

Appendix 4

Data Request Questionnaires

Appendix 4.1

Data Request Questionnaire - Local Exchange Carriers

NYNEX Science & Technology, Inc.
400 Westchester Avenue. White Plains, NY 10604
Tel 914 644.5002
Fax 914 993.9902

Casimir S. Skrzypczak
President

**NRC Network Reliability Performance:
Performance Metrics Team Data Request LEC**

Single Points of Contact for NRC Data Collection

The Federal Communications Commission (FCC) has chartered the Network Reliability Council (NRC) to address a number of significant issues concerning maintaining and improving network reliability. These issues include, among other things, determining whether there are any regional and demographic differences in reliability and determining the extent of outage reporting in the industry.

To carry out its charter, the NRC has formed five focus groups. Each group will address an FCC identified issue:

Focus Group 1	Network Reliability Performance
Focus Group 2	Increased Interconnection
Focus Group 3	Reliability Concerns Arising Out of Changing Technologies
Focus Group 4	Essential Communications During Emergencies
Focus Group 5	Telecommuting as Back-Up in Disasters

Recently, you were notified that data requests for each of the focus groups would be sent to you for you to coordinate in your company. Attached are the data requests for the Performance Metrics Team which is a subgroup of Focus Group 1. The Performance Metrics Team is conducting a field reliability study with input from the Local Exchange Carriers (LECs), Inter-exchange Carriers (ICs), CATV Service Providers, Cellular Service Providers, and Satellite Service Providers to analyze current network reliability

This request is directed at LECs.

A diskette containing three Excel spreadsheets and an instruction set are attached for collecting the data on (i) equipment location and (ii) outage information from the service providers' perspective.

Data Request #1: The equipment location spreadsheet is for recording information on the equipment (i.e., end-office switches and tandem switches) in your network as of December 31, 1994. This spreadsheet needs to be completed only once by each service provider.

Data Request #2: This outage information spreadsheet is for recording all major outages affecting 30,000 customers lasting 30 minutes or longer (consistent with FCC reporting requirements in CC Docket 91-273) that occurred between January 1, 1993 and December 31, 1994. A list of these major outages that have been reported to FCC by your company is attached.

Data Request #3: This outage information spreadsheet is for **recording all unplanned total outages of duration 5 minutes or longer (i.e., end-office switches) that occurred between January 1, 1993 and December 31, 1994. All unplanned end-office outages that are included in Data Request #2 should be excluded from Data Request #3.** If you are unable to record data on the spreadsheets in the diskette, you may record data on the attached forms (you may reproduce these forms for your use).

All data collected from your company will be protected by the nondisclosure agreement (see attachment). The information you provide on the equipment location and outages will be aggregated for use by the Performance Metrics Team on an industry basis and not by company.

Your personal support of this data collection effort is essential for an effective accomplishment of the mission of the NRC. Please return the completed data spreadsheets within 30 days (i.e., by April 30, 1995) to:

John Healy
Bellcore, Room 2X-227
331 Newman Springs Road
Red Bank, NJ 07701
Tel: 908-758-3065
Fax: 908-758-4370

If you have any questions, please call either John Healy at 908-758-3065 or Ari Jain at 908-758-3128.

Thank you very much in advance for your cooperation.

(original signed by)

Casimir S. Skrzypczak
President

Attachments (6)
Nondisclosure Agreement
Instructions for Data Collection
Equipment Location Form
Major Outage Form
List of Major Outages
Total Outage Form

**NRC Focus Group 1 Network Reliability Performance
Performance Metrics Team
Data request for Equipment Location & Outages
Instructions for LECs**

1. What is the Purpose of this Data Collection

The purpose of this data collection is to collect equipment location information and major/total outage information on end-office switches from the service providers' perspective.

2. What Outages Need to be Reported

All major outages affecting 30,000 customers lasting 30 minutes or longer (consistent with FCC reporting requirements in CC Docket 91-273) that occurred between January 1, 1993 and December 31, 1994 need to be reported. **Also, all unplanned total outages of duration 5 minutes or longer (i.e., end-office switches and tandem switches) that occurred between January 1, 1993 and December 31, 1994 need to be reported. All unplanned major outages that are reported to FCC should be excluded from Data Request #3 described below.**

3. How Many Forms to Fill Out

There are three Excel spreadsheets for this data request that need to be filled out by each service provider. These spreadsheets are provided in a diskette. If you are unable to record data on the spreadsheets in the diskette, you may record data on the attached forms (you may reproduce these forms for your use).

Data Request #1

The Equipment Location Spreadsheet is for collecting population information on end-office switches as of December 31, 1994.

Data Request #2

The Major Outage Information Spreadsheet is for reporting some basic information about major outages that occurred between January 1, 1993 and December 31, 1994. See attached list of major outages during 1/1/1993 - 12/31/1994 that have been reported to FCC by your company. If you have any questions about this list, please call Spilios Makris at 908-758-5640.

Data Request #3

The Total Outage Information Spreadsheet is for reporting some basic information about total outages in end-office that occurred between January 1, 1993 and December 31, 1994.

4. How to Fill Out the Equipment Location Spreadsheet

On the top of the spreadsheet, record the name of the service provider. Also provide the name, telephone, and Fax number for the data provider.

1. Record the switch CLLI.

2-4. Record the City, County, and State **The County field is mandatory.**

In the case of a city like Richmond, VA, that is not part of a county, record the city name in the county field. You may request assistance from your USTA (Price CAP) Service Quality Infrastructure WorkGroup representative for getting the county information.

5. Record the number of access lines for a local switch.

6. Record the number of trunks for a tandem switch.

5. How to Fill Out the Outage Information Spreadsheets

On the top of the spreadsheet, record the name of the service provider as well as the name, telephone, and Fax number for the data provider.

5.1 Major Outage

1. Record the outage identifier, if available. This field is optional.

2. Record the outage date in the format: mm/dd/yy.

3. Record the outage time in the 24-hour format (e.g., 15:00). This field is optional

4. Record the outage duration in minutes.

5-7. Record the City, County, and State. The city column is optional **The County field is mandatory.**

8. Record the switch CLLI.

9. Record one of the cause codes given below:

- 01 - Scheduled Outages (not required for this study)
- 02 - Procedural error - LEC (related to installation or maintenance)
- 03 - Procedural error - LEC (not related to installation or maintenance)
- 04 - Procedural error - system vendors (includes errors in documentation/instructions)
- 05 - Procedural error - other vendors (e.g., independent installation vendor)

- 06 - Software design - faulty or ineffective software design
- 07 - Hardware design - deficiency or error in hardware design
- 08 - Hardware failure - failure related to system unreliability
- 09 - Acts of God - natural disaster
- 10 - Traffic Overload - traffic exceeds engineering capacity
- 11 - Environmental - contamination, leaks, temperature, etc.
- 12 - Power Failure
- 13 - Facility cut - cable or other cut
- 14 - Remote - loss of facilities between host and remote
- 15 - Unknown
- 16 - Atmospheric Conditions (not required for this study)
- 17 - Sun Spots (not required for this study).

10. Record the number of access lines affected by this outage.

11. Record the number of calls blocked by the major outage (this field is required for major outages and not for unplanned total outages).

5.2 Total Unplanned End-Office Outage

1. Record one of the cause codes given below:

- 01 - Scheduled Outages (not required for this study)
- 02 - Procedural error - LEC (related to installation or maintenance)
- 03 - Procedural error - LEC (not related to installation or maintenance)
- 04 - Procedural error - system vendors (includes errors in documentation/instructions)
- 05 - Procedural error - other vendors (e.g., independent installation vendor)
- 06 - Software design - faulty or ineffective software design
- 07 - Hardware design - deficiency or error in hardware design
- 08 - Hardware failure - failure related to system unreliability
- 09 - Acts of God - natural disaster
- 10 - Traffic Overload - traffic exceeds engineering capacity
- 11 - Environmental - contamination, leaks, temperature, etc.
- 12 - Power Failure
- 13 - Facility cut - cable or other cut
- 14 - Remote - loss of facilities between host and remote
- 15 - Unknown
- 16 - Atmospheric Conditions (not required for this study)
- 17 - Sun Spots (not required for this study).

2. Record the switch CLI.

3. Record the number of access lines affected by this outage (this field is primarily used for unplanned total end-office switch outages).

4. Record the outage duration in minutes.
5. Record the outage date in the format: mm/dd/yyyy.
6. Record the outage time in the 24-hour format (e.g., 15:00).
- 7-9. Record the City, County, and State. The city column is optional. The county field is mandatory.
10. Record the outage identifier, if your company uses this identifier for internal tracking. This field is optional.

6. What is the Data Request Period

Please send the information for outages that occurred during the **period: 01/01/93 - 12/31/94**

7. When to Return the Completed Data Spreadsheets/Forms

Please return the completed data spreadsheets/forms within 30 days (i.e., by April 30, 1995).

8. Where to Send the Response

John Healy
Bellcore, Room 2X-227
331 Newman Springs Road
Red Bank, NJ 07701
Tel: 908-758-3065
Fax: 908-758-4370

If you have any questions, please call either John Healy at 908-758-3065 or Ari Jain at 908-758-3128.

Appendix 4.2

Data Request Questionnaire - Interexchange Carriers

NYNEX Science & Technology, Inc.
400 Westchester Avenue. White Plains, NY 10604
Tel 914 644.5002
Fax 914 993.9902

Casimir S. Skrzypczak
President

**NRC Network Reliability Performance:
Performance Metrics Team Data RequestICs**

Single Points of Contact forNRC Data Collection

The Federal Communications Commission (FCC) has chartered the Network Reliability Council (NRC) to address a number of significant issues concerning maintaining and improving network reliability. These issues include, among other things, determining whether there are any regional and demographic differences in reliability and determining the extent of outage reporting in the industry.

To carry out its charter, the NRC has formed five focus groups. Each group will address an FCC identified issue:

Focus Group 1	Network Reliability Performance
Focus Group 2	Increased Interconnection
Focus Group 3	Reliability Concerns Arising Out of Changing Technologies
Focus Group 4	Essential Communications During Emergencies
Focus Group 5	Telecommuting as Back-Up in Disasters

Recently, you were notified that data requests for each of the focus groups would be sent to you for you to coordinate in your company. Attached are the data requests for the Performance Metrics Team which is a subgroup of Focus Group 1. The Performance Metrics Team is conducting a field reliability study with input from the Local Exchange Carriers (LECs), Inter-exchange Carriers(ICs), CATV Service Providers, Cellular Service Providers, and Satellite Service Providers to analyze current network reliability

This request is directed atICs.

A diskette containing two Excel spreadsheets and an instruction set are attached for collecting the data on (i) equipment location and (ii) outage information from the service providers' perspective.

Data Request #1: The equipment location spreadsheet is for recording information on the equipment(i.e., tandem switches)in your network as of December 31,1994. This spreadsheet needs to be completed only once by each service provider.

The second Excel file is the outage information spreadsheet which can be used for both Data Request #2 and Data Request #3:

Data Request #2: This outage information spreadsheet is for recording all major outages affecting 30,000 customers (or 90,000 blocked calls) lasting 30 minutes or longer (consistent with FCC reporting requirements in CC Docket 91-273) that occurred between January 1, 1993 and December 31, 1994. A list of these major outages that have been reported to the FCC by your company is attached.

Data Request #3: This outage information spreadsheet is for recording **all planned total outages of duration 5 minutes or longer (i.e. tandem switches) that occurred between January 1, 1993 and December 31, 1994. All unplanned tandem outages that are included in Data Request #2 should be excluded from Data Request #3.** If you are unable to record data on the spreadsheet in the diskette, you may record data on the attached forms (you may reproduce these forms for your use).

All data collected from your company will be protected by the nondisclosure agreement (see attachment). The information you provide on the equipment location and outages will be aggregated for use by the Performance Metrics Team on an industry basis and not by company.

Your personal support of this data collection effort is essential for an effective accomplishment of the mission of the NRC. Please return the completed data spreadsheets within 30 days (i.e., by April 30, 1995) to:

John Healy
Bellcore, Room 2X-227
331 Newman Springs Road
Red Bank, NJ 07701
Tel: 908-758-3065
Fax: 908-758-4370

If you have any questions, please call either John Healy at 908-758-3065 or Ari Jain at 908-758-3128.

Thank you very much in advance for your cooperation.

(original signed by)

Casimir S. Skrzypczak
President

Attachments (5)
Nondisclosure Agreement
Instructions for Data Collection
Equipment Location Form
Major/Total Outage Form
List of Major Outages

**NRC Focus Group 1 Network Reliability Performance
Performance Metrics Team
Data request for Equipment Location & Outages
Instructions for ICs**

1. What is the Purpose of this Data Collection

The purpose of this data collection is to collect equipment location information and major/total outage information on tandem switches from the service providers' perspective.

2. What Outages Need to be Reported

All major outages affecting 30,000 customers lasting 30 minutes or longer (consistent with FCC reporting requirements in CC Docket 91-273) that occurred between January 1, 1993 and December 31, 1994 need to be reported. **Also, all unplanned total outages of duration 5 minutes or longer (i.e., tandem switches) that occurred between January 1, 1993 and December 31, 1994 need to be reported. All unplanned major outages that are reported to FCC should be excluded from Data Request #3 described below.**

3. How Many Forms to Fill Out

There are two Excel spreadsheets for this data request that need to be filled out by each service provider. These spreadsheets are provided in a diskette. If you are unable to record data on the spreadsheets in the diskette, you may record data on the attached forms (you may reproduce these forms for your use).

Data Request #1

The Equipment Location Spreadsheet is for collecting population information on tandem switches as of December 31, 1994.

Data Request #2

The Major Outage Information Spreadsheet is for reporting some basic information about major outages that occurred between January 1, 1993 and December 31, 1994. See attached list of major outages during 1/1/1993 - 12/31/1994 that have been reported to the FCC by your company. If you have any questions about this list, please call Spilios Makris at 908-758-5640.

Data Request #3

The Total Outage Information Spreadsheet is for reporting some basic information about total outages on tandem switches that occurred between January 1, 1993 and December 31, 1994.

4. How to Fill Out the Equipment Location Spreadsheet

On the top of the spreadsheet, record the name of the service provider. Also provide the name, telephone, and Fax number for the data provider.

1. Record the switch CLLI.

2-4. Record the City, County, and State **The County field is mandatory.**

In the case of a city like Richmond, VA, that is not part of a county, record the city name in the county field. You may also contact your CLLI/Clone coordinator for getting the county information.

5. Record the number of trunks for a tandem switch.

5. How to Fill Out the Outage Information Spreadsheets

On the top of the spreadsheet, record the name of the service provider as well as the name, telephone, and Fax number for the data provider.

1. Record the outage identifier, if available. This field is optional.

2. Record the outage date in the format: mm/dd/yy.

3. Record the outage time in the 24-hour format (e.g., 15:00).

4. Record the outage duration in minutes.

5-7. Record the City, County, and State. The city column is optional, if it is not available.

The County field is mandatory. For a facility cut, the county will be determined by where the actual break occurred

8. Record the switch CLLI.

9. Record one of the cause codes given below:

- 01 - Scheduled Outages (not required for this study)
- 02 - Procedural error -IC (related to installation or maintenance)
- 03 - Procedural error -IC (not related to installation or maintenance)
- 04 - Procedural error - system vendors (includes errors in documentation/instructions)
- 05 - Procedural error - other vendors (e.g., independent installation vendor)
- 06 - Software design - faulty or ineffective software design
- 07 - Hardware design - deficiency or error in hardware design
- 08 - Hardware failure - failure related to system unreliability

- 09 - Acts of God - natural disaster
- 10 - Traffic Overload - traffic exceeds engineering capacity
- 11 - Environmental - contamination, leaks, temperature, etc.
- 12 - Power Failure
- 13 - Facility cut - cable or other cut
- 14 - Remote - loss of facilities between host and remote
- 15 - Unknown
- 16 - Atmospheric Conditions (not required for this study)
- 17 - Sun Spots (not required for this study).

10. Record the number of calls blocked by the major outage

6. What is the Data Request Period

Please send the information for outages that occurred during the period **01/01/93 - 12/31/94**

7. When to Return the Completed Data Spreadsheets/Forms

Please return the completed data spreadsheets/forms within 30 days (i.e., by April **30** 1995).

8. Where to Send the Response

John Healy
Bellcore, Room 2X-227
331 Newman Springs Road
Red Bank, NJ 07701
Tel: 908-758-3065
Fax: 908-7584370

If you have any questions, please call either John Healy at 908-758-3065 or Ari Jain at 908-758-3128.

Appendix 4.3

Data Request Questionnaire - Cellular Service Providers

NYNEX Science & Technology, Inc.
400 Westchester Avenue. White Plains, NY 10604
Tel 914 644.5002
Fax 914 993.9902

Casimir S. Skrzypczak
President

**NRC Network Reliability Performance:
Performance Metrics Team Data Request Cellular**

Single Points of Contact for NRC Data Collection

The Federal Communications Commission (FCC) has chartered the Network Reliability Council (NRC) to address a number of significant issues concerning maintaining and improving network reliability. These issues include, among other things, determining whether there are any regional and demographic differences in reliability and determining the extent of outage reporting in the industry.

To carry out its charter, the NRC has formed five focus groups. Each group will address an FCC identified issue:

Focus Group 1	Network Reliability Performance
Focus Group 2	Increased Interconnection
Focus Group 3	Reliability Concerns Arising Out of Changing Technologies
Focus Group 4	Essential Communications During Emergencies
Focus Group 5	Telecommuting as Back-Up in Disasters

Recently, you were notified that data requests for each of the focus groups would be sent to you for you to coordinate in your company. Attached are the data requests for the Performance Metrics Team which is a subgroup of Focus Group 1. The Performance Metrics Team is conducting a field reliability study with input from the Local Exchange Carriers (LECs), Inter-exchange Carriers(ICs), CATV Service Providers, Cellular Service Providers, and Satellite Service Providers to analyze current network reliability

This request is directed at Cellular Service Providers.

A diskette containing two Excel spreadsheets and an instruction set is attached for collecting the data on (i) equipment location and (ii) outage information from the service providers' perspective.

Data Request #1: The equipment location spreadsheet is for recording information on the equipment in your network as of December 31, 1994. This spreadsheet needs to be completed only once by each service provider.

Data Request #2: This outage information spreadsheet is for **recording all unplanned total outages of duration 5 minutes or longer (i.e., mobile switching centers) that occurred between January 1, 1993 and December 31, 1994**. If you are unable to record data on the spreadsheets in the diskette, you may record data on the attached forms (you may reproduce these forms for your use).

All data collected from your company will be protected by the nondisclosure agreement. The information you provide on the equipment location and outages will be aggregated for use by the Performance Metrics Team on an industry basis and not by company.

Your personal support of this data collection effort is essential for an effective accomplishment of the mission of the NRC. Please return the completed data spreadsheets within 14 days (i.e., by April 30, 1995) to:

John Healy
Bellcore, Room 2X-227
331 Newman Springs Road
Red Bank, NJ 07701
Tel: 908-758-3065
Fax: 908-758-4370

If you have any questions, please call either John Healy at 908-758-3065 or Ari Jain at 908-758-3128.

Thank you very much in advance for your cooperation.

(original signed by)

Casimir S. Skrzypczak
President

Attachments (4)
Instructions for Data Collection
Equipment Location Form
Total Outage Form
Diskettes

Copy (without Attachments) to
Ray Albers
Eva Low
NRC Performance Metrics Team Members

**NRC Focus Group 1 Network Reliability Performance
Performance Metrics Team
Data request for Equipment Location & Outages
Instructions for Cellular Service Providers**

1. What is the Purpose of this Data Collection

The purpose of this data collection is to collect equipment location information and major/total outage information on mobile switching centers from the service providers' perspective.

2. What Outages Need to be Reported

All unplanned total outages of duration 5 minutes or longer (in mobile switching centers) that occurred between January 1, 1993 and December 31, 1994 need to be reported.

3. How Many Forms to Fill Out

There are two Excel spreadsheets for this data request that need to be filled out by each service provider. These spreadsheets are provided in a diskette. If you are unable to record data on the spreadsheets in the diskette, you may record data on the attached forms (you may reproduce these forms for your use).

Data Request #1

The Equipment Location Spreadsheet is for collecting population information on mobile switching centers as of December 31, 1994.

Data Request #2

The Total Outage Information Spreadsheet is for reporting some basic information about total outages in mobile switching centers that occurred between January 1, 1993 and December 31, 1994.

4. How to Fill Out the Equipment Location Spreadsheet

On the top of the spreadsheet, record the name of the service provider. Also provide the name, telephone, and Fax number for the data provider.

1. Record the Cellular System ID
2. Record the Mobile Switching Center ID (this ID may be CLLI).
- 3-5. Record the City, County, and State.

In the case of a city like Richmond, VA, that is not part of a county, record the city name in the county field.

6. Record the number of radio voice paths for the mobile switching center

5. How to Fill Out the Outage Information Spreadsheets

On the top of the spreadsheet, record the name of the service provider as well as the name, telephone, and Fax number for the data provider.

1. Record the outage identifier, if available. This field is optional.
2. Record the outage date in the format: mm/dd/yy.
3. Record the outage time in the 24-hour format (e.g., 15:00). This field is optional, if information is not available.
4. Record the outage duration in minutes.
- 5-7. Record the City, County, and State. The city column is optional, if it is not available.
8. Record the cellular system ID
9. Record the mobile switching center ID (this ID may be CLLI)
10. Record one of the cause codes given below:

- 01 - Scheduled Outages (not required for this study)
- 02 - Procedural error -Cellular Service Provider(related to installation or maintenance)
- 03 - Procedural error -Cellular Service Provider(not related to installation or maintenance)
- 04 - Procedural error - system vendors (includes errors in documentation/instructions)
- 05 - Procedural error - other vendors (e.g., independent installation vendor)
- 06 - Software design - faulty or ineffective software design
- 07 - Hardware design - deficiency or error in hardware design
- 08 - Hardware failure - failure related to system unreliability
- 09 - Acts of God - natural disaster
- 10 - Traffic Overload - traffic exceeds engineering capacity
- 11 - Environmental - contamination, leaks, temperature, etc.
- 12 - Power Failure
- 13 - Facility cut - cable or other cut
- 14 - Remote - loss of facilities between host and remote
- 15 - Unknown

- 16 - Atmospheric Conditions (not required for this study)
- 17 - Sun Spots (not required for this study).

11. Record the number of radio paths affected by this outage

6. What is the Data Request Period

Please send the information for outages that occurred during the period: **01/01/93 - 12/31/94**

7. When to Return the Completed Data Spreadsheets/Forms

Please return the completed data spreadsheets/forms within 30 days (i.e., by April 30, 1995).

8. Where to Send the Response

John Healy
Bellcore, Room 2X-227
331 Newman Springs Road
Red Bank, NJ 07701
Tel: 908-758-3065
Fax: 908-758-4370

If you have any questions, please call either John Healy at 908-758-3065 or Ari Jain at 908-758-3128.

Appendix 4.4

Data Request Questionnaire - Cable TV Service Providers

NYNEX Science & Technology, Inc.
400 Westchester Avenue. White Plains, NY 10604
Tel 914 644.5002
Fax 914 993.9902

Casimir S. Skrzypczak
President

**NRC Network Reliability Performance:
Performance Metrics Team Data RequestCATV**

Single Points of Contact forNRC Data Collection

The Federal Communications Commission (FCC) has chartered the Network Reliability Council (NRC) to address a number of significant issues concerning maintaining and improving network reliability. These issues include, among other things, determining whether there are any regional and demographic differences in reliability and determining the extent of outage reporting in the industry.

To carry out its charter, the NRC has formed five focus groups. Each group will address an FCC identified issue:

Focus Group 1	Network Reliability Performance
Focus Group 2	Increased Interconnection
Focus Group 3	Reliability Concerns Arising Out of Changing Technologies
Focus Group 4	Essential Communications During Emergencies
Focus Group 5	Telecommuting as Back-Up in Disasters

Recently, you were notified that data requests for each of the focus groups would be sent to you for you to coordinate in your company. Attached are the data requests for the Performance Metrics Team which is a subgroup of Focus Group 1. The Performance Metrics Team is conducting a field reliability study with input from the Local Exchange Carriers (LECs), Inter-exchange Carriers(ICs), CATV Service Providers, Cellular Service Providers, and Satellite Service Providers to analyze current network reliability

This request is directed atCATV Service Providers

A diskette containingtwo Excel spreadsheets and an instruction set are attached for collecting the data on (i) equipment location and (ii) outage information from the service providers' perspective.

Data Request #1: The equipment location spreadsheet is for recording information on the equipmentin your network as of December 31,1994. This spreadsheet needs to be completed only once by each service provider.

Data Request #2: This outage information spreadsheet is **recording all unplanned total head end outages of duration 5 minutes or longer that occurred between January 1, 1993 and December 31, 1994.** If you are unable to record data on the spreadsheets in the diskette, you may record data on the attached forms (you may reproduce these forms for your use).

All data collected from your company will be protected by the nondisclosure agreement. The information you provide on the equipment location and outages will be aggregated for use by the Performance Metrics Team on an industry basis and not by company.

Your personal support of this data collection effort is essential for an effective accomplishment of the mission of the NRC. Please return the completed data spreadsheets within 30 days (i.e., by May 15, 1995) to:

John Healy
Bellcore, Room 2X-227
331 Newman Springs Road
Red Bank, NJ 07701
Tel: 908-758-3065
Fax: 908-758-4370

If you have any questions, please call either John Healy at 908-758-3065 or Ari Jain at 908-758-3128.

Thank you very much in advance for your cooperation.

(original signed by)

Casimir S. Skrzypczak
President

Attachments (3)
Instructions for Data Collection
Equipment Location Form
Total Outage Form

Copy (without Attachments) to
Ray Albers
Eva Low
NRC Performance Metrics Team Members

**NRC Focus Group 1 Network Reliability Performance
Performance Metrics Team
Data request for Equipment Location & Outages
Instructions for CATV Service Providers**

1. What is the Purpose of this Data Collection

The purpose of this data collection is to collect location information and total outage information on head ends from the service providers' perspective.

2. What Outages Need to be Reported

All unplanned total outages of duration 5 minutes or longer (i.e. head ends) that occurred between January 1, 1993 and December 31, 1994 need to be reported.

3. How Many Forms to Fill Out

There are two Excel spreadsheets for this data request that need to be filled out by each service provider. These spreadsheets are provided in a diskette. If you are unable to record data on the spreadsheets in the diskette, you may record data on the attached forms (you may reproduce these forms for your use).

Data Request #1

The Equipment Location Spreadsheet is for collecting population information on head ends as of December 31, 1994.

Data Request #2

The Total Outage Information Spreadsheet is for reporting some basic information about total outages that occurred between January 1, 1993 and December 31, 1994.

4. How to Fill Out the Equipment Location Spreadsheet

On the top of the spreadsheet, record the name of the service provider. Also provide the name, telephone, and Fax number for the data provider.

1. Record the head end identification

2-4. Record the City, County, and State. **The County field is mandatory.**

In the case of a city like Richmond, VA, that is not part of a county, record the city name in the county field.

5. Record the number of customers served

5. How to Fill Out the Outage Information Spreadsheets

On the top of the spreadsheet, record the name of the service provider as well as the name, telephone, and Fax number for the data provider.

1. Record the outage identifier, if available. This field is optional.
2. Record the outage date in the format: mm/dd/yy.
3. Record the outage time in the 24-hour format (e.g., 15:00). This field is optional, if information is not available.
4. Record the outage duration in minutes.
- 5-7. Record the City, County, and State. The city column is optional, if it is not available.
The County field is mandatory.
8. Record the head end identification
9. Record one of the cause codes given below:
 - 01 - Scheduled Outages (not required for this study)
 - 02 - Procedural error -CATV Service Provider(related to installation or maintenance)
 - 03 - Procedural error -CATV Service Provider(not related to installation or maintenance)
 - 04 - Procedural error - system vendors (includes errors in documentation/instructions)
 - 05 - Procedural error - other vendors (e.g., independent installation vendor)
 - 06 - Software design - faulty or ineffective software design
 - 07 - Hardware design - deficiency or error in hardware design
 - 08 - Hardware failure - failure related to system unreliability
 - 09 - Acts of God - natural disaster
 - 10 - Traffic Overload - traffic exceeds engineering capacity
 - 11 - Environmental - contamination, leaks, temperature, etc.
 - 12 - Power Failure
 - 13 - Facility cut - cable or other cut
 - 14 - Remote - loss of facilities between host and remote
 - 15 - Unknown
 - 16 - Atmospheric Conditions (not required for this study)
 - 17 - Sun Spots (not required for this study).
10. Record the number of customers affected by this outage

6. What is the Data Request Period

Please send the information for outages that occurred during the period **01/01/93 - 12/31/94**

7. When to Return the Completed Data Spreadsheets/Forms

Please return the completed data spreadsheets/forms within 30 days (i.e., **May 15, 1995**).

8. Where to Send the Response

John Healy
Bellcore, Room 2X-227
331 Newman Springs Road
Red Bank, NJ 07701
Tel: 908-758-3065
Fax: 908-758-4370

If you have any questions, please call either John Healy at 908-758-3065 or Ari Jain at 908-758-3128.

Appendix 4.5

Data Request Questionnaire - Satellite Service Providers

NYNEX Science & Technology, Inc.
400 Westchester Avenue. White Plains, NY 10604
Tel 914 644.5002
Fax 914 993.9902

Casimir S. Skrzypczak
President

**NRC Network Reliability Performance:
Performance Metrics Team Data Request Satellite Service Providers**

Single Points of Contact for NRC Data Collection

The Federal Communications Commission (FCC) has chartered the Network Reliability Council (NRC) to address a number of significant issues concerning maintaining and improving network reliability. These issues include, among other things, determining whether there are any regional and demographic differences in reliability and determining the extent of outage reporting in the industry.

To carry out its charter, the NRC has formed five focus groups. Each group will address an FCC identified issue:

Focus Group 1	Network Reliability Performance
Focus Group 2	Increased Interconnection
Focus Group 3	Reliability Concerns Arising Out of Changing Technologies
Focus Group 4	Essential Communications During Emergencies
Focus Group 5	Telecommuting as Back-Up in Disasters

Recently, you were notified that data requests for each of the focus groups would be sent to you for you to coordinate in your company. Attached are the data requests for the Performance Metrics Team which is a subgroup of Focus Group 1. The Performance Metrics Team is conducting a field reliability study with input from the Local Exchange Carriers (LECs), Inter-exchange Carriers (ICs), CATV Service Providers, Cellular Service Providers, and Satellite Service Providers to analyze current network reliability

This request is directed at Satellite Service Providers

A diskette containing four Excel spreadsheets and an instruction set are attached for collecting the data on (i) equipment location and (ii) outage information from the service providers' perspective.

Data Request #1: The equipment location spreadsheet for the earth stations and the satellite transponders are for recording information on the equipment in your network as of December

31,1994. Data Request #1A is for earth stations and Data Request #1B is for satellite transponders. These spreadsheets need to be completed only once by each service provider.

Data Request #2: The Total Outage Information Spreadsheet is for reporting some basic information about **all unplanned total outages of duration 5 minutes or longer** earth station stations and satellite transponders that occurred between January 1, 1993 and December 31, 1994. Data Request #2A is for earth stations and Data Request #2B is for satellite transponders. If you are unable to record data on the spreadsheets in the diskette, you may record data on the attached forms (you may reproduce these forms for your use).

All data collected from your company will be protected by the nondisclosure agreement. The information you provide on the equipment location and outages will be aggregated for use by the Performance Metrics Team on an industry basis and not by company.

Your personal support of this data collection effort is essential for an effective accomplishment of the mission of the NRC. Please return the completed data spreadsheets within 30 days (i.e., by April 30, 1995) to:

John Healy
Bellcore, Room 2X-227
331 Newman Springs Road
Red Bank, NJ 07701
Tel: 908-758-3065
Fax: 908-758-4370

If you have any questions, please call either John Healy at 908-758-3065 or Ari Jain at 908-758-3128.

Thank you very much in advance for your cooperation.

(original signed by)

Casimir S. Skrzypczak
President

Attachments (3)
Instructions for Data Collection
Equipment Location Form (1A and 1B)
Total Outage Form (2A and 2B)

Copy (without Attachments) to
Ray Albers
Eva Low
NRC Performance Metrics Team Members

**NRC Focus Group 1 Network Reliability Performance
Performance Metrics Team
Data request for Equipment Location & Outages
Instructions for Satellite Service Providers**

1. What is the Purpose of this Data Collection

The purpose of this data collection is to collect total outage information on earth stations and satellite transponders from the service providers' perspective.

2. What Outages Need to be Reported

All unplanned total outages of duration 5 minutes or longer (i.e. earth stations and satellite transponders) that occurred between January 1, 1993 and December 31, 1994 need to be reported.

3. How Many Forms to Fill Out

There are four Excel spreadsheets for this data request that need to be filled out by each service provider. These spreadsheets are provided in a diskette. If you are unable to record data on the spreadsheets in the diskette, you may record data on the attached forms (you may reproduce these forms for your use).

Data Request #1

The equipment location spreadsheet for the earth stations and the satellite transponders for recording information on the equipment in your network as of December 31, 1994. Data Request #1A is for earth stations and Data Request #1B is for satellite transponders. These spreadsheets need to be completed only once by each service provider.

Data Request #2

The Total Outage Information Spreadsheet is for reporting some basic information about **all unplanned total outages of duration 5 minutes or longer** earth station stations and satellite transponders that occurred between January 1, 1993 and December 31, 1994. Data Request #2A is for earth stations and Data Request #2B is for satellite transponders. If you are unable to record data on the spreadsheets in the diskette, you may record data on the attached forms (you may reproduce these forms for your use).

4. How to Fill Out the Equipment Location Spreadsheet

On the top of the spreadsheet, record the name of the service provider. Also provide the name, telephone, and Fax number for the data provider.

4.1 Earth Station

1. Record the earth station CLII

- 2-4. Record the City, County, and State **The County field is mandatory.**

In the case of a city like Richmond, VA, that is not part of a county, record the city name in the county field.

5. Record the number DS3s served

4.2 Satellite Transponder

1. Record the satellite identification.

2. Record the position of the satellite in degrees.

3. Record the transponder identification.

4. Record the number of DS3s served by the transponder.

5. How to Fill Out the Outage Information Spreadsheets

On the top of the spreadsheet, record the name of the service provider as well as the name, telephone, and Fax number for the data provider.

5.1 Earth Station

1. Record the outage identifier if your company uses this identifier for internal tracking This field is optional.

2. Record the outage date in the format: mm/dd/yy.

3. Record the outage time in the 24-hour format (e.g., 15:00). This field is optional, if information is not available.

4. Record the outage duration in minutes.

- 5-7. Record the City, County, and State. The city column is optional, if it is not available. **The County field is mandatory.**

8. Record the earth station CLLI.

9. Record one of the cause codes given below:

01 - Scheduled Outages (not required for this study)

- 02 - Procedural error -satellite service provider(related to installation or maintenance)
- 03 - Procedural error -satellite service provider(not related to installation or maintenance)
- 04 - Procedural error - system vendors (includes errors in documentation/instructions)
- 05 - Procedural error - other vendors (e.g., independent installation vendor)
- 06 - Software design - faulty or ineffective software design
- 07 - Hardware design - deficiency or error in hardware design
- 08 - Hardware failure - failure related to system unreliability
- 09 - Acts of God - natural disaster
- 10 - Traffic Overload - traffic exceeds engineering capacity
- 11 - Environmental - contamination, leaks, temperature, etc.
- 12 - Power Failure
- 13 - Facility cut - cable or other cut
- 14 - Remote - loss of facilities between host and remote
- 15 - Unknown
- 16 - Atmospheric Conditions (not required for this study)
- 17 - Sun Spots (not required for this study).

10. Record the number of DS3s affected by this outage

11. Record the number of calls blocked by this outage.

5.2 Satellite Transponder

1. Record the outage identifier if your company uses this identifier for internal tracking. This field is optional.

2. Record the outage date in the format: mm/dd/yy.

3. Record the outage time in the 24-hour format (e.g., 15:00). This field is optional, if information is not available.

4. Record the outage duration in minutes.

5. Record the satellite identifier

6. Record the position of the satellite in degrees.

7. Affected earth station CLLI.

8. Record one of the cause codes given below:

- 01 - Scheduled Outages (not required for this study)
- 02 - Procedural error -satellite service provider(related to installation or maintenance)

- 03 - Procedural error -satellite service provider(not related to installation or maintenance)
- 04 - Procedural error - system vendors (includes errors in documentation/instructions)
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- 15 - Unknown
- 16 - Atmospheric Conditions (not required for this study)
- 17 - Sun Spots (not required for this study).

9. Record the number of DS3s affected by this outage

10. Record the number of calls blocked by this outage.

6. What is the Data Request Period

Please send the information for outages that occurred during the period **01/01/93 - 12/31/94**

7. When to Return the Completed Data Spreadsheets/Forms

Please return the completed data spreadsheets/forms within 30 days (i.e., ~~May~~ **May 15, 1995**).

8. Where to Send the Response

John Healy
 Bellcore, Room 2X-227
 331 Newman Springs Road
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If you have any questions, please call either John Healy at 908-758-3065 or Ari Jain at 908-758-3128.

Appendix 5.1

Computation Methodology -

Appendix 5.1

Computation Methodology - Equivalent Access Lines

Computation of Equivalent Access Lines

1. LEC

Access lines for end offices are used as a common basis for aggregating equipment across industry segments within a county.

2. IC

1 Tandem Trunk = 10 Access Lines

The basis of this computation has been documented in a memorandum dated 7/23/95 by Ari Jain of Bellcore. (See Attachment 1)

3. Cellular

1 Radio Voice Path = 29 Access Lines

This computation has been documented in a memorandum dated 6/27/95 by Michael Turner of Bellcore. (See Attachment 2)

4. Satellite

1 DS3 = 6,720 Access Lines

This computation is based on the following:

1 DS3 = 28 DS1s

1 DS1 = 24 DS0s

1 DS0 = 1 Tandem Trunk

5. CATV

1 CATV Customer = 1 Access Line

This relationship is based on data from one CATV service provider with coverage in eight counties in California. Additional attempts will be made to obtain data from other CATV service providers to validate this relationship.

Computation of Equivalent Access Lines for a Tandem Trunk

1. Trunks Needed for Residence and Business Customers

Type of Customer Access Lines	Busy Hour Load		No. of Trunks per 10 Lines with 80% Occupancy
	CCS*/ Line	Erlang/ Line	
Residence	2	0.056	0.69
Business	5	0.139	1.74

2. Breakdown of Access Lines by Business vs. Residence

One Local Exchange Carrier has provided the following breakdown of access lines:

Type of Customer Access Lines	No. of Access Lines (K)	% Total
Residence	12,322	64
Business	6,845	36
Total	19,167	100

3. Computation of Access Lines for a Tandem Trunk

By applying the weights of 64% and 36% for the residence and business customer access lines obtained in Section 2 to the trunks needed for 10 residence and 10 business customers, respectively, in Section 1, we obtain that the number of trunks needed for 10 access lines is equal to $(0.64) \times (0.69) + (0.36) \times (1.74)$, which equals 1.068. Or, 1 Tandem Trunk is equal to 9.4 access lines, which is consistent with the round number of 10 used in the telecommunications industry.

Appendix 5.2

Computation Methodology - Outage Index

Computation of Outage Index: Agreements Reached by the Performance Metrics Team

1. FCC-Reportable Major Outages for LEC and IC

The outage index calculation described in the Technical Report 42 of Committee T1 will be used for computing the outage index of major outages.

2. End Office Outages for LEC

An end office outage affects all services. Therefore, the outage index will be computed by summing over the outage index values for all the services.

3. Tandem Outages for IC

The outage index for a tandem switch outage will be computed by considering that the service affected is InterLATA and the number of customers affected is equal to the actual number of blocked calls/3.

4. Mobile Switching Center Outages for Cellular

A mobile switching center outage is very much like an end office outage. Therefore, the outage index of a mobile switching center outage will be computed by considering that all services are affected and the number of customers affected is equal to the number of radio paths affected x 29.

5. Earth Station Outages for Satellite

An earth station outage is very much like a tandem trunk outage. Therefore, the impact of an earth station outage will be computed by considering that the service affected is InterLATA and the number of customers affected is equal to the actual number of blocked calls/3.

6. Head End Outages for CATV

A head end outage is like an end office outage. Therefore, the outage index of a head end outage will be computed by considering that all services are affected and the number of equivalent LEC access lines affected is equal to the number of CATV customers affected.