



Solution # 0538 – Alarm Automation Codes for AES Receivers

AES RECEIVER SYSTEMS ALARM AUTOMATION CODES

7705ii MultiNet Receiver (MNR) and 8705
IntelliNet[®] Network Control Center (INCC)

AES Corporation

285 Newbury Street. Peabody, Massachusetts 01960-1315 USA

Tel (978) 535-7310. **Fax** (978) 535-7313

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Technical Support email: support@aes-corp.com **Support direct:** (978) 839-7070

AES 7705ii and 8705 Receiver Alarm Automation Codes

TABLE OF CONTENTS

Alarm Output Codes.....	3
1. Product Description:	3
2. Note to Central Station Managers and Data Entry.....	3
3. How to use this document	4
4. Available Formats:.....	5
5. Alarm Output Overview:	5
6. AES' Ademco 685 emulated output format:.....	6
7. AES' Ademco 685 Event Code Assignments:	7
8. AES' Zone Assignments for Alarm Automation Output:.....	9
9. (Numbered) Footnotes:	12
10. Example Message Strings.....	17
11. Line Card 3 and 4 used for IntelliTap Type I Messages.....	20
12. Line Card Assignments beginning with MCT Suites 3351 / 3839	21
13. Event Code with Zone Data Summary.....	22

*** Also Refer to Solution # 0691 – AES 7706-ULF Alarm Reporting Codes ***

This second Solution, number 0691 deals specifically with the Alarm Automation Codes that are generated by or for the 7706-ULF product. Some of the more common messages are referenced in this document, but this other Solution should also be used if you are installing the 7706-ULF Integrated Fire Monitoring System.

For additional information or a more comprehensive description or explanation of the Event Codes used by the MultiNet Receiver and IntelliNet Network Control Center, it is strongly recommended to take advantage of the AES Solutions Knowledgebase. Search using the Event Code number to see if there is a Solution available.

For access to the Knowledgebase, go to aes-corp.com/dealer-portal and select "Access Knowledge Base" in the page header.

Alarm Output Codes Produced by the MultiNet Receiver and IntelliNet Network Control Center

1. Product Description:

This document lists the messages generated by the AES IntelliNet MultiNet Receivers and IntelliNet Network Control Center (INCC) for the various messages passed to it from Subscribers, IP-links and itself. The Receiver is the heart of the AES *MultiNet* system. For most if not all the messages sent into the receiver by AES IntelliNet devices such as Subscribers and IP-links, the original format of the message is in proprietary AES IntelliNet Hexadecimal data format. One example is that an Alarm Packet with less than 10 Bytes of data can report the condition of its onboard zones. It would take more than 200 characters or bytes to represent that same number of messages in the CID format the Receiver outputs. The actual message or string of ASCII characters that is sent to Alarm Automation is generated by the Receiver's software based on the interpretation of received data packets.

Subscribers do not send or generate the CID (Contact ID) messages seen in Alarm Automation. They are fabricated by the receiver, interpreted from the raw data the Subscribers send in. The exceptions to this are IntelliTap messages interpreted by the dialer capture module and generated by the alarm panel to which they are connected.

2. Note to Central Station Managers and Data Entry

In basic terms, your Alarm Monitoring System or Automation is a translation system (a translator). It is translating the raw messages described in this document into words or phrases that are intended to explain the original Contact ID message in terms your customers should understand. Frequently, when customers, installers, and even central station personnel contact AES Support for an explanation of the message, they are providing us with only the translated words or phrases without enough of the other very important original raw data and codes. This frequently makes it difficult for us to provide an explanation with confidence.

The raw alarm data string would provide AES with everything we need to provide the most accurate explanation with the highest confidence. If possible, any reports you provide to your customers should at a minimum include the Event Code and Zone information along with the Line Card number. This will greatly assist AES Technical Support in providing accurate explanations of the messages being reported. This should also be beneficial to your organization as well. The complete string of raw data gives us the ability to provide the most accurate response to questions.

3. How to use this document

Throughout this document are explanations of the messages that are generated for various faults and conditions produced by AES products. To make the best use of this information other than to explain or clarify a message that was received is to create templates in your alarm automation for the AES product accounts. At a minimum, separate templates would be needed for Subscribers, IP-Links and MultiNet Receivers.

Event Codes are Receiver Global and affect all accounts whether they are for AES Subscribers, IP-Links, Receivers, or the Alarm panels connected through Full Data Modules. Changing the default Ademco 685 Event Code descriptions to those suggested in this document should be done carefully if at all as the changes affect descriptions for messages delivered through modules such as the IntelliPro or IntelliTap.

Zone information on the other hand is frequently unique. With some exceptions the descriptions for the Zones throughout this document could be applied to the templates. In most cases the zone number is used only once for one fault produced for a product. The primary exception to this is the use of zone 906 for an IP-Link, where the combination of the Event code and Zone information is required to clarify the message, and the Bad Packet filter which reports using all zones 000 through 999 on event code 998.

Example: Zone 903 is only used to report an Acknowledge Delay for all Subscriber models. For the MultiNet Receiver it is used to report a LED fault. Therefore, all Subscriber templates could pre assign zone 903 to an Acknowledge Delay which would clarify the 356 Event code with is listed as "Loss of central polling". Complete phrase would read "Loss of central polling - Acknowledge Delay." The raw data string is R1 ACCT 18 R356 00 C903 (see key in section 6)

4. Available Formats:

The MultiNet Software suite offers several options for the Alarm Automation Output format it can produce. The recommended and supported format is the AES IntelliNet Ademco 685 emulation. Although Radionics 6500 emulation is available, it is not recommended and is not supported. There are messages that are not interpreted into what might be desired. Other options may be available for special purpose or custom configurations and should only be used under the supervision of AES technical staff.

This document focuses mainly on the Ademco 685 emulation. Radionics emulation is not included. Refer to the full MultiNet receiver manual for information on Radionics 6500 emulation.

Although AES selected to emulate an Ademco 685 format, AES' implementation is unique. We attempted to select Event Codes that closely match what is being reported and, in many cases, the default phrase is not completely accurate or may even be misleading. For some product, specifically the IP-Link, the zone information is not unique in that the same zone number is used multiple times and requires the Event Code to interpret what is being reported. In other words, the zone information alone for an IP-Link cannot always be used to determine what is reported. Both the Event Code and the Zone information together are needed. In almost all cases, at least the Event Code is required. Also, because the Subscribers do not provide zone usage information, the Receiver must select the Event Code and by default it will generally be E140 for General Alarm.

5. Alarm Output Overview:

The "Alarm Automation Output Serial 1" port on the rear panel of the MultiNet Receiver is an RS-232 Serial Port. It is the same as you might find on many PC compatible mother boards. The communication parameters of the MultiNet Receiver's Alarm Port can be configured to most available standards. Current suggested and default parameters are 9600 bps, 8 data bits, no parity, 1 stop bit, Software ACK/NAK and will use none for hardware handshaking. The previous default parameters were 1200, 7, Odd, 2. The communication parameters for Alarm Automation are programmed during the creation or editing of a Business Unit using the Admin GUI access into the Receiver directly.

In AES' emulated Ademco 685-output format, the raw signals received from a subscriber are translated into an Ademco 685 formatted message. Our Engineers have attempted to select Ademco Event Codes that as closely as possible match what AES is attempting to report. *IntelliTap* messages are passed through as received only changing the receiver number and line card as discussed in the following sections.

In Radionics 6500-output format the signals received from a subscriber are translated into a Radionics 6500 message. This format attempts to translate Ademco Contact ID (CID) codes passed through an *IntelliTap*, to an appropriate Radionics 6500 message. Be advised, Radionics output emulation is not supported or recommended at this time.

6. AES' Ademco 685 emulated output format:

This emulated format can provide output using at least 9 line cards; line card 1 is for AES product such as subscriber, IP-Link and receiver messages, line card 3 is for Contact ID messages received through *IntelliTap*, and line card 4 is for 4+2/Pulse messages received through *IntelliTap Type Packets*. See note (15) near end of this document for information on Line Card 8 and 9 usages. Additionally, MultiNet Suite beginning at 3351 can enable Line Cards 2, 5 and 6 to identify the delivery method used direct TCP/IP and not by RF through an IP-Link.

Note: See Section 11 for New Line Card # assignments beginning with Suite 3351

Line Card # 1 AES signals from Subscribers and Receivers.

Signal format: <LF>RLsACCTs18sQEEsGGsCNNNs<CR>

Key to codes used in signal format above:

<LF> = Line feed code, Hex 0x10.
R = Receiver number, user programmable. Between 1 - 9 and A - F.
 Receiver numbers are tied to and identify the Business Unit.
 Each Business Unit should be assigned its own unique Receiver Number.
L = Line card number, Line card is selected by software. 1 – 9 (See note 15)
ACCT = Unique four-digit Receiver, IP-Link or Subscriber Hexadecimal ID.
18 = 18 for AES signals. As received for others. 18 means CID format follows.
Q = Event qualifier, will be an E for new Event, R for Restore of event or a
 P for a Prior event not restored to normal, reported during a Status or Check-In
EEE = Event code (See Event Codes on following pages)
GG = Group or Partition. 00 for most AES signals. As received for IntelliTap.
C = C for AES signals. As received for others. U = user, C = Contact, Code or Zone.
NNN = Zone/Contact ID, Status or Fault Code or User Number
s = Single <Blank space>, Hex 0x20
<CR> = Carriage return code, Hex 0x13.

Line card # 3 and # 4, which are used for IntelliTap Type I Packets produced by IntelliPro's, IntelliTap's, FireTap's and other IntelliTap packet generating devices are described in section 11. IntelliTap Type I Messages" discussed later in this document, are delivered to automation verbatim as received with only the Receiver and Line Card values modified.

The purpose of using different line card designations is for identifying the origin of the message allowing distinction between similar messages that might be generated for both the Radio account and the Alarm Panel account. Take for example the message generated for an alarm panel dialer test which is 13 ACCT 18 E602 GG 000, and the Subscriber's Check-In generating a 11 ACCT 18 E602 00 000. Looking at the line card value, the second digit, allows your automation system to know which control is sending the test. See Notes (17) and (20) in Section 8 for a new feature with MultiNet suites released in 3839 Nov, 2017 that allows selecting the Subscriber Check-In Event Code to E603, Periodic RF transmission leaving the dialer test through dialer capture to be the E602.

Consider the zones where an alarm panel and the radio both have zones 1, 2, 3, 4 and maybe 5, 6, 7, 8 and even 9 and 10. Most of the fault and trouble zones report in the 800 and 900 ranges which are rarely reported by the alarm panel.

7. AES' Ademco 685 Event Code Assignments:

The following list of Event Codes are those that are used by the MultiNet Receiver as it constructs the messages to be sent to Alarm Automation to report the various alarm and fault conditions. Subscribers do not select these codes. It is the Receiver that is hard coded to select them based on the nature of the message. CID is a format designed by Ademco. AES attempts to select a code that most closely represents the reported condition from the existing set of Ademco predefined Event codes. In some cases, a different description would explain the condition better, but if dialer capture modules are in use in your system, then the default Ademco codes would probably not want to be modified or modified with care.

The following list is all the Event codes known at the time of this writing. The first column lists the three-digit Event Code. The second column has the Ademco default description on the top line and a description that might better describe the event in AES terms if one is appropriate after a slash or on the next line. The third column contains notes for clarification.

The list is not specific to or sorted by the devices for which the code might be used. Event Codes are generally receiver global settings with zone information being account specific. Refer to Ademco or SIA documents readily available on the Internet for a comprehensive list of all assigned Event codes including those not used by AES and possibly used by Alarm Panels.

Notes in parentheses, i.e. (1), are listed in section 9. "(Numbered) Footnotes"

<i>Event Code</i>	<i>Ademco Description / (1) in AES terms</i>	<i>Notes, zone data and clarification</i>
110 (2)	Fire Alarm	Subscriber Zone designated for Fire
130 (2)	Burglary Alarm	Subscriber Zone designated for Burglary
200 (2)	Fire Supervisory	Zone designated for Fire Supervisory
300 (2)	System Trouble	Subscriber Zone designated for Fire Trouble
140	Alarm / General Alarm enabled)	Subscribe Zone Input Off-Normal or Alarm (Default and with none of the above
145	Expansion module tamper	7170 IP-Link Enclosure Tamper or ASM activation Zone = 906 (6) REC# Zone = 318, duplicate IP packets (21) 7177 Hybrid, Zn 906, Enclosure Tamper (23)
300	System Trouble	MultiNet Receiver LCD offline Zone = 902 MultiNet Receiver LED offline Zone = 903
301	AC Loss	AC input failure IP-Link Zone = 912
302	Low system battery	IP-Link low battery condition Zone = 911
305	System reset	Watchdog or Pushbutton Reset Zone = 901 Power-on Reset Zone/contact = 902

<i>Event Code</i>	<i>Ademco Description / (1) in AES terms</i>	<i>Notes, zone data and clarification</i>
307	Self-Test Failure / Diagnostic Fault	Zone/contact = Fault Code See chart +2 pgs. Codes 800-817 R307 800 = Restoral of all Prior Faults (4)
309	Battery test failure /	IP-Link Charger Voltage Low Zone = 910
336	Local printer failure	MultiNet Receiver, Zone/contact = 904
350	Communications trouble	(25) Hybrid Redundant Comm Fault, Zn = 915 IP-Link Carrier Detect on 20+ seconds or RF Interference, Zone/contact = 906 7706-ULF unique code with Group 24 (14) Subscriber com fail timeout Zone = 001
351	Telco 1 Fault	IntelliTap/Pro detected phone line cut, Zone/contact = 905
353	Long Range Radio xmitter fault	Multiple IP-Links same ID, Zone = 906 (24)
354	Failure to communicate event / Com Trouble	TCP/IP Supervision Failure, Zn = 906 (11) MultiNet Modem Failure, Zone = 907 IP-Link Modem Failure, Zone = 908 IP-Link LLR Offline, Zone = 907 Subscriber's NetCon is 6 or 7, Zn = 915 (10) " Unit failed to Check-In, Zone = 906 (5) " IP Test Supervision Fail, Zone = 902 (18)
355	Loss of Radio Supervision / IP-Link RF Ping Failure	Zone/contact = 906 (RF Silence)
356	Loss of central polling / Communication timeout	Zone = 903, Acknowledge Delay
	"	Zone = 904, IP Com fault (19) (New IntelliNet 2.0 MCT only)
357	Long Range radio VSWR problem	Zone = 916, ASM Activation (6)
358	(Undefined by Ademco) / Subscriber out of Network	7706-ULF unique code with Group 24 (14) Subscriber out of network Zone = 001
370	Protection Loop / Zone Trouble	(Zone = 001 to 008) 7744F/88F/2.0 Battery Charger Trouble, Zone = 009 (3) 7744F/88F/2.0 Ground Fault, Zone/contact ID = 010 (3)
555	(Not previously defined) / NetCon monitoring disabled	Zone/contact = 911
602	Periodic test report / Supervisory Check-In	Zone/contact = 000 or 002 (17) (20)
603	Periodic RF transmission	Check-In, Zone/contact = 000 or 602 (17) (20)
608	Periodic test – System Trouble Present / - Off Normal	Off-Normal Check-In (20) 7706-ULF A periodic test has been triggered with trouble condition present

<i>Event Code</i>	<i>Ademco Description / (1) in AES terms</i>	<i>Notes, zone data and clarification</i>
623	Event Log 90% Full	Hard-disk Full, Zone/contact = 908
624	Event Log overflow	Backup Failure, Zone/contact = 909
911	(Not previously defined) / API Missing	Zone = 485, API not detected by 7650-A
997	(Not previously defined) / Ping Failure	Peer IP Ping Failure, Zone/contact = 917
998	(Not previously defined) / Malformed Packet Filtered	Zone = 000-999, Bad packet filter (13) intercepted and logged a malformed, corrupted or bad IntelliTap Packet. The zone number is the log record or location.
999	(Not previously defined) / Unknown Event Code	Zone = xxx, Invalid Modem II or Modem III event code detected by IntelliPro in Modem mode

8. AES' Zone Assignments for Alarm Automation Output:

Following is a list of the standard Zones used by IntelliNet devices or assigned by the MultiNet Receiver to augment a specific message to send to Alarm Automation. Many of these zone selections are reported directly by the Subscriber. Others are assigned by the Receiver.

Zone usage is account or ID specific. Applying these standards to templates for Subscribers or IP-Links can simplify adding new accounts to your system. These lists are sorted by device or AES IntelliNet product category.

Subscriber Zone usage: *Event Code varies*

- 000 The use of this zone usually indicates that the Event Code is self-explanatory
- 002 Normal/Off-Normal IP Check-In, with Event Codes 602, 603 and 608.
- 001-008 Subscriber Zone inputs – usage will be installation and model specific standardization of zone usage permits better use of templates.
- 009 = Battery Charger Trouble – 7744F, 7788F, 2.0 with Event Code E370
- 010 = Ground Fault – 7744F, 7788F, 2.0 with Event Code E370
- 009-024 7050-DLR and 7750-UL using one zone expansion module could report zones from 9-24.
- 025-072 7050-DLR using more than one zone expansion module could report zones up to zone 72.

Subscriber Fault Code Zone Assignments: *Event Code used is 307 (4)*

- 800 = No Faults, Unit OK or Restoral of all Prior Faults. (4)
Event code is 307 for Zone values 800 through 817.
- 801 = Low Battery – Voltage less than 11.0V
- 802 = RAM Data error or RAM corrupted – Zone activation may not be reported
(Subscriber firmware V1.71 and higher). Reprogram Unit
- 803 = EEPROM corrupted or not present – 7050-E Family (7)
U11 RAM Chip Internal Battery Bad – 7050 Family (8)
- 804 = A to D Converter Faulted – 7050-E Family (7), Zone activation may not be
reported (Subscriber firmware V1.71 and higher).
External Device failed – 7050 Family (8)
- 805 = Modem Chip Failed or missing – U9 in 7050 Family (8)
- 806 = Timing Error between CPU and Modem
- 807 = Ram Chip Read/Write test Failure – U11 in 7050 Family (8)
- 808 = Modem Loop back Failed – U9 in 7050 Family (8)
- 809 = AC Fail – DC voltage by AC has dropped below 12V,
DC Power Fault, IntelliNet 2.0 in 24 VDC with battery mode

Subscriber, Additional for IntelliNet 2.0 models (7007, 7707) *Event Code used 307*

- 810 2.0 only. DC Power Fault
- 811 2.0 only. Roughly equivalent to legacy 802 above, (22)
- 812 2.0 only. Roughly equivalent to legacy 803 above, (22)
- 813 Remote Annunciator
- 814 2.0 only. Roughly equivalent to legacy 805 above, (22)
- 815 Panel Interface / IntelliPro
- 816 IP Comm (19) Changed to E356 C904 in release 3839
- 817 Zone Module

See footnote (22). Get Model and Rev to suppress these and other unintentional faults

Subscriber Trouble Code Zone Assignments: *Event Code varies*

- 901 = Watchdog, Remote or Pushbutton Reset. Event Code E305
- 902 = Power-on Reset. Event Code E305
- 902 = IP Test Supervision Failure. Event Code E354 (IntelliNet 2.0) (18)
- 903 = Acknowledge Delay with Event Code E356
- 904 = IP Com Failure. Event Code E356 (IntelliNet 2.0) (19)
- 905 = IntelliTap detected phone line cut with Event Code E351
- 906 = Unit failed to Check-In, Generated by MultiNet Receiver on failure to receive
message within specified period. Event Code E354 (5)
Hybrid Enclosure Tamper W/ Event Code 145, Software version 4654 (23)
- 911 = NetCon fail Disabled. MultiNet Receiver is configured to not report NetCon 6
or 7 and instead reports 911 on all signals. Event Code E555 (10)
- 915 = NetCon > 5, MultiNet Receiver detected Subscriber's NetCon reported as > 5
(6 or 7) with Event Code E354 (10)

7177 Hybrid Fault Status and Trouble Code Zone Assignments:

- 810 = DC Power Fault
- 811 = RAM Data error or RAM corrupted, equivalent to legacy 802
- 812 = RAM Chip Internal Battery Bad, equivalent to legacy 803
- 813 = Remote Annunciator. E307
- 814 = Modem Chip Failed or missing, equivalent to legacy 805
2.0 model is reporting RF Communications Fault
- 815 = Panel Interface, IntelliPro. E307
- 816 = IP Comm (19), Changed to E356 C904 in release 383
- 817 = Zone Module. E307
- 903 = Acknowledge Delay with Event Code E356
- 904 = IP Comm Fault. E356
- 906 = Failed to Check-In Event Code. E354
- 906 = Enclosure Tamper. E145
- 906 = Radio Silence. E355
- 915 = Redundant Comm Fault. Event Code E350 (25)
- 915 = NetCon Fault Event Code 354 (10)
- 916 = Antenna Fault (ASM). Event Code E357 with zone C916

IP-Link Fault, Status and Trouble Code Zone Assignments: *Event code used is 307*

- 801 = LLR Low Battery, ignore this message as the LLR has no battery.
Inadvertently reported by some MultiNet Software Suites (16)
 - 802 = RAM Data error or RAM corrupted
 - 803 = U11 RAM Chip Internal Battery Bad
 - 804 = External Device failed
 - 805 = Modem Chip Failed or missing – U9
 - 806 = Timing Error between CPU and Modem
 - 807 = Ram Chip Read/Write test Failure – U11
 - 808 = Modem Loop back Failed – U9
- Note: reporting of Fault Codes 801-808 for IP-Link added at MultiNet Suite 995
- 906 = Refer to Event code Description as zone 906 is used for multiple messages.
E145 Enclosure Tamper, ASM (6)
E350 RF Interference, CD (RX LED) on for greater than 20 Sec.
E353 Multiple IP-Links with same ID
E354 TCP/IP Supervision Failure (11)
E355 RF Ping Failure or RF Silence. No P_ACK for test sent to test ID. (12)
 - 907 = LLR Offline with Event Code E354, LLR is the radio controller board
 - 908 = Modem Message or Test Failed with Event Code E354
 - 910 = Charger Voltage Low with Event Code E309
 - 911 = Low Battery with Event Code E302
 - 912 = AC input failure with Event Code E301
 - 000-999 = Bad Packet log record number. See Event Code 998 (13)

MultiNet Receiver Fault Status and Trouble Code Zone Assignments:

318	= IP Compromise, Duplicate IP Packets Detected (21) Event Code E145
902	= LCD offline - Loss of communication with LCD board. Event Code E300
903	= LED offline - Loss of communication with LED board. Event Code E300
904	= Printer offline. Event Code E336
907	= Modem Failure with Event Code E354
908	= Hard-disk Full. Event Code E623
909	= Backup Failure. Event Code E624
917	= Peer IP Ping Failure. Event Code E997

INCC Fault Status and Trouble Zone Assignments:

918	= Symmetric Failure Between Primary & Secondary. Event Code E307
919	= Hard-disk Full. Event Code E623
920	= IP Compromise, Duplicate IP Packets Detected. Event Code E145
921	= Peer IP Ping Failure. Event Code E997
922	= CPU Trouble. Event Code E307
923	= Memory Issue. Event Code E307

9. (Numbered) Footnotes:

The following footnote numbers contained in parentheses and used throughout the Event Code and Zone usage and assignments sections throughout are explained below.

- (1) Notes on Event Code usage:
Universal Description is likely the default wording in automation for Ademco 685 Event codes. These are the descriptions that Ademco originally assigned to the Event code number.
"In AES terms", refers to a Suggested Description that more closely describes our use of the Event Code. If possible, editing the default Event Code descriptions to Suggested Description, in your automation for the AES receiver will produce a clearer description for users and AES Support. Be advised that if you are sending IntelliTap messages this would have to be done carefully and if possible, only for non-IntelliTap Line Cards, as the original default descriptions would most likely be needed for the alarm panel signals using Line Cards 3, 4, 5 and 6.
- (2) These custom selected event codes are for use with some Subscriber models including the 7707, 7007, 7177, 7788F, 7744F, 7058E, 7750-F series and 7050E Subscribers when Zone usage is selected in the Zone Programming Menu for the Subscriber from IPCtrl accessed using VNC Viewer. They are selected on a Subscriber-by-Subscriber basis for each ID (Account). The default (Normal) event code if no specific usage is available or selected will be 140. This means a Subscriber's zone one alarm, if no usage is selected will be E140 00 C001. If Fire is selected, it becomes an E110 00 C001. If Burglary is selected, it becomes an E130 00 C001.
(Zone/contact) descriptions are defined in automation at the ID or Account level. Using a template for the Zone/contact codes listed here should simplify adding new subscriber accounts into the alarm automation system.

- (3) Several trouble messages reported by Subscribers use zone trouble to report the fault. This was done for backward compatibility to use an existing packet type rather than create a new code for another packet type that would require upgrading receiver software to interpret and report.
- Examples:
- | | |
|--|--------------|
| 7744F/7788F/2.0 reporting charger fail as a Zn 009 Trouble | E370 00 C009 |
| 7744F/7788F/2.0 reporting Ground Fault as a Zone 010 Trouble | E370 00 C010 |
- (4) There was no individual restore messages for zones 801-816 Faults prior to MultiNet Suite 3684. A restored Fault is reported by reporting all prior faults with the restored Fault excluded from the list. Example: If an AC Fault and Low Battery exist, and a report comes in with only the Prior low battery, AC has restored. R307 00 C800 is reported when all faults have restored or in response to a Status request when no Faults exist. Beginning with MultiNet Suite 3684, restore messages can be reported for Zones 801 (Low Battery), 809 (AC), 813 (Remote Annunciator), 815 (Panel Interface) and 816 (IP Communication).
- (5) Fail to Check-In is generated by Receiver on failure to receive a message within the specified period. These are only generated when the MultiNet Receiver is configured to Supervise Check-In messages. This is configured on a Subscriber-by-Subscriber basis through IPCtrl under Programming / Automatic Supervision. Be advised, if the Check-In interval is changed after this feature is enabled, AES Software suite may need to be restarted to load the new values. the software
- (6) The ASM is a module added late in 2010 to the IP-Link. To be backward compatible with older Receiver Software, the IP-Link may be configured to also report an Enclosure Tamper along with the new ASM activation message, so that the older software that does not know about the new message will report something.
- (7) 7050-E Family includes but is not limited to the following AES Subscriber models: 7058E, 7050-E, 7750-F-4x4, 7750-F-8, 7744F, 7788F, 7450-XL
- (8) 7050 Family includes but is not limited to the following AES Subscriber models: 7050, 7050-DLR, 7750-UL, 7050-FA
- (9) Some MultiNet software versions or configurations may incorrectly report the line card used for this message as 3 instead of 1.
- (10) 7788F, 7744F, 7706-ULF, 7707 and 7177 are the only model Subscribers affected by this message at this time. If a packet from one of the listed models reports a NetCon 6 or 7, a 354 C915 would normally be reported. If NetCon reporting is disabled at the Receiver, 555 C911 message is reported with every received message regardless of NetCon including NetCon 5 to annunciate that NetCon failure reporting is disabled, reminding that you may not be in compliance with UL/NFPA requirements. Zone 915 is also used to Report Redundant Comm Fault.

- (11) This message is generated by the MultiNet receiver upon 60 seconds without a TCP/IP connection (heartbeat) from the specified IP-Link. It is possible that the IP-Link has successfully rolled to, is connected, and performing heartbeats on the other (peer) Receiver be it the Secondary or Primary depending on which Receiver is reporting this fault. If the message was generated by the Secondary Receiver, the IP-Link may have returned to its Primary and was unable to successfully report to the Secondary that it was rolling back and to stop monitoring for its heartbeats.
- (12) The test ID used by an IP-Link is the ID of the last unit that sent a Packet through this IP-Link where the IP-Link responded with a Packet Acknowledge. If no packet has ever been Acked by this IP-Link since the last software reset, this field is empty, and the IP-Link will fail its test reporting an RF Silence.
- (13) Bad Packet filter was added in MultiNet Receiver Software Suite build 700, released in May 2014. The Zone information for this Event Code is the log number where the original corrupted packet data is stored for review. Be advised the zones used for this event code are all 1000 possible zones or codes. This means that the zone information is to be overruled by Event Code 998 resulting in the zone information not necessarily having a related description.
Example: If the bad packet resulted in a log entry at location 906, the 906 zone information reported on Event Code 998 would indicate the log entry and not one of the other 6 faults that also use 906. Also log at 908 would not indicate a Modem issue, but the 908th log entry.
- (14) These messages were introduced with the release of the 7706-ULF Integrated Fire Monitoring System. Unlike most other AES generated messages, these are reported in Group or Partition 24. Zone is always 001. Refer to Solution 0691 – AES 7706-ULF Alarm Reporting Code for a complete list of codes generate by this product. There was no previous description for 358 under the Ademco specification. Current suggestion is to define it as “Subscriber out of network”
- (15) Recent MultiNet software versions offer several features that will assign Line Number 2,5,6,8 and 9 to the messages.
Line Card 8: If the Tech options “Enable IPLink events to emit on Line Card 8:” then some IP-Link fault messages will report on Line Card 8. Some may still use the Primary BU Receiver number and Line Card.
Line Card 9: If the Tech option “Enable signals from orphan to go to Alarm Automation”. Is set to Yes, Line Card 9 will be used when reporting those messages and on Receiver Number 1.
In MultiNet software suites beginning with version 3684, a feature is added to allow setting the Line Card number to 2, 5 or 6 to distinguish the origin as being from the RF link or directly through TCP/IP. Line Card 2 is AES Device is origin, Line Card 5 is CID through IntelliTap, and Line Card 6 is 4+2 through IntelliTap. The Tech Option that selects this is “Enables IPSub packet using different receiver linecard group in ipctrl”
- (16) This message was inadvertently activated in several MultiNet Software Suites. Upgrading the MultiNet receiver to the latest release should prevent this reported message for an IP-Link.

- (17) A new feature beginning with MultiNet software suite 3839 released Nov 6, 2017, allows changing the Subscriber Normal Check-In Event Code from the usual E602 to E603, "Periodic RF transmission." This feature is very useful when Subscribers send Check-Ins; Alarm Panels report dialer tests, and the Automation system does not distinguish between Line Card 1 and 3. Also see numbered footnote (20) for new E608 Off-normal Check-In report.
- (18) A new feature beginning with MultiNet software suite 3839 released Nov 6, 2017, if enabled in techoptions, reports a failure of an IP Check-In as monitored by Automatic Test Supervision, to report as E354 C902.
- (19) A new feature beginning with MultiNet software suite 3839 released Nov 6, 2017, will report a Communication Failure of the IP connections from an IntelliNet 2.0 Subscriber as E356 C904. A previous Beta release used E307 C816. If you receive the latter, you should contact Support and get your MultiNet Receivers updated to at least software suite 3839.
- (20) A new feature beginning with MultiNet software suite 3839 released Nov 6, 2017, will report an Off Normal Check-In as E608 C000 or E608 C002. An Off-Normal Check-In is when prior faults or prior unrestored zones are reported along with the Check-In. Zone 000 is when the Off-Normal Check-In is through RF and Zone 002 is when it is through IP. This will be reported instead of the E602 or E603 depending on techoptions settings. The E608 cannot be disabled. Along with the E608 should be a list of the prior faults with the Event Qualifier of P. Officially Ademco phrase for 608 is Periodic Test, Trouble Present.
- (21) A new fault code reported beginning with MultiNet software suite 3839 released Nov 6, 2017, will report "IP Compromise" as E145 C318. This is reporting that "Multiple duplicate IP packets are received by the Receiver". This is a requirement by ULC to report a possible HACK attack on the Receiver. There is no restore message for this fault, just a new fault message upon each detection.
- (22) For many of the undefined messages reported by IntelliNet 2.0 models, which may not have been actual faults, the MultiNet receiver can suppress reporting them if it is aware that the model of the Subscriber is an IntelliNet 2.0. Perform a Get Model and Rev and the unintended undefined messages should be masked from reporting to Alarm Automation. If Subtools is enabled, this should occur automatically on the defined schedule.
- (23) The 7177 Hybrid unit has a built in Tamper/Pry switch. When the Hybrid reports the activation of the switch the MultiNet Receiver beginning with Version 4654 will report the fault as E145 00 C906. This means for Hybrid accounts the Zone description for Zone 906 will need to be something such as "Unit Failed to Check-In or Enclosure Tamper." If the "Automatic Test Supervision" set in IPCtrl is never used for the Hybrid's account, then the zone description can be simply "Enclosure Tamper"

- (24) This fault can be reported if an IP-Link believes it has detected a transmission from another unit that has its same ID. The IP-Link turns on a fault bit in nonvolatile memory when detected. This fault bit is also believed to be inadvertently turned on during the change of an IP-Links ID under some circumstances. It may also be turned on for other unidentified reasons. Once the bit is turned on, there is no internal function to clear it and the fault will be reported with each status report by the IP-Link. To clear it, the nonvolatile memory must be reset. Contact AES technical Support for information on or to clear the fault bit.
- (25) Redundant Comm Fault E350 915. This fault will be reported if a Hybrid Subscriber cannot confirm at least two IP paths to a MultiNet Receiver. One path would be its own IP connection to a Receiver and the other must be from an IP-Link or another Hybrid Subscriber in the Routing Table with good quality. This puts the responsibility on a Hybrid to monitor dual IP paths. Zone 915 is also used to report NetCon Fault with Event Code 354.

10. Example Message Strings

Following are examples of complete strings of text that could be generated by the MultiNet Receiver with an explanation of what is being reported.

The list may only show the Event Qualifier E or R if E is not used. An E = New Event. An R = Restore and a P = Prior, still active, or unreported reported during a status report.

Key for variables used in example strings:

ACCT = 4-digit Subscriber ID

rec# = 4-digit MultiNet Receiver ID

IPL# = 4-digit IP-Link ID

1st R = Receiver or BU number, Hex 1 through 9 or A-F

2nd R = Event Restore (9th character position)

E = New Event

n or nn = Zone or Code variable number, rang as specified

Examples for Subscriber Messages:

<i>Example Message String</i>	<i>Description</i>
R1 ACCT 18 E603 00 C000	Periodic RF Transmission / Check-In New default message for Check-In
R1 ACCT 18 E608 00 C000	Periodic Test, Trouble Present / Check-In New message for Check-In with Trbl.
R1 ACCT 18 E602 00 C000	Subscriber Automatic Supervisory Check-In Former Message for Check-In.

These next three messages are the **default** messages for **Subscriber Zone input reports**, if no custom option is selected in Zone Programming from within IPCtrl.

R1 ACCT 18 E140 00 C0nn	Alarm Signal or Subscriber's input went off normal. nn replaced with Zone Number
R1 ACCT 18 P140 00 C0nn	Prior Alarm. Subscriber's Input still active. Reported during Status or Check-In
R1 ACCT 18 R140 00 C0nn	Alarm Restoral or input returned to normal.

Examples for 7706-ULF Integrated Fire Monitoring System unique messages:

(14) R1 ACCT 18 E350 24 C001	7706-ULF Subscriber Com Fail Timeout
(14) R1 ACCT 18 E358 24 C001	7706-ULF Subscriber Out of Network
R1 ACCT 18 E608 00 C000	7706-ULF Periodic Test - Off Normal

*** Also Refer to Solution # 0691 – AES 7706-ULF Alarm Reporting Codes ***

These next four messages are possible if **custom zone configuration** parameters or **zone usage** is selected in Zone Programming from within IPCtrl to override the default E140. Custom settings are in the bottom section of Zone Configuration/Zone Programming pop-up menu. They are listed here in the same order as in the menu.

R1 ACCT 18 E110 00 C00n	Zone Alarm custom set to Fire.
R1 ACCT 18 E200 00 C00n	Zone Alarm custom set to Supervisory.
R1 ACCT 18 E130 00 C00n	Zone Alarm custom set to Burglary
R1 ACCT 18 E300 00 C00n	Zone Alarm custom set to System Trouble.
R1 ACCT 18 E301 00 C00n	Zone Alarm custom set to A/C Failure.
R1 ACCT 18 E140 00 C00n	Zone Alarm custom set to Normal

Following are the general-purpose messages generated by the Receiver

R1 ACCT 18 E145 00 C906	Hybrid Subscriber Tamper Switch
R1 ACCT 18 E305 00 C901	Subscriber Watchdog, or Push-button Reset.
R1 ACCT 18 E305 00 C902	Subscriber Power-On Reset.
R1 ACCT 18 R307 00 C800	No Faults, Unit OK or Restore of all Prior Faults.
R1 ACCT 18 E307 00 C801	Low Battery
R1 ACCT 18 E307 00 C802	RAM Data error or RAM corrupted
R1 ACCT 18 E307 00 C803	EEPROM corrupted or not present
R1 ACCT 18 E307 00 C804	A to D Converter Faulted
R1 ACCT 18 E307 00 C805	Modem Chip Failed or missing
R1 ACCT 18 E307 00 C806	Timing Error between CPU and Modem
R1 ACCT 18 E307 00 C807	Ram Chip Read/Write test Failure
R1 ACCT 18 E307 00 C808	Modem Loop back Failed
R1 ACCT 18 E307 00 C809	AC Fail – DC voltage below 12V
R1 ACCT 18 E307 00 C810	DC Power Fault
R1 ACCT 18 E307 00 C811	RAM Data error or RAM corrupted
R1 ACCT 18 E307 00 C812	RAM Chip Internal Battery Bad
R1 ACCT 18 E307 00 C813	Remote Annunciator/7740 [2.0]
R1 ACCT 18 E307 00 C814	Modem Chip Failed or missing
R1 ACCT 18 E307 00 C815	Panel Interface (IntelliPro/Keypad) [2.0]
(19) R1 ACCT 18 E307 00 C816	IP Comm [2.0]
R1 ACCT 18 E307 00 C817	Zone Module [2.0]
R1 ACCT 18 E350 00 C915	Hybrid, Redundant Comm Fault (25)
(9) R1 ACCT 18 E351 00 C905	IntelliTap or IntelliPro phone line cut.
(18) R1 ACCT 18 E354 00 C902	Hybrid Subscriber, IP Test Supervision Fail.
R1 ACCT 18 E354 00 C906	Failed to Check-In – Subscriber off Line.
(10) R1 ACCT 18 E354 00 C915	Com Trouble – Subscriber NetCon is 6 or 7 (10)
R1 ACCT 18 E355 00 C906	Hybrid Subscriber Radio Silence
R1 ACCT 18 R356 00 C903	Acknowledge Delay – or Comm time-out.
(19) R1 ACCT 18 E356 00 C904	Subscriber IP Communication Fail.
R1 ACCT 18 E357 00 C916	ASM activation 2.0 Hybrid Subscriber
R1 ACCT 18 E999 00 Cxxx	Invalid Modem II or Modem III event code
R1 ACCT 18 E370 00 C0nn	Zone Trouble. nn = Zone number

R1 ACCT 18 P370 00 C0nn Zone Trouble still active. - nn = Zone Reports with Check-In or Status
R1 ACCT 18 R370 00 C0nn Zone Trouble Restoral. - Zone/contact ID = Zone Number

Examples for MultiNet Receiver and IP-Link Messages:

R1 rec# 18 E300 00 C902 System Trouble LCD offline, MultiNet Receiver, Zone/contact ID = 902
R1 rec# 18 E300 00 C903 Loss of LED, MultiNet receiver, Zone/contact ID = 903
R1 IPL# 18 E301 00 C912 AC Failure at IP-Link. Zone/contact ID = 912
R1 IPL# 18 E302 00 C911 Battery Trouble at IP-Link. Zone/contact ID = 911
R1 IPL# 18 E307 00 C80n Diagnostic Fault. Zone/contact ID = Fault Code.
R1 rec# 18 E354 00 C907 Com Trouble - Modem Interface Test Failed at MultiNet Receiver. Line Voltage low or missing. Zone/contact ID = 907
R1 IPL# 18 E309 00 C910 Charger Trouble at IP-Link. Zone/contact ID = 910
R1 IPL# 18 R309 00 C910 Charger Trouble Restore at IP-Link. Zone/contact ID = 910
R1 rec# 18 E336 00 C904 Printer off-line, MultiNet Receiver. Zone/contact ID = 904
R1 IPL# 18 E350 00 C906 RF Interference / CD on >20 Seconds
R1 IPL# 18 E353 00 C906 Multiple IP-Links with same ID
R1 IPL# 18 E354 00 C906 IP-Link Supervision Failure. Missing heartbeat > 60 Seconds
R1 IPL# 18 E354 00 C907 Com Trouble IP-Link LLR Offline. Zone/contact ID = 907
R1 rec# 18 E354 00 C907 Com Trouble MultiNet Local Modem failure. Zone/contact ID = 907
R1 IPL# 18 E354 00 C908 Com Trouble IP-Link Modem failure. Zone/contact ID = 908
R1 IPL# 18 E355 00 C906 IP-Link RF Ping Failure / RF Silence
R1 rec# 18 E623 00 C908 Hard-disk Full
R1 rec# 18 E624 00 C903 Backup Failure
R1 rec# 18 E997 00 C917 Peer IP Ping Failure
(13) R1 IPL# 18 E998 00 C053 Bad Packet filtered. Raw data in log location 53. Zone/contact ID = 000-999

Examples for Multiple uses of Zone 906 IP-Link Messages:

<u>Example Message String</u>	<u>Description</u>
R1 IPL# 18 E145 00 C906	Enclosure Tamper, 7170 IP-Link Transceiver Zone/contact ID = 906 Enclosure Tamer is also used to report ASM activation
R1 IPL# 18 R145 00 C906	Enclosure Tamper, Restore 7170 IP-Link Transceiver Zone/contact ID = 906
R1 IPL# 18 E350 00 C906	RF Interference at IP-Link. Zone/contact ID = 906
R1 IPL# 18 E353 00 C906	Multiple IP-Links or Subscriber detected with same ID. Zone/contact ID = 906
R1 IPL# 18 E354 00 C906	Com Trouble – IP-Link Supervision Failure. Missing heartbeat > 60 Seconds
R1 IPL# 18 E355 00 C906	IP-Link RF Ping Failure / RF Silence
R1 IPL# 18 E998 00 C053	Bad Packet filter, data at log entry #53

11. Line Card 3 and 4 used for IntelliTap Type I Messages

Following is the description of how Line Card 3 and 4 messages are generated. Generally, these line cards are used to report CID messages passed through a Full Data module like the 7x94 IntelliPro and 7067 IntelliTap. The messages should be passed through unedited or verbatim as decoded by the module from the alarm panel it is attached.

Line Card # 3 Contact ID received through *IntelliTap*.

Signal format: <LF>RLsACCTs18sEEEEsGGsNNNs<CR>

See “Line card #1”, “Signal format” in “Ademco 685 compatible output” for Key to codes used in signal format for Line Card #3 above.

This Information is passed through. Receiver number is set as programmed in the MultiNet setup. Line card is set to 3.

Line Card # 4 4+2 received through *IntelliTap*.

Signal format: <LF>RLsACCTsCC<CR>
CC = two digit zone code.

See “Line card #1”, “Signal format” in “Ademco 685 compatible output” for Key to codes used in signal format for Line Card #4 above.

This Information is passed through. Receiver number is set as programmed in the MultiNet setup. Line card is set to 4.

Input Signals:

In Ademco mode the receiver will respond to 3 inputs or signals from the monitoring system.

S receiver reply will be - <LF>00sOKAYs@<CR> *

<0x06> or ASCII code 6 receiver considers last message acknowledged

<0x15> or ASCII code 21 receiver will re-send last message (if not acknowledged)

* The MultiNet Receiver expects Automation to supervise it by sending an S into the port and the Receiver responding back with the 00 OKAY@.

12. Line Card Assignments beginning with MCT Suites 3351 / 3839

This release of the MultiNet software suite introduces the capability to receive signals directly from Subscribers via TCP/IP. This is referred to as MCT or Multiple Communication Technologies. To distinguish between messages that arrived via RF through an IP-Link and direct through IP, a different line card is assigned.

The new tech option is titled:

Enables IPSub packet using different receiver linecard group in ipctrl: Yes () **No (o)**

All messages received through RF follow the Line Card convention discussed throughout this document.

- Line card 1 is for messages originating from the Subscriber
- Line card 3 is for messages passed through IntelliTap/Pro capture modules originating at the Alarm Panel using CID or Modem formats
- Line card 4 is for messages passed through IntelliTap/Pro capture modules originating at the Alarm Panel using a 4/2, 4/1 or 3/1 Pulse format

When the above mentioned tech option is configured to Yes, the following line cards will be used for messages received directly from Subscribers through TCP/IP.

- Line card 2 is for messages originating from the Subscriber arriving via IP
- Line card 5 is for messages passed through IntelliTap/Pro capture modules originating at the Alarm Panel using CID or Modem formats arriving via IP
- Line card 6 is for messages passed through IntelliTap/Pro capture modules originating at the Alarm Panel using a 4/2, 4/1 or 3/1 Pulse format via IP

13. Event Code with Zone Data Summary

This list primarily covers Event Code and Zone information for Receiver, IP-Links and 7706-ULF with Subscribers included where the code is used with them as well.

The list is sorted by Device then by Event code with some exceptions

<i>Event Code</i>	<i>Zone Data</i>	<i>Description (1)</i>	<i>Used By:</i>		
			<i>Rcvr</i>	<i>IPL</i>	<i>Sub</i>
145	318	IP Compromise, Duplicate IP Pkt	◆		
300	902	LCD Offline	x		
300	903	LED Offline	x		
305	901	Watchdog or PBS Reset	x		x
305	902	Power On Reset	x		x
336	904	Printer off-line	x		
354	907	MultiNet Receiver Modem Failure	x		
623	908	Hard-disk Full	◆		
624	909	Backup Failure	◆		
997	917	Peer IP Ping Failure (Edit Ping IP)	◆		
145	906	Enclosure Tamper or ASM (6)		x	
307	801-808	Diagnostic Fault		x	
350	906	RF Interference		x	
353	906	Multiple IPL same ID		x	
354	906	TCP/IP Supervision Fault		x	
354	907	IP-Link LLR Offline		x	
354	908	Modem Failure		x	
355	906	RF Silence / RF Ping Failure		x	
301	912	AC Trouble		x	
302	911	Low Battery		x	
309	910	Charger Voltage Low		x	
357	916	ASM Activation (6)		x	
998	000-999	Bad Packet log record number (13)		x	

The following are used exclusively by IntelliTap or IntelliPro

<i>Event Code</i>	<i>Zone Data</i>	<i>Description (1)</i>	<i>Used By:</i>	
			<i>IntelliTap</i>	<i>IntelliPro</i>
351	905	Telco Fault	x	x
999	xxx	Invalid Modem II/III event code		x

The following are generated by the 7706-ULF PIC

<i>Event Code</i>	<i>Zone Data</i>	<i>Description (1)</i>	<i>Used By:</i>
			<i>7706-ULF (14)</i>
350	001	7706-ULF Subscriber Com Timeout	x
358	001	7706-ULF Subscriber Out of Network	x
608	000	Periodic Test - Off Normal Check-In	x

This list primarily covers Event Code and Zone information for Subscribers including IntelliNet 2.0 and Hybrid Subscribers. IntelliNet 2.0 models include 7007 and 7707. 7177 is an IntelliNet 2.0 Hybrid Subscriber. The list is sorted by Event code

<i>Event Code</i>	<i>Zone Data</i>	<i>Description (1)</i>	<i>Used By:</i>		
			<i>Sub</i>	<i>2.0</i>	<i>Hybrid</i>
110	001-008	Input designated for Fire Alarm	x	x	x
130	001-008	Input designated for Burglary Alarm	x	x	x
140	001-072	Undefined designation General Alarm	x	x	x
145	906	Enclosure Tamper, built in tamper sw			◆
200	001-008	Input designated Supervisory Alarm	x	x	x
300	001-008	Input designated for System Trouble	x	x	x
305	901	Watchdog or PBS Reset	x	x	x
305	902	Power On Reset	x	x	x
307	800	No Faults or Restore of all prior faults	x	x	x
307	801	Diagnostic Fault / Low battery	x	x	x
307	802	Diagnostic Fault / RAM Data Error	x	x	x
307	803	Diagnostic Fault / EEPROM corrupted	x	x	x
307	804	Diagnostic Fault / A to D Converter	x	x	x
307	805	Diagnostic Fault / RF Modem Chip	x	x	x
307	806	Diagnostic Fault / Timing Error	x	x	x
307	807	Diagnostic Fault / RAM Chip R/W	x	x	x
307	808	Diagnostic Fault / Modem Loopback	x	x	x
307	809	AC Fault	x	x	x
307	810	DC Power Fault		◆	◆
307	813	Remote Annunciator		◆	◆
307	815	Panel Interface, IntelliPro or Keypad		◆	◆
307	816	IP Comm, Changed to E356 C904 in 3839		◆	◆
307	817	Zone Module		◆	◆
350	915	Redundant Comm Fault. (No Dual IP path) (25)			
	□				
354	902	IP Unit Test Supervision Fail (IP) (18)		◆	◆
354	906	RF Subscriber Failed to Check-In (RF)	x	x	x
354	915	NetCon 6 or 7 reported (UL) (10)	x	x	x
355	906	Radio Silence			◆
356	903	Acknowledge Delay (RF Comm)	x	x	x
356	904	2.0 Unit Failed IP Communication (19)		◆	◆
357	916	Antenna Cut (ASM)			◆
370	001-008	Zone Trouble	x	x	x
370	009	Charger Fault (UL)	x	x	x
370	010	Ground fault (UL)	x	x	x
555	911	NetCon reporting Disabled	x	x	x
602	000	Supervisory Check-In	x	x	x
603	000	Periodic RF transmission (Check-In)	x	x	x
608	002	Off Normal Check-In through IP		◆	◆
911	485	Missing API (Model 7650)	x		

◆ New for IntelliNet 2.0 models and recent MNR releases

Revision Control:

Date	Name	Notes
11.21.22	Justin Mitchell	Added INCC CID to document
12.15.23	Amanda Beausoleil	Made Edits to remove mention of 7705i and to add INCC. Made formatting changes.