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Manual Changes

Manual Identification

Model Number: **OmniBER 719**   **User Guide**
Date Printed: **September 2000**
Part Number: **37719-90055**

Manual Change Identification

37719-90087

Part Number: **37719-90087**

This supplement contains important information for correcting manual errors and for adapting the manual to instruments containing improvements made after the printing of the manual.

To use this supplement:

Make all ERRATA corrections.

Make all appropriate serial number related changes indicated in the table below.

Serial Prefix or Number	Make Manual Changes	Serial Prefix or Number	Make Manual Changes

*New Item

Note: Manual Change supplements are revised as often as necessary to keep manuals as current and accurate as possible. Agilent Technologies recommend that you periodically request the latest edition of the supplement. Free copies are available from all Agilent offices. When requesting copies, quote the manual identification information from your supplement or the model number and print date from the title page of the manual.

ERRATA

'Page 24, Table Accessory Options
Delete row: Remote Omnibook controller   600'

Insert the enclosed **3 new pages** after **Page 72** in your manual.

*Page 121: insert the enclosed supplementary pages **('Measuring Service Disruption Time with the OmniBER 719 - Additional Capabilities'** and ' **Measuring AIS-Duration')** after Page 121 in your manual.

Setting Transmit tributary timing

Description

When you choose a DS3 tributary payload in the OmniBER transmitter you can now select where the DS1/E1 tributary payload timing comes from. For DS1 tributaries, you can select the clock reference from the internal reference, an external reference applied to the OmniBER through the mux/insert port or from the timing derived from the incoming signal on the OmniBER receiver.

For E1 tributaries, select the clock reference from the internal reference or from the timing derived from the incoming signal on the OmniBER receiver.

How to:

1 On the MAIN SETTINGS page select your required signal and ensure that you have selected a DS3 tributary (as above).

```
TRANSMITTER OUTPUT          SONET
 MAIN  STRUCT'D   TEST  OVERHEAD
SETTINGS PAYLOAD FUNCTION  SETUP

TEST SIGNAL                Nx64 kb/s
PAYLOAD              DS1    D4
DS1 TIMING                  INTERNAL
                    DS2    DS1
                     1      1
      Nx64     *......................
               1                    24
                   Bandwidth   64 kb/s
PATTERN                     2^11-1 PRBS
PRBS POLARITY              NORM
B/G PATTERN               AIS
B/G PATTERN NX64 kb/s     NUMBERED




STATUS:
  DS1            2M                         MULTIPLE
                                             WINDOW
```

2   Select the Struct'd Payload tab to set up the test signal and the required timing.

3   Select your test signal from 64 kb/s, Nx64 kb/s, 56 kb/s or Nx56 kb/s to allow you to choose your DS1/2M timing.

4   Choose between DS1 and 2M for your DS3 payload.

```
TRANSMITTER OUTPUT          SONET
 MAIN  STRUCT'D   TEST  OVERHEAD
SETTINGS PAYLOAD FUNCTION  SETUP

TEST SIGNAL                Nx64 kb/s
PAYLOAD             DS1    D4
DS1 TIMING                 INTERNAL
                    DS2    DS1
                     1      1
     Nx64     *......................
              1                     24
                  Bandwidth   64 kb/s
PATTERN                    2^11-1 PRBS
PRBS POLARITY             NORM
B/G PATTERN              AIS
B/G PATTERN NX64 kb/s    NUMBERED




STATUS:
 INTERNAL     MUX        DS3              MULTIPLE
                       RECEIVE            WINDOW
```

5   Choosing DS1 gives the timing choice shown above. Select INTERNAL to time the DS1 signal from the internal clock in the OmniBER transmitter; select MUX to time the DS1 signal from the signal applied to the OmniBER via the mux/insert

port on the OmniBER PDH Transmitter module; select DS3 RECEIVE to time the signal from the clock recovered by the OmniBER from the signal applied at the PDH Receiver **RECEIVE IN** port.

```
TRANSMITTER OUTPUT            SONET
 MAIN   STRUCT'D   TEST  OVERHEAD
SETTINGS PAYLOAD FUNCTION  SETUP

TEST SIGNAL                Nx64 kb/s
PAYLOAD            2M      PCM30
2M TIMING                  INTERNAL
                   DS2     2Mb
                    1       1
Nx64    F*.............S..............
        o ┌─────────────────────────┐ 31
                    Bandwidth   64 kb/s
PATTERN                    2^11-1 PRBS
PRBS POLARITY              NORM
B/G PATTERN                AIS
B/G PATTERN Nx64 kb/s      NUMBERED
2M CAS ABCD BITS           1111
```

```
STATUS:
 INTERNAL     DS3                          MULTIPLE
            RECEIVE                          WINDOW
```

6 Selecting 2M as the payload signal allows you to choose the clock reference as above. Select INTERNAL to time the 2M signal from the internal 2M clock in the OmniBER; select DS3 RECEIVE to time the 2M signal from the 2M clock recovered by the OmniBER from the DS3 signal applied at the PDH Receiver **RECEIVE IN** port.

Measuring Service Disruption Time with the OmniBER 719 - Additional Capabilities

Description: Automatic Protection Switching ensures that data integrity is maintained and revenue protected, when equipment failure occurs. APS uses control signals carried by the K-bytes in the Line Overhead. Service Disruption is the time between periods of error-free operation, where an event is detected, an AIS inserted, the APS activated and the AIS removed.
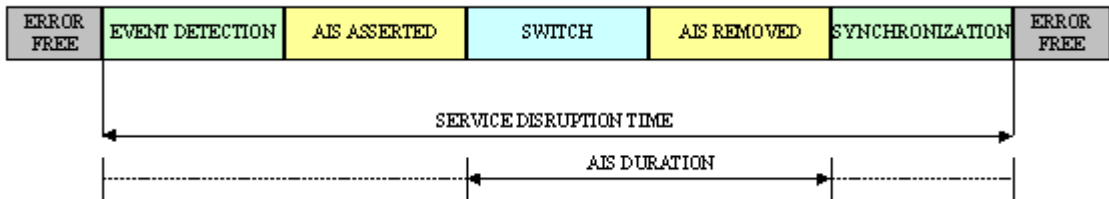
Requires Option 355   The Service Disruption measurement calculates the time interval between receipt of the first bit error and the last bit error occurring before the error-free signal resumes. The error burst is assumed complete when more than 200ms have elapsed without any errors being received.

When the instrument has a PDH/DSn module fitted, standard Service Disruption measurements are available ("Measuring Service Disruption Time" page 119). For additional Service Disruption capabilities, Option 355 is required.

Option 355 offers additional Service Disruption measurements and AIS-Duration measurements, together with an improved results display. Also, the Service Disruption measurements have been extended to cover OC-48c, OC-12c, OC-3c and OC-1. For details of measurement parameters, see the Technical Specifications.

Measuring Service Disruption Time with the OmniBER 719 - Additional Capabilities

Measurement Parameters

Measurement begins with a single bit error, which exists for >56 microseconds. Measurement ends when >200ms elapses without any errors being received. The maximum Service Disruption duration is 2 seconds.

Accuracy: 50μs or better, for unframed signals.

NOTE   For enhanced Service Disruption, Option 355 is required. This option extends capability to OC-12c and OC-48c, and allows AIS-duration measurements.

HOW TO: **1** If interfacing at SONET set up the SONET transmit and receive interfaces and payloads required. See "Setting SONET Transmit Interface" page 29 and "Setting SONET Receive Interface" page 46.

2 Press RUN/STOP to start the measurement.

3 Invoke the protection switch.

4 View the results on the RESULTS **SERVICE DISRUPT** display.

```
 RESULTS   SRUC DISRUPT      TABLE

 # DURATION(s)      ELAPSED TIME       AIS

 1  0.000375    00d 00h 00m 02.768136s   N
 2  0.000750    00d 00h 00m 03.268636s   N
 3  0.000375    00d 00h 00m 05.269511s   N
 4  .........
 5  .........
 6  .........
 7  .........
 8  .........
 9  .........
10  .........




 STATUS:
   CUMUL      SHORT      TABLE                    MULTIPLE
   ATIVE      TERM                                 WINDOW
```

Measuring Service Disruption Time with the OmniBER 719 - Additional Capabilities

Results Displayed

All measurements are time-stamped (relative to the start of measurement storage).

HOW TO:

1 Press the right arrow key to highlight the results format (e.g. **TABLE**) on the [RESULTS] display.

2 You can then use the front panel softkeys to choose from the following results formats:

• **CUMULATIVE** results

• **SHORT TERM** results (configurable, see "Controlling Service Disruption Measurement Storage " Supplement page 4)

• **TABLE** of results (displays first ten disruption events, along with their duration and time of detection).

```
RESULTS  SRVC DISRUPT    CUMULATIVE

  EVENT    DURATION    DATE      TIME

LONGEST    0.000750s 13-FEB-02 11:54:04
SHORTEST   0.000375s 13-FEB-02 11:54:04
LAST       0.000375s 13-FEB-02 11:54:06

BURSTS        3

ELAPSED TIME           00d 00h 00m 17s

STATUS:
TROUBLE    TIMING     SDH      PDH      MORE     MULTIPLE
  SCAN    CONTROL   RESULTS  PAYLOAD   ........  WINDOW
```

The Cumulative and Short Term Results pages show the following data:

• **LONGEST** - Duration (ms) of longest burst of errors during measurement period.

• **SHORTEST** - Duration (ms) of shortest burst of errors during measurement period.

• **LAST** - Duration (ms) of last burst of errors detected during measurement period.

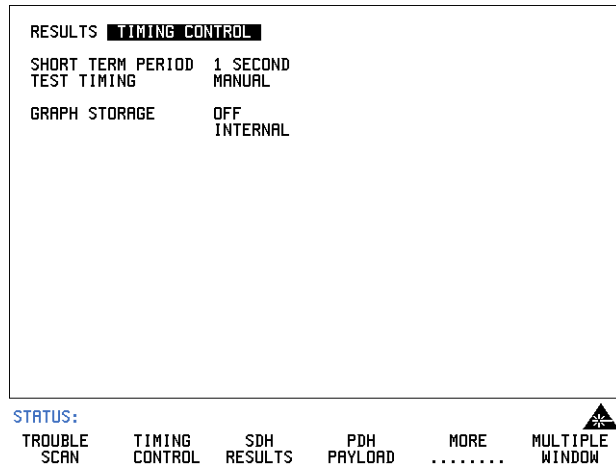• **BURSTS** - Total number of error bursts during measurement period.

Measuring Service Disruption Time with the OmniBER 719 - Additional Capabilities

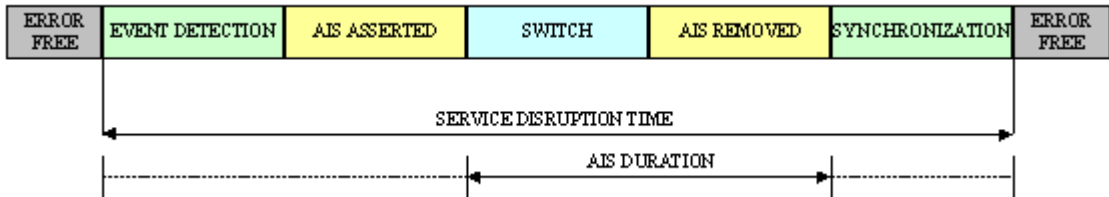**Controlling Service Disruption Measurement Storage**

The first ten Service Disruption Measurements are stored, including the time of the and length of the disruption. You can control measurement test timing using the RESULTS , TIMING CONTROL window. Available selections (using the front panel softkeys) include:

- Manual

- Single - 1 hour, 24 hours, 72 hours, 7 days, User Program (1-100 seconds, 1-100 minutes, 1-100 hours, 1-100 days)

- Timed - any valid time and date

```
 RESULTS  TIMING CONTROL 

 SHORT TERM PERIOD  1 SECOND
 TEST TIMING        MANUAL

 GRAPH STORAGE      OFF
                    INTERNAL




 STATUS:
  TROUBLE    TIMING     SDH       PDH       MORE    MULTIPLE
   SCAN     CONTROL   RESULTS   PAYLOAD   .......   WINDOW
```

Measuring AIS Duration

Description: AIS duration is defined in the figure below.

| ERROR FREE | EVENT DETECTION | AIS ASSERTED | SWITCH | AIS REMOVED | SYNCHRONIZATION | ERROR FREE |

SERVICE DISRUPTION TIME

AIS DURATION

Requires Option 355 The AIS Duration Measurement is available on all optical rates, when Option 355 is fitted. For measurement parameters, see the Technical Specifications. The AIS Duration measurement is calculated by assessing the number of frames the AIS-P is present and converting this into the amount time elapsed.

AIS Duration Measurement Definition

The measurement starts on detection of an all ones pattern in the H1 and H2 bytes, present for three consecutive super-frames. The measurement stops at the absence of an all ones pattern in the H1 and H2 bytes, for three consecutive super-frames, or by the single occurrence of an active NDF with a valid (in range) pointer value. The maximum AIS Duration is 2 seconds.

Accuracy: 125μs (1 frame)

NOTE Option 355 is required for AIS Duration Measurements. With Option 355 fitted, AIS Duration Measurements are available at optical rates for ATM TestCell payloads, POS PRBS payloads and SONET bulk-filled tributary signals.

AIS Duration Measurement is selected from the $\boxed{\textbf{RESULTS}}$ page.

HOW TO:

1 Set up the SONET transmit and receive interfaces and payloads required. See "Setting SONET Transmit Interface" page 29 and "Setting SONET Receive Interface" page 46.

2 Press $\boxed{\textbf{RUN/STOP}}$ to start the measurement.

3 Invoke the protection switch.

4 View the results on the $\boxed{\textbf{RESULTS}}$ ▮**AIS-P DISRUPT**▮ display.

Results Displayed

The AIS-P Duration Results page is available for SONET rates OC-1, OC-3c, OC-12c, OC-48c. All measurements are time-stamped (relative to the start of measurement storage; resolution 1us). This allows correlation between the AIS Duration and Service Disruption measurements.

HOW TO:

1 Press the right arrow key to highlight the results format (e.g. **TABLE**) on the $\boxed{\textbf{RESULTS}}$ display.

2 You can then use the front panel softkeys to choose from the following results formats:

• **CUMULATIVE** results

• **SHORT TERM** results (configurable, see "Controlling AIS Duration Measurement Storage " Supplement page 7)

• **TABLE** of results (displays first ten disruption events, along with their duration and time of detection).

```
RESULTS     AIS-P DISR     CUMULATIVE
_____

   EVENT    DURATION    DATE      TIME

LONGEST    0.000875s 13-FEB-02 11:44:30
SHORTEST   0.000500s 13-FEB-02 11:44:30
LAST       0.000500s 13-FEB-02 11:44:32


BURSTS        3



ELAPSED TIME          00d 00h 06m 28s




STATUS:                                    ⚠
 TROUBLE   TIMING    SDH       PDH    MORE   MULTIPLE
  SCAN    CONTROL  RESULTS  PAYLOAD ........ WINDOW
```

The Cumulative and Short Term results pages show the following data:

- **LONGEST** - Duration (ms) of longest AIS Duration measurement.

- **SHORTEST** - Duration (ms) of shortest AIS Duration measurement.

- **LAST** - Duration (ms) of last AIS Duration measurement.

- **BURSTS** - Number of error bursts during the measurement period.

Controlling AIS Duration Measurement Storage

The first ten AIS Duration Measurements are stored, including the time and length of the AIS Duration. You can control measurement test timing using the RESULTS, TIMING CONTROL window. Available selections (using the front panel softkeys) include:

- Manual

- Single - 1 hour, 24 hours, 72 hours, 7 days, User Program (1-100 seconds, 1-100 minutes, 1-100 hours, 1-100 days)

- Timed - any valid date and time