STENTOR
The Power of Telecommunications

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ADVANTAGE 800™
CALL DETAIL SERVICE

Terminal To Network Interface

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DOCUMENT HISTORY

1	December 1994	Initial Issue
2	February 1995	Various editorial corrections and clarifications. Overflow feature Flags value enhancements.
3	September 1995	Added NPA digits to Dialed Number parameter. Editorial corrections.

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Readers are specially advised that the technical requirements contained herein may change.

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1.0 Service Description

The *Advantage 800*™ Call Detail Service, where available, provides Subscribers with call related information with respect to 800/888 calls which terminate on the Subscribers *Advantage 800* Service. Call Detail information is provided electronically and is transmitted to the Subscribers CPE over a dedicated access **Data**pac™ facility.

2.0 Feature Description

Terminals utilizing the features of this interface will receive 800/888 call related information, for calls terminating on the Subscribers *Advantage 800* Service, from the network over a dedicated access **Data**pac facility. This information, transmitted in a binary format, may contain details identifying the origin and destination of the call, the dialed (800/888) number, disposition of the call (e.g. busy, answered) and duration of the call.

The call details provided can be used, for example, by an innovative terminal design to assist in the efficient processing of incoming calls based on the received information. It can also be used to produce statistical reports which may help improve the efficiency of the Subscribers overall call answering process.

As 800/888 calls are processed by the network Stentor 800 Call Progress Monitoring Processes (where implemented) identify significant events related to these calls. Notifications of event occurrences are forwarded to the *Advantage 800* Call Detail Service Subscribers CPE in the form of Call Progress Messages (CPMs). When available, additional information pertinent to the call event is included in each CPM. The defined set of CPMs (i.e. significant call events) is listed in Table 1.

Call Progress Message Types	Description
CALL INCOMPLETE	A Call Attempt to a specified Conversion Number was unsuccessfully completed (e.g. encountered a Busy Condition).
CALL NOT ANSWERED	A Call Attempt to a specified Conversion Number began ringing; however the Calling Party hung up prior to the call being answered at the Conversion Number.
CALL ANSWERED	A Call Attempt to a specified Conversion Number was successfully completed; the Call was answered at the Conversion Number.
CALL RELEASED	A call previously Answered at a Conversion Number was Released when either the Calling or Called Party hung up.

Table 1: Call Progress Messages

Normally multiple significant events are associated with each individual 800/888 call attempt. For example: Two significant events are associated with a typical answered call: i.e., CALL ANSWERED and CALL RELEASED. Other cases where multiple CPMs may be generated occur when optional 800/888 routing features are employed, as illustrated in the following examples:

Example 1: Call Prompter Scenario

An 800/888 Call is routed to a Call Prompter Voice Services Node (VSN) with which the Calling Party interacts. The Call is then routed to a Conversion Number (determined from Calling Party selections made during the VSN session) where it is answered by an Operator. In this scenario the following sequence of CPMs would be generated:

(1) CALL ANSWERED (by the Voice Services Node);
(2) CALL RELEASED (by the Voice Services Node);
(3) CALL ANSWERED (by an Operator at Conversion Number);
(4) CALL RELEASED (from the Conversion Number)

Example 2: Call Overflow Routed Scenario

Overflow routing is applied to an 800/888 Call as follows: The Primary and Alternate Conversion Numbers are both busy. The Call is then routed to a Courtesy Response VSN where it is answered. In this scenario the following sequence of CPMs would be generated:

(1) CALL INCOMPLETE (Busy at Primary Conversion Number)
(2) CALL INCOMPLETE (Busy at Alternate Conversion Number)
(3) CALL ANSWERED (by the Voice Services Node);
(4) CALL RELEASED (from the Voice Services Node)

Additional message types are provided to aid in the correct operation of the interface (i.e. HEARTBEAT MESSAGE) and notify to the subscribers of other non-call related events (e.g. pending system maintenance period).

3.0 Datagram Protocol

3.1 Characteristics

- The protocol uses 8-bit data octets. A sequence of octets is used to transmit a data message (i.e. a datagram) from Stentor Systems to the *Advantage 800* Call Detail Service Subscribers CPE. No data is transmitted from the Subscribers CPE to Stentor Systems.

- Stentor systems transmit octets in streams. The subscribers CPE must establish and maintain synchronization on the datagram pattern contained within this stream. Idle periods (i.e. periods of no data transmission) may occur between datagrams.

- All octets are transmitted using binary encoding of the data types defined within the protocol.

- Data parameters which are not recognized by the terminal should be ignored (i.e. the corresponding data should not be processed).

- Datagrams will be transmitted only when the Subscribers CPE is connected (via a **Data**pac connection) to Stentor's systems. All datagrams which correspond to 800/888 calls which occur when the Subscribers CPE is NOT connected are discarded by Stentor's systems and cannot be recovered or re-transmitted.

- Datagrams received in error at the Subscribers CPE (e.g. with an invalid checksums) will not be re-transmitted. Datagrams received in error should not be processed.

- Call Progress Messages, once created, will be routed to a (connected) Subscribers CPE in near real time. However note that propagation delay through the message routing network is indeterminate.

3.2 Datagram Layout

All messages are transferred in a datagram format. Each datagram contains a header portion and an (optional) variable length data portion. The generic layout of a datagram is illustrated in Figure 1.

Figure 1: Datagram Layout

Table 2 provides a brief description of each parameter contained within a datagram. Note that OFFSET represents the position of datagram parameter relative to the start of the datagram.

Offset (in octets)	Parameter Name	Size (in octets)	Description
0	SYNC	1	An octet containing the value: 0x16.
1	SYNC	1	An octet containing the value: 0x16.
2	MESSAGE TYPE	1	Specific type of message conveyed. 0x00 - HEARTBEAT MESSAGE. 0x01 - CPM (CALL INCOMPLETE) 0x02 - CPM (CALL NOT ANSWERED) 0x03 - CPM (CALL ANSWERED) 0x04 - CPM (CALL RELEASED) 0x05 - EVENT MESSAGE 0x06 - 0xFF RESERVED.
3	DATA LENGTH	1	Length (in octets) of the variable length DATA PARAMETER.
4	HEADER CHECKSUM	1	Sum of the contents of octets 0 thru 3 Modulo 256.
5	DATA	1 to 255	Contents Depends on MESSAGE TYPE. See Section 3.3.5 for details.
5 + (DATA LENGTH)	DATA LENGTH	1	Sum of octets 5 thru 5+(DATA LENGTH -1) Modulo 256.

Table 2: Datagram Parameters

Note that octets 0 thru 4 are referred to as the Datagram Header.

3.3 Datagram Parameter Descriptions

The following sections provide detailed descriptions of the parameters typically found in the Datagram Header portion of a datagram message.

3.3.1 SYNC

One (1) octet containing the value 0x16. Two sequential SYNC octets in the data stream may indicate the start of a datagram. Presence of an actual datagram should be confirmed with HEADER CHECKSUM, and if present, DATA CHECKSUM verification. Thus the combination of SYNC and CHECKSUM octets provide the capability to recognize the datagram pattern within the datagram streams transmitted by Stentor Systems.

3.3.2 MESSAGE TYPE

One (1) octet, the value of which defines the type of message being conveyed by the datagram. It also defines the contents of the DATA PARAMETER. Valid MESSAGE TYPE values are listed in Table 2.

HEARTBEAT MESSAGE datagrams will be periodically transmitted if and only if there are no other messages to be transmitted. HEARTBEAT MESSAGE datagrams ensure that the transmission facility does not remain idle for extended periods of time and thus give the appearance of being out of service.

When a **Data**pac connection is first established between the Subscribers CPE and Stentor systems, several HEARTBEAT MESSAGE datagrams are immediately transmitted. This allows the Subscribers CPE to recognize the datagram pattern prior to the transmission of any Call Progress Message datagrams.

CALL PROGRESS MESSAGE datagrams identify the occurrence of a significant call event. See Section 3.3.5 DATA PARAMETER for further details.

EVENT MESSAGE datagrams convey information regarding other, non-call related, events which may be of interest to the Subscriber. See Section 3.3.5 DATA PARAMETER for further details.

3.3.3 DATA LENGTH

One (1) octet, the value of which defines the number of octets contained in the variable length DATA PARAMETER. The DATA CHECKSUM is NOT included in the DATA PARAMETER (length).

A value of zero (0) indicates that neither the DATA PARAMETER nor the DATA CHECKSUM is present. (e.g. HEARTBEAT MESSAGES have no DATA PARAMETER thus have a DATA LENGTH value of 0).

3.3.4 HEADER CHECKSUM

One (1) octet, the value of which should be identical to the result of the following calculation: ((SYNC + SYNC + MESSAGE TYPE + DATA LENGTH) Modulo 256).

Should the HEADER CHECKSUM value calculated by the subscribers CPE be different from the transmitted HEADER CHECKSUM value then the datagram should be considered invalid and should not be processed.

3.3.5 DATA PARAMETER

N, where 1<=N<=255 , octets of data associated with the message being conveyed. The value of N is identical to the value of the DATA LENGTH parameter.

The specific layout of a DATA PARAMETER is dependent upon the value of the MESSAGE TYPE parameter as illustrated in Table 3.

MESSAGE TYPE Value		Layout
0x00	(HEARTBEAT)	None
0x01 0x02 0x03 0x04	(CPM)	Call Progress Message See Section 4.1
0x05	(EVENT MESSAGE)	Event Message See Section 4.3

Table 3: MESSAGE TYPE to DATA PARAMETER Layout

3.3.6 DATA CHECKSUM

One (1) octet, the value of which should be identical to the result of the following calculation: ((Sum of all octets in the DATA PARAMETER) Modulo 256), where the number of octets in the DATA PARAMETER is defined by the value of the DATA LENGTH octet.

Should the data checksum value calculated by the subscribers CPE be different from the transmitted DATA CHECKSUM value then the datagram should be considered invalid and should not be processed.

4.0 Detailed Message Descriptions

The following sections provide additional details as to the syntax and semantics of each data message (datagram) defined in the protocol.

Note that, unless specifically listed, no particular value can be attributed to, or assumed for, any data (sub) parameter which is described as UNDEFINED. Parameters with UNDEFINED values must not be processed and should be discarded.

4.1 Call Progress Message Layout

Figure 2 illustrates the layout of the DATA PARAMETER field in a datagram when the MESSAGE TYPE parameter contains a CALL PROGRESS MESSAGE value (0x01 to 0x04):

CALL IDENTIFIER NUMBER	DATE	TIME	DIALED NUMBER	ORIGINATING NUMBER	CONVERSION NUMBER	FLAGS	DURATION	CAUSE

Figure 2: CPM DATA PARAMETER Layout

Table 4 provides a brief description of each (sub)parameter contained within a CPM datagram DATA PARAMETER. Note that OFFSET represents the position of a (sub)parameter relative to the start of the DATA PARAMETER.

Offset (in octets)	Parameter Name	Size (in octets)	Description
0	CALL IDENTIFIER NUMBER	3	An arbitrary CIN is assigned to each CPM related to a individual Call Attempt. An unsigned integer in the range 0x0 to 0xFFFFFF.
3	DATE	3	The Date (referenced to UCT) on which the CPM was created. 6 BCD digits in the form: YYMMDD.
6	TIME	3	The Time of Day (UCT) at which the CPM was created. 6 BCD Digits in the form: HHMMSS.
9	DIALED NUMBER	5	The 800/888 Telephone Number dialed by the Calling Party. 10 BCD digits in the form: NPANXXDDDD.
14	ORIGINATING NUMBER	5	The Originating Telephone Number of the Calling Party (if available and not suppressed by the network). 6 or 10 BCD digits in the form: NPANXXDDDD.
19	CONVERSION NUMBER	5	A Conversion Telephone Number resulting from the translation of the DIALED (800/888) NUMBER (if available and not suppressed by the network). 10 BCD digits in the form: NPANXXDDDD
24	FLAGS	1	Eight Boolean Flags. Each bit in the octet represents one flag. Individual Flags by bit position are: Bit 7 - **O**utward **O**verflow Routed Bit 6 - **C**all **P**rompter Conversion Number Bit 5 - **C**ourtesy **R**esponse Conversion Number Bit 4 - Call **D**isplay **B**locked Bit 3 - **D**uration **V**alid Bit 2 - **C**ause **V**alid Bit 1 - **I**nward **O**verflow Routed Bit 0 - Undefined
25	DURATION	2	Approximate Ringing or Connect Duration in Seconds An unsigned integer in the range 0 to 65535. Value defined if and only if **D**URATION **V**ALID flag is SET (1).
27	CAUSE	1	Release/Incomplete Cause Unsigned integer in range 0-255. Value defined if and only if **C**AUSE **V**ALID flag is SET (1).

Table 4: CPM Datagram DATA (sub) PARAMETERS

4.2. Call Progress Message Parameters

The following sections provide detailed descriptions of the parameters typically found in the DATA PARAMETER of a datagram message conveying a CALL PROGRESS MESSAGE.

4.2.1 CALL IDENTIFIER NUMBER

Three (3) octets containing an arbitrary unsigned integer value in the range 1 to 16777215 (decimal). Figure 3 illustrates a sample encoding of the CALL IDENTIFIER NUMBER (CIN) parameter.

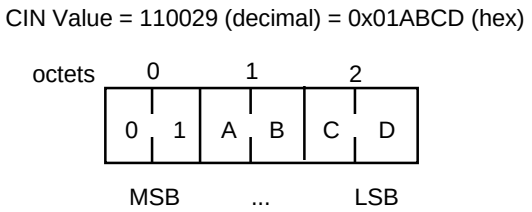

Figure 3: Sample CALL IDENTIFIER NUMBER Encoding

Whenever a single Call Attempt, by a calling party, results in the generation of multiple (two or more) CALL PROGRESS MESSAGES then the same CIN value will be reported for each CPM. For example: Two CPMs will be generated when a Call is completed normally (CALL ANSWERED and CALL RELEASED). The CIN contained in both CPMs will be assigned the same value.

4.2.2 DATE

Three (3) octets containing six binary coded decimal (BCD) digits. Each 8 bit octet contains two digit positions (i.e. the low order 4-bits (bits 3..0) contain a single BCD digit; the high order 4-bits (bits 7..4) contain another digit).

The DATE parameter value will contain the date the message was created in the form Year:Month:Day. Figure 4 illustrates a sample encoding for a DATE parameter.

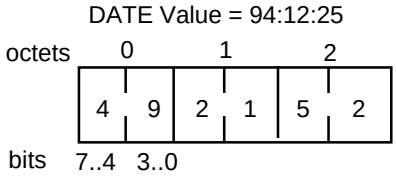

Figure 4: Sample DATE Value Encoding

DATE values are relative to the 24 hour time format described in Section 4.2.3 (i.e. the day of month will change at 00:00 hours (UCT)).

4.2.3 TIME

Three (3) octets containing six binary coded decimal (BCD) digits. Each 8 bit octet contains two digit positions (i.e. the low order 4-bits (bits 3..0) contain a single BCD digit; the high order 4-bits (bits 7..4) contain another digit).

The TIME parameter value will contain the time of day the message was created in the form Hour:Minute:Second. Figure 5 illustrates the encoding for a TIME parameter.

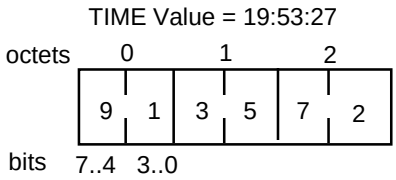

Figure 5: Sample TIME Value Encoding

TIME values are reported in 24 hour clock format. All time values are expressed in Universal Coordinated Time (UCT). This is also known as Greenwich Mean Time (GMT).

4.2.4 ORIGINATING NUMBER

Five (5) octets containing binary coded decimal (BCD) digits. Each 8 bit octet contains two digit positions (i.e. the low order 4-bits (bits 3..0) contain a single BCD digit; the high order 4-bits (bits 7..4) contain another digit). Digit positions which do not contain valid BCD digits are filled with the value 0xF.

The ORIGINATING NUMBER parameter will contain either:

- a ten (10) digit telephone number in the form NPANXXDDDD

or

- a six (6) digit telephone number in the form NPANXX

or

- a three (3) digit telephone number in the form NPA

which corresponds to the telephone number of the calling party.

A three (3) six (6) digit telephone number may be reported if the actual originating telephone number is not available or has been suppressed.

Figure 6 illustrates the BCD encoding for the ten (10) digit and six (6) digit ORIGINATING NUMBER forms. Digit values are expressed in hexadecimal.

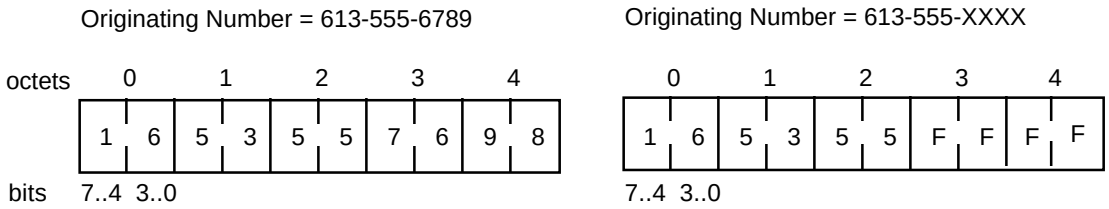

Figure 6: Sample ORIGINATING NUMBER Encoding

4.2.5 DIALED NUMBER

Four (5) octets containing binary coded decimal (BCD) digits. Each 8 bit octet contains two digit positions (i.e. the low order 4-bits (bits 3..0) contain a single BCD digit; the high order 4-bits (bits 7..4) contain another digit).
Digit position 8 (i.e. the high order 4-bits of octet 4) is filled with the value 0xF.

The DIALED NUMBER parameter will contain a ten (10) digit telephone number in the form NPANXXDDDD which corresponds to the original dialed number (e.g. 1-NPA-NXX-DDDD).

Figure 7 illustrates the BCD encoding for a ten (10) digit DIALED NUMBER. Digit values are expressed in hexadecimal.

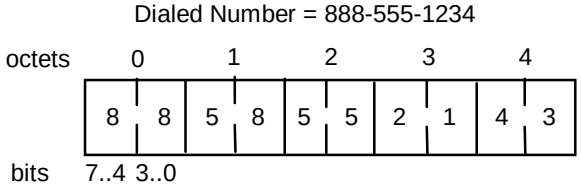

Figure 7: Sample DIALED NUMBER Encoding

4.2.6 CONVERSION NUMBER

Five (5) octets containing binary coded decimal (BCD) digits. Each 8 bit octet contains two digit positions (i.e. the low order 4-bits (bits 3..0) contain a single BCD digit; the high order 4-bits (bits 7..4) contain another digit). Digit positions which do not contain valid BCD digits are filled with the value 0xF.

The CONVERSION NUMBER parameter will contain either:

- a ten (10) digit telephone number in the form NPANXXDDDD corresponding to a conversion number translated from the original DIALED NUMBER

or

- 0xF in all digit positions.

All digits will be filled if the actual conversion telephone number is not available (e.g. the conversion number terminates at a Courtesy Response VSN).

Figure 8 illustrates sample BCD encoding for a ten (10) digit CONVERSION NUMBER. Digit values are expressed in hexadecimal.

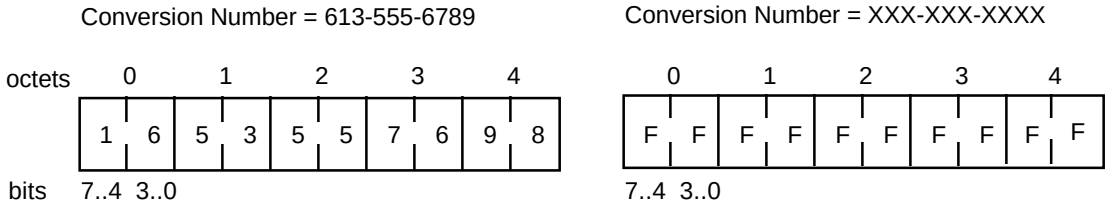

Figure 8: Sample CONVERSION NUMBER Encoding

4.2.7 FLAGS

One (1) octet containing eight (8) independent Boolean (1|0) values. In this octet Bit Position 0 is the Least Significant Bit and Bit Position 7 is the Most Significant Bit. Bits with a one (1) value are said to be SET and bits with a zero (0) value are said to be RESET. Figure 9 illustrates the layout of the FLAGS octet.

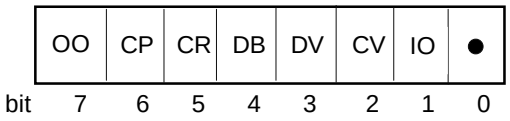

Figure 9: FLAGS Octet Layout

The interpretation of each Flag is provided in Table 5.

Bit Position	Flag Name	Interpretation
0	None	Value is UNDEFINED.
1	**I**nward **O**verflow	The CPM corresponds to a call which has been (overflow) routed to the (alternate) Conversion Number contained in the CPM.
2	**C**ause **V**alid	If SET then the CAUSE parameter contains a valid value. Otherwise the CAUSE parameter value is UNDEFINED.
3	**D**uration **V**alid	If SET then the DURATION parameter contains a valid value. Otherwise the DURATION parameter value is UNDEFINED.
4	**D**isplay **B**locked	If SET then digits in the ORIGINATING NUMBER parameter have been suppressed due to Privacy considerations. Otherwise digits have not been suppressed.
5	**C**ourtesy **R**esponse	If SET then the CPM corresponds to the portion of a call routed to (and processed by) a Courtesy Response Voice Services Node.
6	**C**all **P**rompter	If SET then the CPM corresponds to the portion of a call routed to (and processed by) a Call Prompter Voice Services Node.
7	**O**utward **O**verflow	If SET then the CPM corresponds to a call which MAY have been subsequently routed to an alternate Conversion Number. This flag is valid only in CPMs with a MESSAGE TYPE of CALL NOT ANSWERED or CALL INCOMPLETE.

Table 5: FLAGS Value Interpretation

When a call is routed to a Call Prompter or Courtesy Response Voice Services Node then:

- The CONVERSION NUMBER is unavailable.
- The **CR** or **CP** Flags will be set only in the CPMs which are related to the portion of a call routed to the Voice Services Nodes (e.g. for CPMs 1 and 2 in Example 1, Section 2.0).

4.2.8 DURATION

Two (2) octets containing an unsigned integer in the range 0 to 65,535. Figure 10 illustrates the encoding of the DURATION parameter.

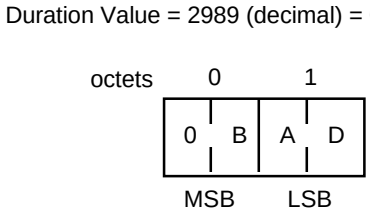

Figure 10: Sample DURATION **Value Encoding**

When valid the DURATION parameter contains a (computed) time interval expressed in seconds. A DURATION value of 65,535 will be transmitted if the duration value computed by the Stentor systems is greater than or equal to 65,535 seconds.

In all cases the value of the DURATION parameter is UNDEFINED if the value of the **D**URATION **V**ALID flag is RESET(0). Otherwise the DURATION parameter interpretation is dependent upon the MESSAGE TYPE value as illustrated Table 6.

MESSAGE TYPE Value	**DURATION Interpretation**
0x01 (CALL INCOMPLETE)	UNDEFINED.
0x02 (CALL NOT ANSWERED)	Ringing Duration: Approximate elapsed time ringing was invoked at the called party location prior to the calling party hanging up.
0x03 (CALL ANSWERED)	Ringing Duration: Approximate elapsed time ringing was invoked at the called party location prior to the called party answering the call.
0x04 (CALL RELEASED))	Call Duration: Approximate elapsed time between the called party answering and either the calling or called party hanging up.

Table 6: DURATION Value Interpretation

Note that indications of hang-ups, call answers, and ringing may be automatically generated by the Called Party's telephone equipment (e.g. PBXs, ACDs, Voice Mail Systems, etc.) and thus do not necessarily indicate actions taken by a person at the called party's location.

4.2.9 CAUSE

One (1) octet containing an unsigned integer in the range 0 to 255.

In all cases the value of the CAUSE parameter is Undefined if the value of the **C**AUSE **V**ALID flag is RESET (0). In this case the CAUSE interpretation should be UNKNOWN. Otherwise the CAUSE parameter interpretation is dependent upon the (CPM) MESSAGE TYPE value as illustrated Table 7.

Message Type Value	Cause Interpretation
0x01 (CALL INCOMPLETE)	Probable Cause for Incomplete: 0x01 - Called Party's equipment or lines Busy or otherwise Unavailable. 0x02 - Network equipment Busy or otherwise Unavailable. 0x03 - Other Causes.
0x02 (CALL NOT ANSWERED)	Probable Cause for No Answer: 0x02 - Calling Party Hang-up.
0x03 (CALL ANSWERED)	UNDEFINED
0x04 (CALL RELEASED)	Probable Cause for Call Release: 0x01 - Called Party Hang-up. 0x02 - Calling Party Hang-up. 0x03 - Unknown.

Table 7: CAUSE Value Interpretation

4.3 EVENT MESSAGE Layout

Figure 11 illustrates the layout of the DATA PARAMETER field in a datagram when the MESSAGE TYPE parameter contains the EVENT MESSAGE value (0x05):

Figure 11: EVENT MESSAGE Layout

Table 8 provides a brief description of each (sub)parameter contained within a EVENT MESSAGE datagram DATA PARAMETER. Note that OFFSET represents the position of a (sub)parameter relative to the start of the DATA PARAMETER.

Offset (in octets)	Parameter Name	Size (in octets)	Description
0	DATE	3	The DATE (referenced to UCT) on which the CPM was created. 6 BCD digits in the form YYMMDD. See Section 4.2.2.
3	TIME	3	The Time of Day (UCT) at which the CPM was created. 6 BCD Digits in the form HHMMSS. See Section 4.2.3.
6	EVENT CLASS		An unsigned integer in the range 0 to 255 which identifies the class of the EVENT MESSAGE being conveyed.
7	EVENT CODE	1	An unsigned integer in the range 0 to 255 which identifies the specific EVENT MESSAGE (within the EVENT CLASS) being conveyed.
8	EVENT PARAMETERS	0 to 245	Up to 245 octets of additional parameters. The interpretation of Event Parameters is dependent on the EVENT CLASS and EVENT CODE parameters. See Section 4.4 for Details.

Table 8: EVENT MESSAGE DATA (sub)PARAMETERS

4.4 EVENT MESSAGE PARAMETERS

The following sections describe parameters typically found in the DATA PARAMETER of a datagram message conveying a EVENT MESSAGE. Note that Event Messages may also contain parameters described under Call Progress Message Parameters (e.g. DATE).

4.4.1 EVENT CLASS

One (1) octet containing an unsigned integer in the range 0 to 255 which defines the class of event being conveyed. Table 9 provides the valid EVENT CLASSES.

EVENT CLASS Value	EVENT CLASS Name	Description
0x01	BROADCAST	Defines a set of general purpose messages being broadcast to one or more subscribers.

Table 9: EVENT CLASS Values

4.4.2 EVENT CODE

One (1) octet containing an unsigned integer in the range 0 to 255 which defines the specific event (within an EVENT CLASS) being conveyed .

4.4.3 EVENT PARAMETERS

The layout and interpretation of EVENT PARAMETERS is dependent on the EVENT CLASS and EVENT CODE parameters as defined in the following Sections.

4.3.3.1 BROADCAST Message Parameters

Table 10 gives a brief description of all Event Codes defined with the BROADCAST Message Class. The layout of the EVENT PARAMETERS is dependent on the EVENT CODE value as illustrated in Table 10 - BROADCAST Message Layouts.

EVENT CODE Value	EVENT CODE Name	Layout
0x01	TEXT MESSAGE	TEXT MESSAGE Layout

Table 10: BROADCAST Message Layouts

4.3.3.1.1 TEXT MESSAGE Layout

An arbitrary sequence of (8 bit) octets encoded in ASCII. The length of the message is determined by the following calculation: TextLength = DATA LENGTH - 8. Any valid ASCII character may be included in the message. Figure 12 illustrates the layout of a sample TEXT MESSAGE.

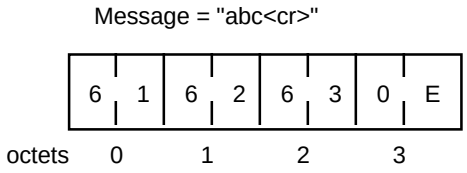

Figure 12: Sample TEXT MESSAGE Encoding