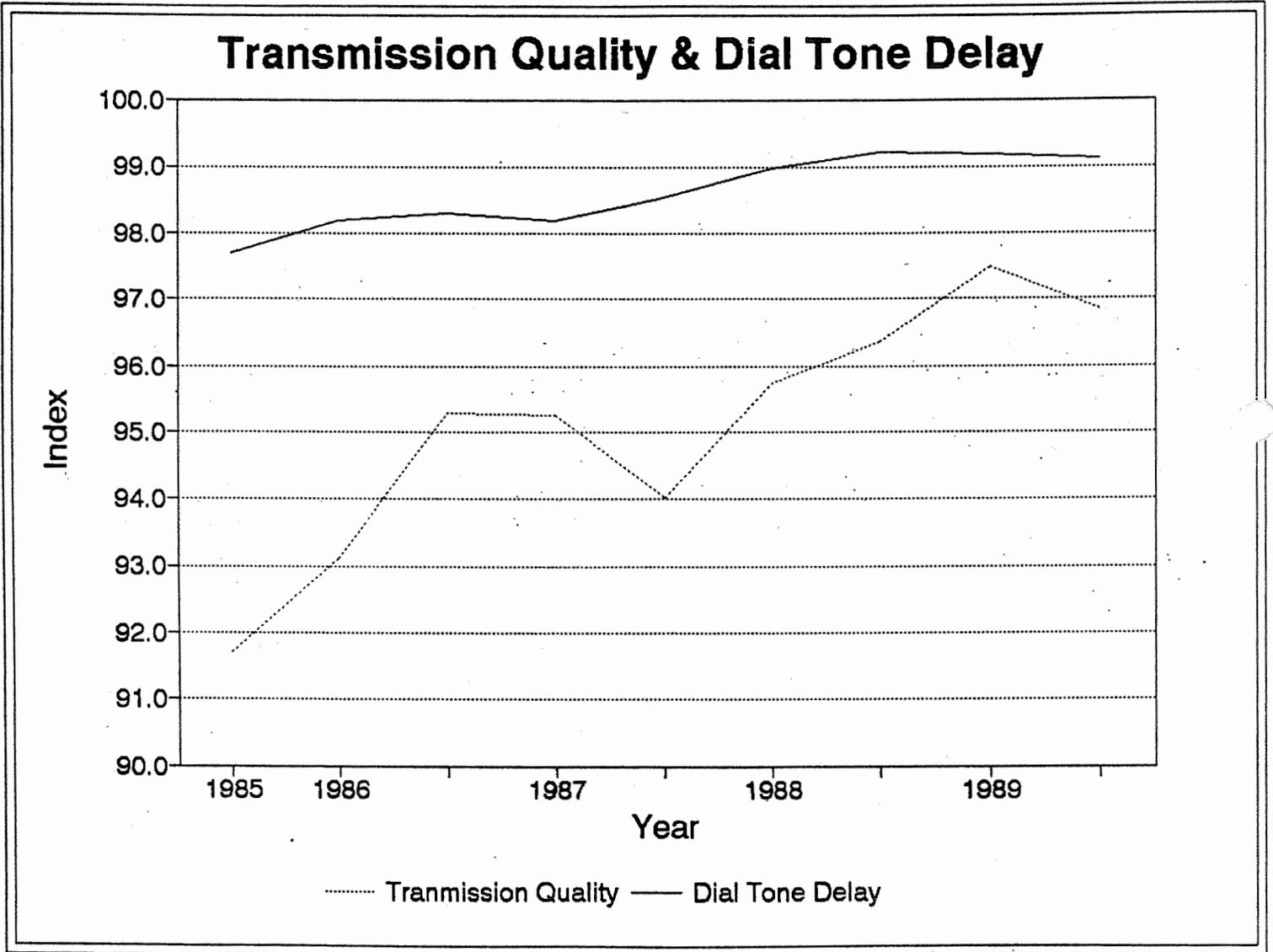
Please refer to text for accompanying notes and data qualifications.

Chart 3



Please refer to text for accompanying notes and data qualifications.

Chart 4



Please refer to text for accompanying notes and data qualifications.

Table 1: Percent of Customers Satisfied -- Small Business

Company/Year	1985	1986		1987		1988		1989	
		1 H	2 H	1 H	2 H	1 H	2 H	1 H	2 H
AMERITECH	90.6	93.8	93.8	94.4	93.3	94.6	93.9	94.6	94.0
Illinois Bell	88.5	92.0	92.4	92.5	92.3	92.3	91.3	92.8	92.5
Indiana Bell	91.4	94.2	94.4	94.9	93.2	94.6	94.4	95.3	95.3
Michigan Bell	91.8	94.9	94.8	95.2	93.9	95.3	94.6	95.0	93.8
Ohio Bell	90.0	93.3	93.4	93.9	91.8	94.6	94.0	94.0	93.4
Wisconsin Bell	91.1	94.6	93.8	95.3	95.3	96.1	95.1	95.9	94.9
BELL ATLANTIC	89.9	91.9	91.7	93.3	90.7	92.3	92.0	NA	NA
Bell of Pennsylvania	91.7	93.3	93.6	95.0	92.9	94.9	94.1	NA	NA
C&P Companies	88.6	91.3	91.8	93.2	90.6	92.4	93.0	NA	NA
New Jersey	89.4	91.0	89.7	91.6	88.7	89.6	88.8	NA	NA
BELLSOUTH	92.0	93.3	93.3	94.5	94.5	95.0	94.8	94.7	94.7
South Central Bell	92.8	93.9	93.9	95.1	95.2	95.8	95.8	95.8	96.0
Southern Bell	91.2	92.7	92.7	93.8	93.7	94.1	93.8	93.5	93.3
NYNEX	91.6	91.6	91.5	92.2	92.2	92.9	92.6	92.9	92.8
New England Tel.	92.4	92.3	92.1	93.6	93.4	94.9	94.3	94.9	94.8
New York Tel.	90.8	90.8	90.8	90.8	91.0	90.8	90.8	90.8	90.8
PACIFIC TELESIS	94.2	91.7	93.4	94.5	94.0	93.9	94.1	95.6	95.3
Nevada Bell	93.7	NA	94.7	95.7	94.6	94.0	93.6	94.5	95.2
Pacific Bell	94.7	91.7	92.0	93.3	93.3	93.7	94.7	96.7	95.3
SOUTHWESTERN	97.1	97.0	94.6	95.0	95.0	95.8	95.6	95.8	95.5
US WEST	89.4	91.1	91.1	92.1	93.5	92.6	92.4	90.4	89.8
Mountain States	88.0	90.0	90.1	91.6	91.8	92.3	92.0	89.3	87.8
Northwestern Bell	90.0	91.0	91.0	92.0	92.0	92.4	91.9	90.4	90.8
Pacific N. W. Bell	90.3	92.3	92.1	92.6	96.7	93.2	93.4	91.4	90.9
Composite	92.1	92.9	92.7	93.7	93.3	93.9	93.6	94.0	93.7

Please refer to text for accompanying notes and data qualifications.

Table 2: Percent of Customers Satisfied – Medium Business

Company/Year	1985	1986		1987		1988		1989	
		1 H	2 H	1 H	2 H	1 H	2 H	1 H	2 H
AMERITECH	NA								
Illinois Bell	NA								
Indiana Bell	NA								
Michigan Bell	NA								
Ohio Bell	NA								
Wisconsin Bell	NA								
BELL ATLANTIC	NA								
Bell of Pennsylvania	NA								
C&P Companies	NA								
New Jersey	NA								
BELLSOUTH	NA								
South Central Bell	NA								
Southern Bell	NA								
NYNEX	88.9	90.4	90.4	93.3	93.4	94.0	94.5	95.0	95.5
New England Tel.	89.5	90.6	90.6	94.5	93.8	94.5	95.0	NA	96.0
New York Tel.	88.3	90.1	90.1	92.0	93.0	93.5	94.0	95.0	95.0
PACIFIC TELESIS	NA								
Nevada Bell	NA								
Pacific Bell	NA								
SOUTHWESTERN	NA								
US WEST	93.8	96.0	96.0	96.7	95.2	NA	NA	NA	NA
Mountain States	NA								
Northwestern Bell	95.0	96.0	96.0	96.0	95.0	NA	NA	NA	NA
Pacific N. W. Bell	92.6	NA	NA	97.3	95.4	NA	NA	NA	NA
Composite	91.4	93.2	93.2	95.0	94.3	94.0	94.5	95.0	95.5

Please refer to text for accompanying notes and data qualifications.

Table 3: Percent of Customers Satisfied – Large Business

Company/Year	1985	1986		1987		1988		1989	
		1 H	2 H	1 H	2 H	1 H	2 H	1 H	2 H
AMERITECH	89.1	90.7	90.2	90.0	92.0	95.1	93.6	93.9	94.7
Illinois Bell	90.3	91.1	88.0	86.9	89.6	92.0	88.4	90.0	94.4
Indiana Bell	89.7	91.0	91.1	91.2	91.9	91.7	94.4	94.6	94.5
Michigan Bell	86.1	87.5	87.6	88.8	92.6	97.1	93.7	93.7	94.7
Ohio Bell	88.3	90.3	90.5	90.7	92.8	97.8	96.0	95.2	93.9
Wisconsin Bell	91.1	93.6	93.8	92.6	93.3	97.1	95.3	96.1	96.0
BELL ATLANTIC	93.1	93.3	94.0	94.0	95.0	96.0	95.7	98.0	96.0
Bell of Pennsylvania	95.4	95.0	96.0	96.0	97.0	98.0	96.0	99.0	98.0
C&P Companies	92.7	94.0	93.0	93.0	94.0	95.0	96.0	98.0	96.0
New Jersey	91.3	91.0	93.0	93.0	94.0	95.0	95.0	97.0	94.0
BELLSOUTH	89.9	94.2	94.2	95.0	94.9	95.4	93.9	93.9	94.1
South Central Bell	90.8	95.0	95.0	96.5	95.2	96.2	94.5	96.4	95.2
Southern Bell	89.0	93.3	93.3	93.4	94.6	94.5	93.3	91.4	93.0
NYNEX	94.8	96.5	97.0	91.5	91.6	93.3	92.0	94.0	93.5
New England Tel.	96.5	97.0	98.0	92.0	92.8	94.5	93.0	94.0	94.0
New York Tel.	93.0	96.0	96.0	91.0	90.3	92.0	91.0	94.0	93.0
PACIFIC TELESIS	90.4	92.0	95.9	94.3	93.3	92.7	94.7	95.0	95.0
Nevada Bell	91.1	NA	98.7	NA	NA	NA	NA	NA	NA
Pacific Bell	89.7	92.0	93.0	94.3	93.3	92.7	94.7	95.0	95.0
SOUTHWESTERN	91.3	91.4	92.3	93.9	94.4	95.4	95.4	94.3	94.0
US WEST	92.2	NA	95.1	NA	96.3	NA	95.5	92.1	89.0
Mountain States	88.0	NA	93.0	NA	96.0	NA	95.9	90.8	89.2
Northwestern Bell	93.0	NA	95.0	NA	94.0	NA	94.3	94.3	88.9
Pacific N. W. Bell	95.6	NA	97.4	NA	99.0	NA	96.2	91.1	89.0
Composite	91.5	93.0	94.1	93.1	93.9	94.6	94.4	94.5	93.8

Please refer to text for accompanying notes and data qualifications.

Table 4: Percent of Customers Satisfied – Residential

Company/Year	1985	1986		1987		1988		1989	
		1 H	2 H	1 H	2 H	1 H	2 H	1 H	2 H
AMERITECH	92.8	94.8	94.0	94.7	92.4	95.0	94.2	94.8	93.6
Illinois Bell	91.6	93.9	92.4	93.3	92.3	92.9	92.0	93.3	92.7
Indiana Bell	92.9	94.6	94.6	94.9	91.8	95.2	94.9	95.9	94.9
Michigan Bell	93.5	95.6	95.2	95.4	91.6	95.5	94.6	94.1	92.6
Ohio Bell	92.5	94.3	93.2	93.8	90.9	94.6	93.3	94.0	92.0
Wisconsin Bell	93.6	95.4	94.7	96.0	95.6	96.6	96.2	96.9	95.7
BELL ATLANTIC	92.4	93.4	93.0	94.4	90.2	92.3	92.1	91.8	93.3
Bell of Pennsylvania	93.5	94.5	94.5	95.6	92.7	94.6	94.5	94.6	95.6
C&P Companies	91.6	92.8	92.2	94.0	89.9	92.6	92.0	92.5	93.5
New Jersey	92.1	92.9	92.4	93.5	87.9	89.7	89.7	88.4	91.0
BELLSOUTH	92.0	92.8	92.8	94.2	94.0	93.9	93.6	94.1	93.2
South Central Bell	92.8	93.7	93.7	94.9	94.9	95.2	95.1	95.2	95.1
Southern Bell	91.2	91.8	91.8	93.4	93.1	92.5	92.0	92.9	91.2
NYNEX	93.7	93.5	92.9	93.6	93.6	94.5	94.0	94.2	94.1
New England Tel.	94.3	94.3	93.7	94.7	94.6	95.5	95.0	95.4	95.3
New York Tel.	93.0	92.7	92.1	92.4	92.6	93.5	93.0	93.0	92.9
PACIFIC TELESIS	94.1	93.0	94.4	95.6	96.1	95.8	95.7	96.9	96.0
Nevada Bell	95.1	NA	95.1	96.6	97.6	96.9	96.0	97.2	96.6
Pacific Bell	93.0	93.0	93.7	94.7	94.7	94.7	95.3	96.7	95.3
SOUTHWESTERN	97.6	97.6	95.5	96.1	95.8	96.3	96.3	96.5	96.4
US WEST	91.9	92.7	92.4	93.3	94.1	93.3	93.3	92.1	91.4
Mountain States	91.0	92.0	92.0	93.3	92.9	92.9	92.7	91.5	90.7
Northwestern Bell	93.0	93.0	92.0	93.0	93.0	92.8	92.8	92.6	92.2
Pacific N. W. Bell	91.8	93.1	93.3	93.7	96.5	94.1	94.4	92.2	91.4
Composite	93.5	94.0	93.6	94.5	93.8	94.4	94.2	94.3	94.0

Please refer to text for accompanying notes and data qualifications.

Table 5: Dial Tone Delay

Company/Year	1985	1986		1987		1988		1989	
		1 H	2 H	1 H	2 H	1 H	2 H	1 H	2 H
AMERITECH	98.2	98.3	98.6	98.6	99.1	99.0	99.6	99.4	98.8
Illinois Bell	98.3	98.9	98.9	98.5	98.8	97.9	99.8	99.5	99.1
Indiana Bell	97.8	95.4	97.1	96.8	99.8	99.1	99.8	98.7	98.4
Michigan Bell	98.7	98.2	99.0	99.4	99.5	99.7	99.3	99.6	97.8
Ohio Bell	96.3	98.9	98.4	98.4	98.5	98.5	99.5	99.3	99.5
Wisconsin Bell	100.0	100.0	99.5	99.8	98.9	99.6	99.6	100.0	99.1
BELL ATLANTIC	97.8	98.2	98.6	97.8	98.8	99.0	99.3	99.3	99.1
Bell of Pennsylvania	98.1	98.3	99.2	97.8	98.9	99.5	99.6	99.6	99.5
C&P Companies	97.2	97.3	98.0	97.2	98.5	98.0	98.7	98.9	98.3
New Jersey	98.0	99.0	98.6	98.4	99.1	99.4	99.6	99.5	99.6
BELLSOUTH	96.8	96.3	96.3	95.0	96.0	97.4	97.6	97.8	98.2
South Central Bell	97.4	98.1	98.1	97.5	97.4	96.8	96.9	96.9	97.7
Southern Bell	96.1	94.5	94.5	92.4	94.6	97.9	98.3	98.7	98.6
NYNEX	96.6	98.5	99.7	99.8	99.6	99.7	99.7	99.8	99.8
New England Tel.	97.6	99.7	99.7	99.7	99.3	99.7	99.7	99.9	99.7
New York Tel.	95.6	97.3	NA	99.8	99.8	99.7	99.7	99.7	99.9
PACIFIC TELESIS	100.0	99.9	100.0	99.7	99.7	99.7	99.7	99.7	99.1
Nevada Bell	100.0	NA	100.0	99.5	99.5	99.5	99.5	99.4	99.3
Pacific Bell	99.9	99.9	99.9	99.9	99.9	99.9	99.9	100.0	98.9
SOUTHWESTERN	97.9	98.3	97.9	98.4	98.1	99.3	99.4	99.3	99.4
US WEST	96.7	97.8	97.2	98.2	98.4	98.8	99.1	98.9	99.4
Mountain States	97.2	99.0	97.4	98.1	98.1	99.2	99.0	99.1	99.1
Northwestern Bell	98.6	98.0	98.0	99.4	99.5	99.1	99.4	99.3	99.3
Pacific N. W. Bell	94.4	96.5	96.1	97.2	97.6	98.2	99.0	98.4	99.8
Composite	97.7	98.2	98.3	98.2	98.5	99.0	99.2	99.2	99.1

Please refer to text for accompanying notes and data qualifications.

Table 6: Transmission Quality

Company/Year	1985	1986		1987		1988		1989	
		1 H	2 H	1 H	2 H	1 H	2 H	1 H	2 H
AMERITECH	98.7	98.7	98.3	98.6	98.8	98.4	99.0	99.2	99.3
Illinois Bell	98.9	99.9	97.7	98.3	96.7	94.3	99.2	98.9	99.3
Indiana Bell	98.5	97.9	98.1	98.0	98.3	99.3	98.5	99.0	99.4
Michigan Bell	98.6	98.9	99.4	99.5	99.4	99.4	98.8	99.8	99.3
Ohio Bell	97.9	97.2	97.5	97.6	99.7	99.4	98.9	98.6	99.2
Wisconsin Bell	99.7	99.6	98.9	99.8	99.7	99.7	99.4	99.5	99.1
BELL ATLANTIC	76.8	79.9	87.1	87.5	84.2	87.1	89.7	91.7	87.6
Bell of Pennsylvania	79.5	77.8	80.3	73.8	63.0	70.0	80.5	76.2	72.1
C&P Companies	70.0	75.0	86.5	93.2	93.8	96.5	91.6	99.6	96.9
New Jersey	80.8	86.9	94.6	95.6	95.9	94.9	97.1	99.5	93.7
BELLSOUTH	90.7	89.2	89.2	88.4	86.2	90.6	93.0	96.0	96.0
South Central Bell	92.6	94.7	94.7	95.5	95.4	95.0	95.4	96.1	96.0
Southern Bell	88.7	83.6	83.6	81.2	76.9	86.1	90.6	95.8	96.0
NYNEX	84.0	94.0	99.9	99.9	97.5	98.2	99.2	99.9	99.7
New England Tel.	80.0	88.0	99.9	99.9	96.4	96.9	98.8	99.9	99.6
New York Tel.	88.0	99.9	99.9	99.9	98.5	99.5	99.6	99.9	99.9
PACIFIC TELESIS	100.0	NA	100.0	100.0	100.0	100.0	98.4	98.0	98.7
Nevada Bell	100.0	NA	100.0	100.0	100.0	100.0	98.9	98.3	100.0
Pacific Bell	NA	NA	NA	NA	NA	NA	98.0	97.8	97.5
SOUTHWESTERN	95.4	99.2	95.0	94.8	95.3	99.5	99.5	99.5	99.6
US WEST	96.4	97.7	97.6	97.6	96.3	96.4	95.7	98.1	97.2
Mountain States	94.2	97.7	96.0	94.2	94.3	93.8	89.5	96.2	94.6
Northwestern Bell	99.3	99.4	99.3	99.3	99.3	98.4	98.6	99.3	99.4
Pacific N. W. Bell	95.8	96.0	97.4	99.3	95.2	97.0	99.1	98.7	97.6
Composite	91.7	93.1	95.3	95.3	94.0	95.7	96.4	97.5	96.9

Please refer to text for accompanying notes and data qualifications.

Table 7: On Time Service Orders -- Residential

Company/Year	1985	1986		1987		1988		1989	
		1 H	2 H	1 H	2 H	1 H	2 H	1 H	2 H
AMERITECH	98.9	98.9	98.3	98.8	98.7	98.9	98.9	99.0	98.4
Illinois Bell	98.6	98.3	97.0	97.3	96.9	97.2	97.4	98.0	98.0
Indiana Bell	99.4	99.4	99.3	99.4	99.4	99.4	99.4	99.4	99.2
Michigan Bell	99.0	99.4	98.6	99.1	99.0	99.4	99.5	99.6	98.5
Ohio Bell	98.2	97.9	97.3	98.2	98.4	98.8	98.7	98.9	97.5
Wisconsin Bell	99.3	99.5	99.4	99.8	99.7	99.8	99.7	99.0	98.9
BELL ATLANTIC	NA								
Bell of Pennsylvania	NA								
C&P Companies	NA								
New Jersey	NA								
BELLSOUTH	98.7	98.8	98.8	98.8	98.6	98.6	98.3	97.9	97.2
South Central Bell	99.3	99.5	99.5	99.5	99.4	99.5	99.4	99.0	97.9
Southern Bell	98.1	98.1	98.1	98.1	97.8	97.6	97.2	96.8	96.4
NYNEX	95.1	94.7	94.2	93.2	93.5	93.4	93.6	94.9	94.8
New England Tel.	94.3	94.3	93.9	94.3	94.4	94.5	94.4	94.9	94.8
New York Tel.	95.8	95.1	94.5	92.0	92.5	92.2	92.7	94.8	94.8
PACIFIC TELESIS	99.4	98.8	98.1	98.9	98.9	98.7	98.4	98.5	98.5
Nevada Bell	99.5	NA	97.5	99.0	99.0	98.3	98.1	98.4	98.4
Pacific Bell	99.3	98.8	98.7	98.8	98.8	99.0	98.8	98.7	98.5
SOUTHWESTERN	NA	98.8	98.8	99.2	99.3	99.4	99.3	NA	99.3
US WEST	NA	98.4	98.1	99.1	98.1	98.6	98.2	98.2	97.7
Mountain States	NA	97.5	97.2	NA	97.8	98.3	98.7	98.2	97.9
Northwestern Bell	NA								
Pacific N. W. Bell	NA	99.2	99.0	99.1	98.4	98.9	97.6	98.2	97.5
Composite	98.0	98.1	97.7	98.0	97.8	97.9	97.8	97.7	97.6

Please refer to text for accompanying notes and data qualifications.

Table 8: On Time Service Orders – Access

Company/Year	1985	1986		1987		1988		1989	
		1 H	2 H	1 H	2 H	1 H	2 H	1 H	2 H
AMERITECH	NA	NA	NA	NA	NA	NA	NA	NA	NA
Illinois Bell	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indiana Bell	NA	NA	NA	NA	NA	NA	NA	NA	NA
Michigan Bell	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ohio Bell	NA	NA	NA	NA	NA	NA	NA	NA	NA
Wisconsin Bell	NA	NA	NA	NA	NA	NA	NA	NA	NA
BELL ATLANTIC	99.2	99.4	99.5	99.4	99.6	99.7	99.7	99.7	99.5
Bell of Pennsylvania	99.2	99.6	99.6	99.7	99.8	99.8	99.8	99.7	99.8
C&P Companies	98.7	99.4	99.1	98.9	99.4	99.7	99.8	99.8	99.6
New Jersey	99.6	99.1	99.7	99.5	99.6	99.6	99.6	99.7	99.2
BELLSOUTH	99.0	98.8	98.8	98.9	99.0	99.3	99.1	99.0	98.9
South Central Bell	99.7	99.8	99.8	99.9	99.9	100.0	100.0	100.0	100.0
Southern Bell	98.2	97.7	97.7	97.8	98.1	98.7	98.3	98.1	97.9
NYNEX	97.3	97.8	97.7	98.6	98.6	98.8	98.7	99.0	98.9
New England Tel.	98.3	98.3	98.4	99.2	99.0	99.2	99.0	99.2	99.2
New York Tel.	96.2	97.3	96.9	97.9	98.1	98.3	98.3	98.7	98.6
PACIFIC TELESIS	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nevada Bell	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pacific Bell	NA	NA	NA	NA	NA	NA	NA	NA	NA
SOUTHWESTERN	98.4	98.8	98.6	98.6	99.0	98.9	98.8	NA	99.2
US WEST	97.1	98.6	94.3	97.2	96.4	96.8	97.7	98.2	97.9
Mountain States	97.9	99.2	98.8	99.5	99.6	99.7	98.1	99.5	98.8
Northwestern Bell	NA	NA	92.9	94.4	95.3	98.0	98.9	98.7	97.3
Pacific N. W. Bell	96.2	98.0	91.1	97.6	94.2	92.8	96.0	96.5	97.6
Composite	98.2	98.7	97.7	98.5	98.5	98.7	98.8	99.0	98.9

Please refer to text for accompanying notes and data qualifications.

Table 9: On Time Service Orders – Business/ Special

Company/Year	1985	1986		1987		1988		1989	
		1 H	2 H	1 H	2 H	1 H	2 H	1 H	2 H
AMERITECH	98.6	98.9	98.5	99.1	99.2	99.1	99.5	99.7	96.8
Illinois Bell	97.8	98.0	97.6	98.8	98.8	98.1	99.1	99.5	99.5
Indiana Bell	99.2	99.5	99.5	99.5	99.5	99.5	99.7	99.7	97.9
Michigan Bell	99.2	99.3	98.9	99.2	99.4	99.6	99.6	99.6	95.2
Ohio Bell	97.4	97.9	97.1	98.2	98.3	98.6	99.3	99.5	93.8
Wisconsin Bell	99.3	99.7	99.6	99.8	100.0	99.9	100.0	100.0	97.5
BELL ATLANTIC	98.7	99.4	99.5	99.4	99.6	99.7	99.7	99.7	99.5
Bell of Pennsylvania	99.3	99.6	99.6	99.7	99.8	99.8	99.8	99.7	99.8
C&P Companies	98.3	99.4	99.1	98.9	99.4	99.7	99.8	99.8	99.6
New Jersey	98.5	99.1	99.7	99.5	99.6	99.6	99.6	99.7	99.2
BELLSOUTH	98.7	98.7	98.7	98.8	98.8	98.9	98.7	98.7	NA
South Central Bell	99.5	99.8	99.8	99.9	99.9	99.9	99.9	99.9	NA
Southern Bell	97.9	97.6	97.6	97.7	97.6	97.9	97.6	97.4	NA
NYNEX	97.8	97.6	97.1	98.2	98.2	98.2	98.2	98.7	98.7
New England Tel.	97.9	97.2	97.0	97.8	97.5	97.7	97.8	98.2	98.3
New York Tel.	97.6	98.0	97.2	98.5	98.8	98.7	98.6	99.1	99.1
PACIFIC TELESIS	99.0	98.8	99.1	99.2	98.9	98.4	98.8	98.4	98.1
Nevada Bell	99.6	NA	99.3	99.4	99.1	97.9	98.8	98.8	99.0
Pacific Bell	98.4	98.8	98.8	99.0	98.8	98.8	98.9	98.1	97.3
SOUTHWESTERN	98.8	99.2	98.9	98.8	99.2	99.2	99.0	NA	99.6
US WEST	98.0	98.7	95.7	97.2	97.7	96.9	98.3	98.5	97.1
Mountain States	98.7	98.7	98.7	99.5	99.6	99.8	99.6	99.5	99.0
Northwestern Bell	NA	NA	92.7	94.4	95.5	98.0	98.9	98.7	97.3
Pacific N. W. Bell	97.3	98.6	95.7	97.7	97.9	92.8	96.4	97.2	95.1
Composite	98.5	98.7	98.2	98.7	98.8	98.6	98.9	98.9	98.3

Please refer to text for accompanying notes and data qualifications.

Table 10: Call Completion – IntraLata

Company/Year	1985	1986		1987		1988		1989	
		1 H	2 H	1 H	2 H	1 H	2 H	1 H	2 H
AMERITECH	99.6	NA							
Illinois Bell	99.6	NA							
Indiana Bell	99.5	NA							
Michigan Bell	99.7	NA							
Ohio Bell	99.6	NA							
Wisconsin Bell	99.7	NA							
BELL ATLANTIC	99.5	99.4	99.5	99.5	99.6	99.6	99.7	99.7	99.6
Bell of Pennsylvania	99.6	99.6	99.7	99.6	99.7	99.7	99.8	99.7	99.7
C&P Companies	99.4	99.3	99.3	99.4	99.4	99.5	99.6	99.6	99.5
New Jersey	99.4	99.4	99.5	99.4	99.6	99.6	99.7	99.7	99.6
BELLSOUTH	99.4	99.4	99.4	99.4	99.5	99.5	99.6	99.6	99.3
South Central Bell	99.4	99.4	99.4	99.4	99.5	99.5	99.6	99.6	99.5
Southern Bell	99.3	99.3	99.3	99.3	99.4	99.4	99.5	99.5	99.0
NYNEX	99.4	99.5	99.5	99.5	99.5	99.5	99.6	99.7	99.7
New England Tel.	99.3	99.3	99.3	99.3	99.3	99.4	99.5	99.6	99.6
New York Tel.	99.6	99.7	99.7	99.6	99.6	99.7	99.7	99.7	99.7
PACIFIC TELESIS	99.7	99.6	99.6	99.6	99.7	99.5	99.8	99.7	99.8
Nevada Bell	NA								
Pacific Bell	99.7	99.6	99.6	99.6	99.7	99.5	99.8	99.7	99.8
SOUTHWESTERN	99.5	99.6	99.7	99.6	99.6	NA	NA	NA	NA
US WEST	NA								
Mountain States	NA								
Northwestern Bell	NA								
Pacific N. W. Bell	NA								
Composite	99.5	99.5	99.5	99.5	99.6	99.5	99.7	99.6	99.6

Please refer to text for accompanying notes and data qualifications.

Table 11: Call Completion – InterLata

Company/Year	1985	1986		1987		1988		1989	
		1 H	2 H	1 H	2 H	1 H	2 H	1 H	2 H
AMERITECH	NA	93.4	92.3	91.9	92.8	94.8	96.6	97.3	97.3
Illinois Bell	NA	NA	93.4	89.8	90.7	93.8	96.8	97.7	97.5
Indiana Bell	NA	90.9	89.8	85.7	91.2	93.6	97.6	97.5	97.6
Michigan Bell	NA	93.0	91.0	94.5	94.4	96.2	96.7	97.9	98.3
Ohio Bell	NA	94.6	94.1	94.0	94.8	95.1	95.9	96.8	96.3
Wisconsin Bell	NA	95.0	93.2	95.6	NA	95.3	96.0	96.7	97.0
BELL ATLANTIC	98.4	98.8	98.8	98.7	99.3	99.3	99.4	99.4	99.3
Bell of Pennsylvania	98.3	98.8	98.9	98.4	99.2	99.3	99.3	99.4	99.3
C&P Companies	98.3	98.8	98.7	98.8	99.1	99.2	99.4	99.3	99.2
New Jersey	98.6	98.7	98.8	98.8	99.7	99.5	99.5	99.5	99.4
BELLSOUTH	98.3	98.4	98.4	98.5	98.6	99.0	99.1	99.4	99.4
South Central Bell	98.4	98.7	98.7	98.6	98.6	99.1	99.1	99.4	99.4
Southern Bell	98.1	98.1	98.1	98.4	98.5	98.9	99.0	99.3	99.3
NYNEX	98.5	98.8	99.0	98.9	98.9	99.2	99.2	99.4	99.4
New England Tel.	98.2	98.9	98.8	98.7	98.7	99.0	99.2	99.4	99.4
New York Tel.	98.8	98.8	99.2	99.1	99.2	99.3	99.3	99.4	99.4
PACIFIC TELESIS	99.4	98.9	100.0	99.7	99.4	99.8	99.6	99.8	99.4
Nevada Bell	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pacific Bell	99.4	98.9	100.0	99.7	99.4	99.8	99.6	99.8	99.4
SOUTHWESTERN	98.4	98.9	99.3	99.0	99.0	98.1	98.2	97.6	98.7
US WEST	89.8	94.8	95.0	97.0	96.6	96.5	97.4	98.0	98.4
Mountain States	NA	95.1	95.7	96.2	95.6	97.9	98.1	98.6	98.6
Northwestern Bell	NA	95.0	95.4	96.4	96.5	94.3	95.8	96.9	98.3
Pacific N. W. Bell	89.8	94.3	93.9	98.5	97.6	97.4	98.4	98.4	98.4
Composite	97.1	97.4	97.5	97.7	97.8	98.1	98.5	98.7	98.8

Please refer to text for accompanying notes and data qualifications.

Table 12: Quality of Service Data – 1985

COMPANY	Customer Satisfaction Levels				Dial Tone Response Within 3 Seconds	Offices Meeting Trans- mission Standards	On Time Service Orders			Call Completion	
	Business			Resi- dential			Resi- dential	Access	Business Special	Intra Lata Calls	Inter Lata Calls
	Small	Medium	Large								
AMERITECH											
Illinois Bell	88.5	NA	90.3	91.6	98.3	98.9	98.6	NA	97.8	99.6	NA
Indiana Bell	91.4	NA	89.7	92.9	97.8	98.5	99.4	NA	99.2	99.5	NA
Michigan Bell	91.8	NA	86.1	93.5	98.7	98.6	99.0	NA	99.2	99.7	NA
Ohio Bell	90.0	NA	88.3	92.5	96.3	97.9	98.2	NA	97.4	99.6	NA
Wisconsin Bell	91.1	NA	91.1	93.6	100.0	99.7	99.3	NA	99.3	99.7	NA
BELL ATLANTIC											
Bell of Pennsylvania	91.7	NA	95.4	93.5	98.1	79.5	NA	99.2	99.3	99.6	98.3
C&P Companies	88.6	NA	92.7	91.6	97.2	70.0	NA	98.7	98.3	99.4	98.3
New Jersey	89.4	NA	91.3	92.1	98.0	80.8	NA	99.6	98.5	99.4	98.6
BELLSOUTH											
South Central Bell	92.8	NA	90.8	92.8	97.4	92.6	99.3	99.7	99.5	99.4	98.4
Southern Bell	91.2	NA	89.0	91.2	96.1	88.7	98.1	98.2	97.9	99.3	98.1
NYNEX											
New England Tel.	92.4	89.5	96.5	94.3	97.6	80.0	94.3	98.3	97.9	99.3	98.2
New York Tel.	90.8	88.3	93.0	93.0	95.6	88.0	95.8	96.2	97.6	99.6	98.8
PACIFIC TELESIS											
Nevada Bell	93.7	NA	91.1	95.1	100.0	100.0	99.5	NA	99.6	NA	NA
Pacific Bell	94.7	NA	89.7	93.0	99.9	NA	99.3	NA	98.4	99.7	99.4
SOUTHWESTERN											
	97.1	NA	91.3	97.6	97.9	95.4	NA	98.4	98.8	99.5	98.4
US WEST											
Mountain States	88.0	NA	88.0	91.0	97.2	94.2	NA	97.9	98.7	NA	NA
Northwestern Bell	90.0	95.0	93.0	93.0	98.6	99.3	NA	NA	NA	NA	NA
Pacific N. W. Bell	90.3	92.6	95.6	91.8	94.4	95.8	NA	96.2	97.3	NA	89.8

Please refer to text for accompanying notes and data qualifications.

Table 13: Quality of Service Data – First Half 1986

COMPANY	Customer Satisfaction Levels				Dial Tone Response Within 3 Seconds	Offices Meeting Trans- mission Standards	On Time Service Orders			Call Completion	
	Business			Real- dential			Real- dential	Access	Business Special	Intra Lata Calls	Inter Lata Calls
	Small	Medium	Large								
AMERITECH											
Illinois Bell	92.0	NA	91.1	93.9	98.9	99.9	98.3	NA	98.0	NA	NA
Indiana Bell	94.2	NA	91.0	94.6	95.4	97.9	99.4	NA	99.5	NA	90.9
Michigan Bell	94.9	NA	87.5	95.6	98.2	98.9	99.4	NA	99.3	NA	93.0
Ohio Bell	93.3	NA	90.3	94.3	98.9	97.2	97.9	NA	97.9	NA	94.6
Wisconsin Bell	94.6	NA	93.6	95.4	100.0	99.6	99.5	NA	99.7	NA	95.0
BELL ATLANTIC											
Bell of Pennsylvania	93.3	NA	95.0	94.5	98.3	77.8	NA	99.6	99.6	99.6	98.8
C&P Companies	91.3	NA	94.0	92.8	97.3	75.0	NA	99.4	99.4	99.3	98.8
New Jersey	91.0	NA	91.0	92.9	99.0	86.9	NA	99.1	99.1	99.4	98.7
BELLSOUTH											
South Central Bell	93.9	NA	95.0	93.7	98.1	94.7	99.5	99.8	99.8	99.4	98.7
Southern Bell	92.7	NA	93.3	91.8	94.5	83.6	98.1	97.7	97.6	99.3	98.1
NYNEX											
New England Tel.	92.3	90.6	97.0	94.3	99.7	88.0	94.3	98.3	97.2	99.3	98.9
New York Tel.	90.9	90.1	96.0	92.7	97.3	99.9	95.1	97.3	98.0	99.7	98.8
PACIFIC TELESIS											
Nevada Bell	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pacific Bell	91.7	NA	92.0	93.0	99.9	NA	98.8	NA	98.8	99.6	98.9
SOUTHWESTERN											
	97.0	NA	91.4	97.6	98.3	99.2	98.8	98.8	99.2	99.6	98.9
US WEST											
Mountain States	90.0	NA	NA	92.0	99.0	97.7	97.5	99.2	98.7	NA	95.1
Northwestern Bell	91.0	96.0	NA	93.0	98.0	99.4	NA	NA	NA	NA	95.0
Pacific N. W. Bell	92.3	NA	NA	93.1	96.5	96.0	99.2	98.0	98.6	NA	94.3

Please refer to text for accompanying notes and data qualifications.

Table 14: Quality of Service Data – Second Half 1986

COMPANY	Customer Satisfaction Levels				Dial Tone Response Within 3 Seconds	Offices Meeting Trans- mission Standards	On Time Service Orders			Call Completion	
	Business			Resi- dential			Resi- dential	Access	Business Special	Intra Lata Calls	Inter Lata Calls
	Small	Medium	Large								
AMERITECH											
Illinois Bell	92.4	NA	88.0	92.4	98.9	97.7	97.0	NA	97.6	NA	93.4
Indiana Bell	94.4	NA	91.1	94.6	97.1	98.1	99.3	NA	99.5	NA	89.8
Michigan Bell	94.8	NA	87.6	95.2	99.0	99.4	98.6	NA	98.9	NA	91.0
Ohio Bell	93.4	NA	90.5	93.2	98.4	97.5	97.3	NA	97.1	NA	94.1
Wisconsin Bell	93.8	NA	93.8	94.7	99.5	98.9	99.4	NA	99.6	NA	93.2
BELL ATLANTIC											
Bell of Pennsylvania	93.6	NA	96.0	94.5	99.2	80.3	NA	99.6	99.6	99.7	98.9
C&P Companies	91.8	NA	93.0	92.2	98.0	86.5	NA	99.1	99.1	99.3	98.7
New Jersey	89.7	NA	93.0	92.4	98.6	94.6	NA	99.7	99.7	99.5	98.8
BELLSOUTH											
South Central Bell	93.9	NA	95.0	93.7	98.1	94.7	99.5	99.8	99.8	99.4	98.7
Southern Bell	92.7	NA	93.3	91.8	94.5	83.6	98.1	97.7	97.6	99.3	98.1
NYNEX											
New England Tel.	92.1	90.6	98.0	93.7	99.7	99.9	93.9	98.4	97.0	99.3	98.8
New York Tel.	90.2	90.1	96.0	92.1	99.7	99.9	94.5	96.9	97.2	99.7	99.2
PACIFIC TELESIS											
Nevada Bell	94.7	NA	98.7	95.1	100.0	100.0	97.5	NA	99.3	NA	NA
Pacific Bell	92.0	NA	93.0	93.7	99.9	NA	98.7	NA	98.8	99.6	100.0
SOUTHWESTERN											
	94.6	NA	92.3	95.5	97.9	95.0	98.8	98.6	98.9	99.7	99.3
US WEST											
Mountain States	90.1	NA	93.0	92.0	97.4	96.0	97.2	98.8	98.7	NA	95.7
Northwestern Bell	91.0	96.0	95.0	92.0	98.0	99.3	NA	92.9	92.7	NA	95.4
Pacific N. W. Bell	92.1	NA	97.4	93.3	96.1	97.4	99.0	91.1	95.7	NA	93.9

Please refer to text for accompanying notes and data qualifications.

Table 15: Quality of Service Data – First Half 1987

COMPANY	Customer Satisfaction Levels				Dial Tone Response Within 3 Seconds	Offices Meeting Trans- mission Standards	On Time Service Orders			Call Completion	
	Business			Resi- dential			Resi- dential	Access	Business Special	Intra Lata Calls	Inter Lata Calls
	Small	Medium	Large								
AMERITECH											
Illinois Bell	92.5	NA	86.9	93.3	98.5	98.3	97.3	NA	98.8	NA	89.8
Indiana Bell	94.9	NA	91.2	94.9	96.8	98.0	99.4	NA	99.5	NA	85.7
Michigan Bell	95.2	NA	88.8	95.4	99.4	99.5	99.1	NA	99.2	NA	94.5
Ohio Bell	93.9	NA	90.7	93.8	98.4	97.6	98.2	NA	98.2	NA	94.0
Wisconsin Bell	95.3	NA	92.6	96.0	99.8	99.8	99.8	NA	99.8	NA	95.6
BELL ATLANTIC											
Bell of Pennsylvania	95.0	NA	96.0	95.6	97.8	73.8	NA	99.7	99.7	99.6	98.4
C&P Companies	93.2	NA	93.0	94.0	97.2	93.2	NA	98.9	98.9	99.4	98.8
New Jersey	91.6	NA	93.0	93.5	98.4	95.6	NA	99.5	99.5	99.4	98.8
BELLSOUTH											
South Central Bell	95.1	NA	96.5	94.9	97.5	95.5	99.5	99.9	99.9	99.4	98.6
Southern Bell	93.8	NA	93.4	93.4	92.4	81.2	98.1	97.8	97.7	99.3	98.4
NYNEX											
New England Tel.	93.6	94.5	92.0	94.7	99.7	99.9	94.3	99.2	97.8	99.3	98.7
New York Tel.	91.0	92.0	91.0	92.4	99.8	99.9	92.0	97.9	98.5	99.6	99.1
PACIFIC TELESIS											
Nevada Bell	95.7	NA	NA	96.6	99.5	100.0	99.0	NA	99.4	NA	NA
Pacific Bell	93.3	NA	94.3	94.7	99.9	NA	98.8	NA	99.0	99.6	99.7
SOUTHWESTERN											
	95.0	NA	93.9	96.1	98.4	94.8	99.2	98.6	98.8	99.6	99.0
US WEST											
Mountain States	91.6	NA	NA	93.3	98.1	94.2	NA	99.5	99.5	NA	96.2
Northwestern Bell	92.0	96.0	NA	93.0	99.4	99.3	NA	94.4	94.4	NA	96.4
Pacific N. W. Bell	92.6	97.3	NA	93.7	97.2	99.3	99.1	97.6	97.7	NA	98.5

Please refer to text for accompanying notes and data qualifications.

Table 16: Quality of Service Data – Second Half 1987

COMPANY	Customer Satisfaction Levels				Dial Tone Response Within 3 Seconds	Offices Meeting Trans- mission Standards	On Time Service Orders			Call Completion	
	Business			Resi- dential			Resi- dential	Access	Business Special	Intra Lata Calls	Inter Lata Calls
	Small	Medium	Large								
AMERITECH											
Illinois Bell	92.3	NA	89.6	92.3	98.8	96.7	96.9	NA	98.8	NA	90.7
Indiana Bell	93.2	NA	91.9	91.8	99.8	98.3	99.4	NA	99.5	NA	91.2
Michigan Bell	93.9	NA	92.6	91.6	99.5	99.4	99.0	NA	99.4	NA	94.4
Ohio Bell	91.8	NA	92.8	90.9	98.5	99.7	98.4	NA	98.3	NA	94.8
Wisconsin Bell	95.3	NA	93.3	95.6	98.9	99.7	99.7	NA	100.0	NA	NA
BELL ATLANTIC											
Bell of Pennsylvania	92.9	NA	97.0	92.7	98.9	63.0	NA	99.8	99.8	99.7	99.2
C&P Companies	90.6	NA	94.0	89.9	98.5	93.8	NA	99.4	99.4	99.4	99.1
New Jersey	88.7	NA	94.0	87.9	99.1	95.9	NA	99.6	99.6	99.6	99.7
BELLSOUTH											
South Central Bell	95.2	NA	95.2	94.9	97.4	95.4	99.4	99.9	99.9	99.5	98.6
Southern Bell	93.7	NA	94.6	93.1	94.6	76.9	97.8	98.1	97.6	99.4	98.5
NYNEX											
New England Tel.	93.4	93.8	92.8	94.6	99.3	96.4	94.4	99.0	97.5	99.3	98.7
New York Tel.	91.0	93.0	90.3	92.6	99.8	98.5	92.5	98.1	98.8	99.6	99.2
PACIFIC TELESIS											
Nevada Bell	94.6	NA	NA	97.6	99.5	100.0	99.0	NA	99.1	NA	NA
Pacific Bell	93.3	NA	93.3	94.7	99.9	NA	98.8	NA	98.8	99.7	99.4
SOUTHWESTERN											
	95.0	NA	94.4	95.8	98.1	95.3	99.3	99.0	99.2	99.6	99.0
US WEST											
Mountain States	91.8	NA	96.0	92.9	98.1	94.3	97.8	99.6	99.6	NA	95.6
Northwestern Bell	92.0	95.0	94.0	93.0	99.5	99.3	NA	95.3	95.5	NA	96.5
Pacific N. W. Bell	96.7	95.4	99.0	96.5	97.6	95.2	98.4	94.2	97.9	NA	97.6

Please refer to text for accompanying notes and data qualifications.

Table 17: Quality of Service Data – First Half 1988

COMPANY	Customer Satisfaction Levels				Dial Tone Response Within 3 Seconds	Offices Meeting Trans- mission Standards	On Time Service Orders			Call Completion	
	Business			Resi- dential			Resi- dential	Access	Business Special	Intra Lata Calls	Inter Lata Calls
	Small	Medium	Large								
AMERITECH											
Illinois Bell	92.3	NA	92.0	92.9	97.9	94.3	97.2	NA	98.1	NA	93.8
Indiana Bell	94.6	NA	91.7	95.2	99.1	99.3	99.4	NA	99.5	NA	93.6
Michigan Bell	95.3	NA	97.1	95.5	99.7	99.4	99.4	NA	99.6	NA	96.2
Ohio Bell	94.6	NA	97.8	94.6	98.5	99.4	98.8	NA	98.6	NA	95.1
Wisconsin Bell	96.1	NA	97.1	96.6	99.6	99.7	99.8	NA	99.9	NA	95.3
BELL ATLANTIC											
Bell of Pennsylvania	94.9	NA	98.0	94.6	99.5	70.0	NA	99.8	99.8	99.7	99.3
C&P Companies	92.4	NA	95.0	92.6	98.0	96.5	NA	99.7	99.7	99.5	99.2
New Jersey	89.6	NA	95.0	89.7	99.4	94.9	NA	99.6	99.6	99.6	99.5
BELLSOUTH											
South Central Bell	95.8	NA	96.2	95.2	96.8	95.0	99.5	100.0	99.9	99.5	99.1
Southern Bell	94.1	NA	94.5	92.5	97.9	86.1	97.6	98.7	97.9	99.4	98.9
NYNEX											
New England Tel.	94.9	94.5	94.5	95.5	99.7	96.9	94.5	99.2	97.7	99.4	99.0
New York Tel.	92.8	93.5	92.0	93.5	99.7	99.5	92.2	98.3	98.7	99.7	99.3
PACIFIC TELESIS											
Nevada Bell	94.0	NA	NA	96.9	99.5	100.0	98.3	NA	97.9	NA	NA
Pacific Bell	93.7	NA	92.7	94.7	99.9	NA	99.0	NA	98.8	99.5	99.8
SOUTHWESTERN											
	95.8	NA	95.4	96.3	99.3	99.5	99.4	98.9	99.2	NA	98.1
US WEST											
Mountain States	92.3	NA	NA	92.9	99.2	93.8	98.3	99.7	99.8	NA	97.9
Northwestern Bell	92.4	NA	NA	92.8	99.1	98.4	NA	98.0	98.0	NA	94.3
Pacific N. W. Bell	93.2	NA	NA	94.1	98.2	97.0	98.9	92.8	92.8	NA	97.4

Please refer to text for accompanying notes and data qualifications.

Table 18: Quality of Service Data – Second Half 1988

COMPANY	Customer Satisfaction Levels				Dial Tone Response Within 3 Seconds	Offices Meeting Trans- mission Standards	On Time Service Orders			Call Completion	
	Business			Real- dential			Real- dential	Access	Business Special	Intra Lata Calls	Inter Lata Calls
	Small	Medium	Large								
AMERITECH											
Illinois Bell	91.3	NA	88.4	92.0	99.8	99.2	97.4	NA	99.1	NA	96.8
Indiana Bell	94.4	NA	94.4	94.9	99.8	98.5	99.4	NA	99.7	NA	97.6
Michigan Bell	94.6	NA	93.7	94.6	99.3	98.8	99.5	NA	99.6	NA	96.7
Ohio Bell	94.0	NA	96.0	93.3	99.5	98.9	98.7	NA	99.3	NA	95.9
Wisconsin Bell	95.1	NA	95.3	96.2	99.6	99.4	99.7	NA	100.0	NA	96.0
BELL ATLANTIC											
Bell of Pennsylvania	94.1	NA	96.0	94.5	99.6	80.5	NA	99.8	99.8	99.8	99.3
C&P Companies	93.0	NA	96.0	92.0	98.7	91.6	NA	99.8	99.8	99.6	99.4
New Jersey	88.8	NA	95.0	89.7	99.6	97.1	NA	99.6	99.6	99.7	99.5
BELLSOUTH											
South Central Bell	95.8	NA	94.5	95.1	96.9	95.4	99.4	100.0	99.9	99.6	99.1
Southern Bell	93.8	NA	93.3	92.0	98.3	90.6	97.2	98.3	97.6	99.5	99.0
NYNEX											
New England Tel.	94.3	95.0	93.0	95.0	99.7	98.8	94.4	99.0	97.8	99.5	99.2
New York Tel.	92.4	94.0	91.0	93.0	99.7	99.6	92.7	98.3	98.6	99.7	99.3
PACIFIC TELESIS											
Nevada Bell	93.6	NA	NA	96.0	99.5	98.9	98.1	NA	98.8	NA	NA
Pacific Bell	94.7	NA	94.7	95.3	99.9	98.0	98.8	NA	98.9	99.8	99.6
SOUTHWESTERN											
	95.6	NA	95.4	96.3	99.4	99.5	99.3	98.8	99.0	NA	98.2
US WEST											
Mountain States	92.0	NA	95.9	92.7	99.0	89.5	98.7	98.1	99.6	NA	98.1
Northwestern Bell	91.9	NA	94.3	92.8	99.4	98.6	NA	98.9	98.9	NA	95.8
Pacific N. W. Bell	93.4	NA	96.2	94.4	99.0	99.1	97.6	96.0	96.4	NA	98.4

Please refer to text for accompanying notes and data qualifications.

Table 19: Quality of Service Data -- First Half 1989

COMPANY	Customer Satisfaction Levels				Dial Tone Response Within 3 Seconds	Offices Meeting Trans- mission Standards	On Time Service Orders			Call Completion	
	Business			Resi- dential			Resi- dential	Access	Business Special	Intra Lata Calls	Inter Lata Calls
	Small	Medium	Large								
AMERITECH											
Illinois Bell	92.8	NA	90.0	93.3	99.5	98.9	98.0	NA	99.5	NA	97.7
Indiana Bell	95.3	NA	94.6	95.9	98.7	99.0	99.4	NA	99.7	NA	97.5
Michigan Bell	95.0	NA	93.7	94.1	99.6	99.8	99.6	NA	99.6	NA	97.9
Ohio Bell	94.0	NA	95.2	94.0	99.3	98.6	98.9	NA	99.5	NA	96.8
Wisconsin Bell	95.9	NA	96.1	96.9	100.0	99.5	99.0	NA	100.0	NA	96.7
BELL ATLANTIC											
Bell of Pennsylvania	NA	NA	99.0	94.6	99.6	76.2	NA	99.7	99.7	99.7	99.4
C&P Companies	NA	NA	98.0	92.5	98.9	99.6	NA	99.8	99.8	99.6	99.3
New Jersey	NA	NA	97.0	88.4	99.5	99.5	NA	99.7	99.7	99.7	99.5
BELLSOUTH											
South Central Bell	95.8	NA	96.4	95.2	96.9	96.1	99.0	100.0	99.9	99.6	99.4
Southern Bell	93.5	NA	91.4	92.9	98.7	95.8	96.8	98.1	97.4	99.5	99.3
NYNEX											
New England Tel.	94.9	NA	94.0	95.4	99.9	99.9	94.9	99.2	98.2	99.6	99.4
New York Tel.	92.4	95.0	94.0	93.0	99.7	99.9	94.8	98.7	99.1	99.7	99.4
PACIFIC TELESIS											
Nevada Bell	94.5	NA	NA	97.2	99.4	98.3	98.4	NA	98.8	NA	NA
Pacific Bell	96.7	NA	95.0	96.7	100.0	97.8	98.7	NA	98.1	99.7	99.8
SOUTHWESTERN											
	95.8	NA	94.3	96.5	99.3	99.5	NA	NA	NA	NA	97.6
US WEST											
Mountain States	89.3	NA	90.8	91.5	99.1	96.2	98.2	99.5	99.5	NA	98.6
Northwestern Bell	90.4	NA	94.3	92.6	99.3	99.3	NA	98.7	98.7	NA	96.9
Pacific N. W. Bell	91.4	NA	91.1	92.2	98.4	98.7	98.2	96.5	97.2	NA	98.4

Please refer to text for accompanying notes and data qualifications.

Table 20: Quality of Service Data – Second Half 1989

COMPANY	Customer Satisfaction Levels				Dial Tone Response Within 3 Seconds	Offices Meeting Trans- mission Standards	On Time Service Orders			Call Completion	
	Business			Resi- dential			Resi- dential	Access	Business Special	Intra Lata Calls	Inter Lata Calls
	Small	Medium	Large								
AMERITECH											
Illinois Bell	92.5	NA	94.4	92.7	99.1	99.3	98.0	NA	99.5	NA	97.5
Indiana Bell	95.3	NA	94.5	94.9	98.4	99.4	99.2	NA	97.9	NA	97.6
Michigan Bell	93.8	NA	94.7	92.6	97.8	99.3	98.5	NA	95.2	NA	98.3
Ohio Bell	93.4	NA	93.9	92.0	99.5	99.2	97.5	NA	93.8	NA	96.3
Wisconsin Bell	94.9	NA	96.0	95.7	99.1	99.1	98.9	NA	97.5	NA	97.0
BELL ATLANTIC											
Bell of Pennsylvania	NA	NA	98.0	95.6	99.5	72.1	NA	99.8	99.8	99.7	99.3
C&P Companies	NA	NA	96.0	93.5	98.3	96.9	NA	99.6	99.6	99.5	99.2
New Jersey	NA	NA	94.0	91.0	99.6	93.7	NA	99.2	99.2	99.6	99.4
BELLSOUTH											
South Central Bell	96.0	NA	95.2	95.1	97.7	96.0	97.9	100.0	NA	99.5	99.4
Southern Bell	93.3	NA	93.0	91.2	98.6	96.0	96.4	97.9	NA	99.0	99.3
NYNEX											
New England Tel.	94.8	96.0	94.0	95.3	99.7	99.6	94.8	99.2	98.3	99.6	99.4
New York Tel.	92.2	95.0	93.0	92.9	99.9	99.9	94.8	98.6	99.1	99.7	99.4
PACIFIC TELESIS											
Nevada Bell	95.2	NA	NA	96.6	99.3	100.0	98.4	NA	99.0	NA	NA
Pacific Bell	95.3	NA	95.0	95.3	98.9	97.5	98.5	NA	97.3	99.8	99.4
SOUTHWESTERN											
	95.5	NA	94.0	96.4	99.4	99.6	99.3	99.2	99.6	NA	98.7
US WEST											
Mountain States	87.8	NA	89.2	90.7	99.1	94.6	97.9	98.8	99.0	NA	98.6
Northwestern Bell	90.8	NA	88.9	92.2	99.3	99.4	NA	97.3	97.3	NA	98.3
Pacific N. W. Bell	90.9	NA	89.0	91.4	99.8	97.6	97.5	97.6	95.1	NA	98.4

Please refer to text for accompanying notes and data qualifications.