

AT&T SE REGION WIRELESS E9-1-1/SS7 INTERCONNECTION GUIDE

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AT&T SE Region Wireless E9–1–1/SS7 Interconnection Guide

1. Executive Summary

AT&T SE Region provides Wireless Carriers with connectivity to its Enhanced 9-1-1 Selective Routing network so they may meet their (FCC mandated) responsibility to provide Enhanced 9-1-1 service to their customers. NENA (National Emergency Number Association) has published a Technical Information Document: "NENA 05-501 Technical Information Document on SS7 Guidelines for MSC to Selective Router Connectivity." (available at: **http://www.nena.org/standard/technical/SS7-guidelines-msc-selective-router**).
That document identifies many of the possible call setup parameter options that can occur within the enhanced 9-1-1 network on an SS7/ISUP trunk between a Wireless Service Provider's MSC and an Enhanced 9-1-1 selective router.

As a high level statement, the intent of this AT&T SE Region Wireless E9-1-1/SS7 Interconnection Guide is to list the call setup parameters shown in the NENA 05-501 TID that are supported by AT&T SE Region, so wireless carriers can chose the one(s) that best meet their needs.

This documentation will identify, to the Wireless Service Provider, the parameters they need to populate in their 9-1-1 Signaling System #7 Initial Address Message (SS7 IAM) to provide Phase 1 or Phase 2 E9-1-1 service to their customers.

The use of SS7 signaling greatly reduces post dial delay and also provides more reliable ANI delivery when compared to traditional MF signaling. (Throughout this document the term SS7 is to be construed to mean SS7/ISUP signaling.)
NOTE: Wireless service providers who desire to take advantage of the SS7 signaling format for E9-1-1service should contact their AT&T SE Region Account Representative to begin a test and installation plan or to discuss technical information.

This document identifies only SS7 signaling options supported for E9-1-1 trunk interconnection. SS7 interconnection for E9-1-1 is a service choice made by the wireless carrier, and does not limit, reduce, or eliminate the current option to deliver E9-1-1 calls to AT&T SE Region using traditional CAMA-MF or FG-D signaling protocols.

NOTE: The MOST IMPORTANT thing this document can relay is the following:

IT IS IMPERATIVE THAT ALL PARTIES UNDERSTAND WHAT IS REQUIRED TO MAKE WIRELESS E9-1-1 WORK PROPERLY IN AN SS7/ISUP ENVIRONMENT.

Any questions or doubts that the WSPs Network/Translations Engineer may have, should be brought to the attention of AT&T SE Region BEFORE proceeding with any provisioning steps. The WSPs AT&T SE Region Account Representative will arrange to get answers to any questions from the appropriate AT&T SE Region Network/Translations E9-1-1 personnel.

The WSP (or their agent) must have the ALI database pre-populated with records matching the pANIs (ESRD/ESRK) they will use, or the call will default route, and the PSAP will receive a "no record found" rather than the expected location information.

Failure to deploy SS7/ISUP signaling correctly for Wireless E9-1-1 may result in significant service interruptions or undesirable anomalies, including but not limited to, a total inability to complete the call.

2. Scope and Introductory Text

This document is intended to provide an explanation of how SS7/ISUP trunks can be used for delivery of Wireless E9-1-1 calls in the AT&T SE Region E9-1-1 serving area.

Wireless E9-1-1 Service Introduction

Wireless E9-1-1 service enables Wireless Service Providers (referred to as WSP or WSPs throughout this document) to comply with the FCC mandate for providing an Enhanced 9-1-1 service to wireless users that is somewhat equivalent to the service provided to landline users. FCC Docket 94-102 required WSPs to make E9-1-1 service available in two phases. The first phase of 94-102 (Phase I, initially effective April 1, 1998) required each WSP to provide a Public Safety Answering Point (PSAP) with the caller's Call Back Number (CBN), and a "general" location of the caller equivalent to the serving cell site or sector, but only if the PSAP requested Phase I service in writing and was capable of receiving and utilizing the data. That general location is represented by a 10 digit number commonly known as a psuedoANI (pANI), but also known as Emergency Services Routing Digits (ESRD) or Emergency Services Routing Key (ESRK) based on the type of wireless E9-1-1 solution in use. From the AT&T SE Region E9-1-1 Tandem's point of view, this general location number is simply used to determine which PSAP should receive the call. This document will use the term pANI generically, except where it is more appropriate to use ESRD or ESRK. Other industry documents specify which precise term is applicable for different situations, but that distinction is beyond the scope or intention of this document.

The second phase of 94-102 (Phase II, initially effective October 1, 2001) required each WSP to be able to deliver a wireless 9-1-1 call with Phase I requirements, plus longitude and latitude coordinates of the caller, accurate to within 150 meters or less, depending on the technology used for location determination. Generally speaking, Phase 2 began in late 2002, and it is expected to roll out continually until ubiquitous coverage is provided across all of the USA.

The "AT&T SE Region Wireless E9-1-1 Solution" (aka: WLS911, a hybrid solution) currently supports Phase I service by allowing a wireless carrier to send the caller's CBN and the pANI directly to a AT&T SE Region Nortel DMS E9-1-1 Tandem switch (NDET) using dedicated FG-D Multi-Frequency signaling trunks. This Solution can also serve as the underlying architecture to support a WSP in becoming Phase 2 compliant, if they chose to deploy their own architecture in a manner that accommodates delivery of longitude and latitude coordinates to a PSAP through the AT&T SE Region ALI database, once they are obtained over an "E2" interface, as described in J-STD-036-A (AT&T SE Region will also support the modification of E2 generally known as E2+)[1].

In the AT&T SE Region hybrid scenario the CBN and pANI would continue to be transported through the AT&T SE Region E9-1-1 Network to the PSAP using WLS911, and the longitude and latitude coordinates would be obtained through the AT&T SE Region ALI database, across an E2 interface provided by the WSP. AT&T SE Region does not provide the E2 interface transport facilities. There are also other technical/architectural "Solutions" available in the industry for a WSP to become Phase 1 and/or Phase 2 compliant. Those solutions are beyond the scope of this document.

NOTE: J-STD-036-A (or later) describes Phase II standards in greater detail. AT&T SE Region will support E2 interface functionality in the manner fully described in the Intrado document "AT&T SE Region SR/ALI to MPC Interface Specifications for TCP/IP Implementation of TIA/EIA/J-STD-036 E2" (Contact Intrado for the latest issue supported on AT&T SE Region ALI Data Base systems).

[1] The hybrid solution may no longer be available in some areas beginning in 1Q2011. Wireless Service Providers should contact their AT&T SE Region Account Representative for specific availability information.

3. Miscellaneous Notes

NOTE 1: The need to provide and maintain the reliability and integrity of E9-1-1 service is a top priority. Therefore, deployment/implementation of SS7/ISUP trunking for E9-1-1 is subject to due date negotiation between AT&T SE Region and any interconnection customer. The migration onto this newer signaling technology cannot be subject to the Customer Desired Due Date (CDDD) processes.

NOTE 2: Failure to deploy SS7/ISUP signaling correctly for Wireless E9-1-1 may result in significant service interruptions or undesirable anomalies, including but not limited to a total inability to complete the call.

NOTE 3: This document uses acronyms and terms as described in the NENA Master Glossary of E9-1-1 Terms available in the **NENA Recommended Technical Standards** section at http://www.nena.org/standards/master-glossary

NOTE 4: All interconnecting carriers need to be familiar with and in compliance with Telcordia GR-905- Common Channel Signaling Network Interface Specification (CCSNIS) Supporting Network Interconnection, Message Transfer Part (MTP), and Integrated Services Digital Network User Part (ISDNUP). Additionally, before any new device is connected to the AT&T Common Channel Signaling Network (CCSN) it must have undergone and passed MTP Level 2 and Level 3 protocol testing by Telcordia or other suitable independent lab testing facility.

This does not include Level 3 protocol testing on new links from known switch types (#5ESS, DMS100, etc.). SS7 is a mature technology and, over the years, there have been only rare occasions of mismatches at the Level 3 protocol. These differences have typically been non-traffic affecting differences in timer settings. For these reasons AT&T has taken the position that the continued investment in time and Level 3 protocol test equipment would be imprudent. However, any other type of devices (e.g., PBXs, VMS host machines, packet switching devices, etc.) that are not routinely connected to the network, will be asked to undergo lab testing with a "standards" lab such as Telcordia or other suitable independent lab testing facility. We acknowledge there may be some carriers who don't undergo such lab testing, and we reserve the right to remove them from our CCSN without prior notice if their equipment causes us or any of our customers a problem.

NOTE 5: The **MOST IMPORTANT** thing **this** document can relay is the following:

IT IS IMPERATIVE THAT ALL PARTIES UNDERSTAND WHAT IS REQUIRED TO MAKE WIRELESS E9-1-1 WORK PROPERLY IN AN SS7/ISUP ENVIRONMENT. Any **questions** or **doubts** that the WSPs Network/Translations Engineer may have, should be brought to the attention of AT&T SE Region **BEFORE** proceeding with any provisioning steps. The WSPs AT&T SE Region Account Representative will arrange to get answers to any questions from the appropriate AT&T SE Region Network/Translations E9-1-1 personnel. The WSP (or their agent) must have the ALI database pre-populated with records matching the pANIs (ESRD/ ESRK) they will use, or the call will default route, and the PSAP will receive a "no record found" rather than the expected location information

4. Reason for Revision

This document was updated on December 30, 2010 to reflect latest information on E9-1-1 SS7 Interconnection with AT&T.

5. Organization of this Document

This document is to be used in conjunction with the following publications:
Telcordia GR-905- Common Channel Signaling Network Interface Specification (CCSNIS) Supporting Network Interconnection, Message Transfer Part (MTP), and Integrated Services Digital Network User Part (ISDNUP).

NENA 05-501, NENA Technical Information Document on SS7 Guidelines for MSC to Selective Router Connectivity, Original Issue, October 2002. The NENA 05-501 Technical Information Document (TID) provides a reference for Wireless Service Providers (WSP) on the basics of E9-1-1 SS7 translations to the Selective Router (SR). It was issued to address the obvious need for guidance on SS7 translations between the MSC and the SR. It presents a broad view of the E9-1-1 related SS7 translations that exist today (2002), and possible ones for the future.
NOTE: This AT&T SE Region Wireless E9-1-1/SS7 Interconnection Guide document references configurations detailed in the NENA 05-501 SS7 Guidelines for MSC to Selective Router Connectivity TID. The two documents should be used together to gain a more clear understanding of the requirements surrounding using SS7/ISUP supported trunking for wireless E9-1-1 in AT&T SE Region's E9-1-1 serving area.

J-STD-036-A (or later) Enhanced Wireless 9-1-1 Phase 2. This Joint Standard has been issued and approved by the Telecommunications Industry Association and the Alliance for Telecommunications Industry Solutions, June 2002. This joint standard defines the messaging required to support information transfer to identify and locate wireless emergency services callers.

NENA 03-006, RECOMMENDED STANDARDS FOR E9-1-1 CALL CONGESTION MANAGEMENT. This NENA document provides additional details regarding how to establish the proper quantity of Wireless trunks into an E9-1-1 Tandem based on generally accepted "best practices". This document can be found at http://www.nena.org/standards/technical/network/e911-call-congestion-management

"AT&T SE Region SR/ALI to MPC Interface Specifications for TCP/IP Implementation of TIA/EIA/J-STD-036 E2" (Contact Intrado for the latest issue supported on AT&T SE Region ALI Data Base systems). This is an Intrado document that fully describes the Intrado SR/ALI E2 messaging interface. **This is the interface that AT&T SE Region is using!**

Specific "Wireless E9-1-1" interconnection requirements for the CCS network interconnection architecture and the interface protocol for call setup are defined in **this** AT&T SE Region Wireless E9-1-1/SS7 Interconnection Guide document. **This** document will define the interconnection requirements in the AT&T SE Region E9-1-1 Network when using SS7/ISUP in concert with one of the various Wireless E9-1-1options identified in J STD-036-A, and in the NENA 05-501 and 03-006 documents.

6. Wireless CCS Network Interconnection Architecture

General Interconnection Information

Signaling System 7 - Common Channel Signaling using ISDN User Part protocol (SS7/ISUP) for Wireless E9-1-1 is only supported for Type 2C trunks (interconnected directly to a AT&T SE Region E9-1-1 tandem switch) as defined in GR-145-CORE. The Type 2C trunks shall be dedicated for Wireless E9-1-1 traffic. There will always be a minimum of two trunks per trunk group. Ideally, they should be provisioned in a diverse manner so that a single network fault or incident would not render both trunks inoperable. In sizing the new SS7/ISUP TG, Wireless Network Planners should build toward providing a P.01 Grade Of Service (GOS) (see NOTE below).

NOTE:

The NENA document, NENA 03-006, RECOMMENDED PROCEDURES FOR E9-1-1 CALL CONGESTION MANAGEMENT provides additional details regarding how to establish the proper quantity of Wireless trunks into an E9-1-1 Tandem based on generally accepted "best practices".

If a WSP elects to provide direct MF trunks to be used as backup in the event of an SS7 failure, AT&T SE Region can support such an arrangement. If MF backup is used, the quantity of MF trunks will be determined by Wireless Network Planning practices, but in no case will it be less than two trunk members per Trunk Group (TG). Since CAMA-MF only delivers a 7 digit pANI, CAMA-MF Trunk Groups are to be provisioned on a per NPA basis. FG-D MF signaling allows for delivery of a full 10 digit pANI number, along with a full 10 digit CBN, so FGD MF Trunk Groups can be provisioned to carry multiple NPAs as long as all default routed calls should route to the same PSAP. CAMA-MF requires NPA specific trunk groups so the NDET can "build" a 10 digit pANI upon receipt of only 7 digits across the NPA specific trunk group.

All trunk groups (primary and back-up) must take into account that only ONE default PSAP can be associated with an E9-1-1 Trunk Group. It is imperative that the Wireless Network Planner keep this in mind when determining how many trunk groups will be needed for service in any given area. **THAT DECISION CAN HAVE SIGNIFICANT IMPACT ON PSAPs.**

As mentioned above, when sizing the new SS7/ISUP TG, Wireless Network Planners should build toward providing a P.01 GOS. The size of the backup MF TGs shall be a minimum of two, but otherwise may not necessarily achieve a P.01 GOS, since they are not expected to be frequently called upon. They are after all -ONLY INTENDED FOR BACKUP!

Wireless Phase 1 vs. Phase 2

It is VERY important that all parties understand that differences of opinion (currently) exist in regard to the meaning of certain terms used in the Wireless E9-1-1industry at large. Most are just slight nuance differences, but if two or more people use the same term to mean different things it causes confusion. This section will attempt to clarify how AT&T SE Region interprets certain Phase 1 and Phase 2 terms, especially in regard to how they are used in this document. There may be significant impact to Wireless E9-1-1 service if the Wireless Engineer fails to understand these differences during establishment of initial interconnection using SS7/ISUP for wireless E9-1-1.

Generally speaking, the term CAS (Callpath Associated Signaling) means the same thing in Wireless Phase 1 and Phase 2. In each case, ALL of the FCC mandated data is carried directly from the WSPs MSC through the AT&T SE Region E9-1-1 Tandem to the PSAP. In Phase 1, CAS includes two (significant) data elements, the CBN and the pANI. In Phase 2, CAS includes those two elements as well as the longitude/latitude coordinates of the caller (aka: x, y) when they dialed 9-1-1 on their wireless device. Phase 2 CAS requires SS7/ISUP between the MSC and the AT&T SE Region E9-1-1 Tandem, and ISDN to the PSAP. As of 3Q2002 Phase 2 CAS is NOT supported in AT&T SE Region. (ISUP Initial Address Message Parameter Contents for CAS are fully described in J-STD-036-A, Annex-D, Section D.1.3)

In Phase 1, NCAS includes two (significant) data elements: the pANI and the CBN. In Phase 1 NCAS, ONLY the pANI is sent directly from the WSPs MSC through the AT&T SE Region E9-1-1 Tandem to the PSAP (with the callpath). The CBN is added to the existing pANI record in the AT&T SE Region ALI-DB by the WSP or their agent during call setup, using an out-of-band signaling path (hence NCAS). The updated pANI ALI record including the CBN & cell/sector address data is delivered to the PSAP through the AT&T SE Region ALI database using the AT&T SE Region Standard ALI format. (The various NCAS architectures are beyond the scope of this document. See J-STD-034 and each NCAS vendor's own documents for details.)

In Phase 2, NCAS includes those same two (significant) data elements as well as the longitude/latitude coordinates of the caller when they dialed 9-1-1 on their wireless device (and potentially can include updated data upon demand). However, in Phase 2, NCAS (as defined in J-STD-036-A, Annex-D, Section D.1.2) includes BOTH the CBN and the pANI being sent directly from the WSPs MSC through the AT&T SE Region E9-1-1 Tandem to the PSAP. In this instance the PSAP obtains the longitude/latitude coordinates through the AT&T SE Region ALI database (using the AT&T SE Region Extended ALI format) via the WSPs E2 interface. (The various E2 interface architectures are beyond the scope of this document. See J STD-036-A and Intrado's "AT&T SE Region SR/ALI to MPC Interface Specifications for TCP/IP Implementation of TIA/EIA/J-STD-036 E2" for details).

In Phase 2 there is an alternative method of data delivery that J-STD-036-A refers to as Wireline Compatibility Mode (WCM), which ONLY sends the pANI (ESRK) directly from the WSPs MSC through the AT&T SE Region E9-1-1 Tandem to the PSAP (Sounds like Phase 1 NCAS doesn't it? Hence the terminology confusion!). In WCM the CBN and the longitude/latitude coordinates are added to an existing pANI record in the AT&T SE Region ALI-DB during the call by the WSP or their agent using an out-of-band signaling path defined as an E2 interface. An updated Phase 2 compliant pANI ALI record including the CBN, cell/sector address data and longitude/latitude coordinates is delivered to the PSAP through the AT&T SE Region ALI database using the AT&T SE Region Extended ALI response format. If the x, y coordinates of the caller are unknown at the time the updated pANI ALI record is created, the WSP (or their agent) is expected to fall back to a Phase 1 compliant record that would include the CBN & cell/sector address data. (The E2 interface architecture and operations are beyond the scope of this document. See J-STD-036-A, and Intrado's "AT&T SE Region SR/ALI to MPC Interface Specifications for TCP/IP Implementation of TIA/EIA/J-STD-036 E2" for details.)

In AT&T SE Region there is another alternative method of data delivery that is structured upon the J-STD-036-A NCAS Solution in Phase 2, or on J-STD-034 CAS in Phase 1. In either case it is a 20 digits to the PSAP type solution. However, this 20 digit solution can be used between the MSC and the NDET even if the PSAP is not capable of receiving 20 digits from the NDET. This is accomplished by using the AT&T SE Region Wireless E9-1-1 Solution (WLS911), a Hybrid architecture functional in both Phase 1 and Phase 2 environments. WSPs should see their AT&T SE Region account team for details on how the WLS911 Solution may be of value in their overall architecture plans.

7. Interface Protocol for Wireless Call Setup when using SS7/ISUP signaling

A WSP choosing to interconnect with SS7 trunks using ISUP signaling in support of delivery of Wireless E9-1-1 calls shall comply with one of the following three signaling options available in the AT&T SE Region E9-1-1 Network.

On the AT&T SE Region NDET switches the options are known as "WRLS_STD" or "WRLS_CLD" or "E911_STD". Any one of these three can be supported on the AT&T SE Region NDET switches on a per incoming trunk group basis. **(They would of course be known by other nomenclature designations on various Wireless switches.)**

NOTE: The WRLS_STD signaling option is used when the pANI is located in the Generic Digits (GDP) Parameter. Calling Party Number is used as the callback number. Charge Number is ignored by the NDET. This is the industry standard for wireless calls on the NDET.

The WRLS_CLD signaling option is used when the pANI is located in the Called Party Number parameter, instead of the digits 9-1-1. Calling Party Number is used as the callback number. Charge Number is ignored by the NDET. Generic Digits **(GDP)** Parameter **IS NOT ALLOWED!**

Depending on which signaling option is chosen, the WSP will send an Initial Address Message (IAM) containing the following parameters when sending a wireless E9-1-1 call to a AT&T SE Region E9-1-1 tandem:

Calling Party Number Parameter

Called Party Number Parameter

Generic Digits (GDP) Parameter **(NOT allowed if the WSP uses WRLS_CLD)**

Charge Number Parameter

NOTE: Although Charge Number Parameter is allowed as an optional parameter, it is ignored by the NDET when using either of the WRLS_xxx signaling options.

Calling Party Category Parameter

Originating Line Information Parameter

Calling Party Number Parameter

Calling Party Number

The Calling Party Number parameter value is variable depending upon which trunk group signaling option is being used. If the intention is to achieve Wireline Compatibility Mode (using E911_STD), the Calling Party Number parameter shall contain the pANI that will be used for Selective Routing, and will be sent to the PSAP to retrieve additional call data via the ALI database path. Otherwise, in either of the WRLS_xxx signaling options the Calling Party Number parameter shall contain the caller's CBN (or a number being used as a substitute when the CBN is unknown).

The wireless carrier shall specify the contents of the Calling Party Number (i.e., the CBN or a pANI) at the time the trunk group is ordered (via their AT&T SE Region account team using form RF-1004-WS). Once a trunk group is provisioned, the wireless carrier shall adhere to their choice (i.e., a trunk cannot signal the CBN for one call and a pANI for another call).

Calling Party Number Parameter

Calling Party Number is a required parameter in the IAM. The Called Party Number parameter value is variable depending upon which trunk group signaling option is being used. In any case it shall either contain the digits "911" or a pANI.

The Called Party Number parameter includes the digits "911" when the pANI is provided in the Generic Digits Parameter (WRLS_STD signaling option), or when the Calling Party Number contains the pANI (E911_STD for Wireline Compatibility Mode). The Called Party Number parameter contains the pANI when the Generic Digits Parameter is not used, but Wireline Compatibility Mode is not desired (WRLS_CLD signaling option). The need to use WRLS_CLD may be a result of a situation where the WSP switch cannot support a GDP parameter. In that case the pANI would appear in the Called Party Number parameter. If a WSP switch can support a GDP, and if Wireline Compatibility Mode is not desired, then the GDP is the recommended place to put the pANI (WRLS_STD signaling option).

The wireless carrier shall specify the contents of the Called Party Number (i.e., the digits "911" or a pANI) at the time the trunk group is ordered (via their AT&T SE Region account team using form RF-1004-WS). Once a trunk group is provisioned, the wireless carrier shall adhere to their choice (i.e., a trunk cannot signal the digits "911" for one call and a pANI for another call).

Called Party Number is a required parameter in the IAM.

Generic Digits Parameter & GDP Type

The Generic Digits Parameter (if required) shall contain a pANI. The "type of digits" field in the Generic Digits Parameter shall be coded 01101 (decimal 13) for cell site and sector identification. A Generic Digits Parameter is **conditionally required** in the IAM.

A Generic Digits Parameter shall be included in the IAM when a wireless carrier chooses to send the digits "911" in the Called Party Number parameter (WRLS_STD signaling option). If a WSP switch can support a GDP, and if Wireline Compatibility Mode is not desired, then the GDP is the recommended place to put the pANI.

A GDP shall NOT be included in the IAM if the Calling Party Number or the Called Party Number parameter contains the pANI.

The wireless carrier shall specify whether a Generic Digits Parameter will be included in the IAM at the time the trunk group is ordered (via their AT&T SE Region account team using form RF-1004-WS). Once a trunk group is provisioned, the wireless carrier shall adhere to their choice (i.e., a trunk cannot include a GDP for one call and not for another call).

Generic Digits Parameter is a **conditionally required** parameter in the IAM.

In all cases where GDP is used, "type of digits" must equal "13". Delivery of a pANI in **a GDP that isn't type 13 will not work** *as intended.*

Charge Number Parameter

If present, the Charge Number parameter shall contain the caller's CBN or the non-dialable callback number, or in Wireline Compatibility Mode it shall contain the pANI. Charge Number is an optional parameter in the IAM.

Charge Number is an optional parameter in the IAM.

NOTE: Charge Number Parameter is ignored by the NDET when using either of the WRLS_ xxx signaling options.)

Calling Party Category Parameter (CPC, aka: CPCat)

The Calling Party Category parameter shall be coded as 11100000 (decimal 224) for "emergency service call".

Calling Party Category is a required parameter in the IAM.

NOTE:

The Calling Party Category parameter encoding "emergency service call" is not required on all E9-1-1 tandem switches and may be waived in some instances. WSPs seeking to waive this requirement should consult their AT&T SE Region representative. See Attachment "A" for details

Originating Line Information Parameter

For call scenarios #2, and #3 (with or without a hybrid architecture at the Selective Router), the Originating Line Information parameter shall be coded either as 00111101 (decimal 61) for "cellular services (type1)," 00111110 (decimal 62) for "cellular services (type2)," or 00111111 (decimal 63) for "cellular services (roaming)." The OLI parameter carries the II digits defined by the NANP administrator. The OLI parameter and the II values can be found in T1.113 (ANSI ISUP standard). Telcordia has also listed the wireless II values (61, 62, and 63) in the E9-1-1 SS7 generic requirements document GR-2956.

For call scenario #1, (WCM) the Originating Line Information parameter shall be coded either as 00 (POTS).

Originating Line Information is a required parameter in the IAM.

The Originating Line Information parameter is not required on all E9-1-1 tandem switches and may be waived in some instances.

NOTE: WSPs seeking to waive this requirement should consult their AT&T SE Region representative. See Attachment "A" for details.

8. Identified Call Signaling Scenarios Options

Section 4 of the NENA 05-501 document describes the various combinations of the call setup parameters. Three Call Signaling Scenarios representing the four common Wireless E9-1-1 Solutions defined in Section 3 of the NENA 05-501 TID are as follows:

Call Signaling Scenario (1) ESRK delivery

Call Scenario 2, CBN and ESRD Delivery - WITHOUT a hybrid

Call Scenario 2, CBN and ESRD Delivery - WITH a hybrid 5

Call Signaling Scenario (3) CBN, ESRD, and GLP (Geodetic Location Parameter) delivery

NOTE: This AT&T SE Region document further clarifies those NENA 05-501 descriptions by distinguishing between Call Signaling Scenario (2) CBN and ESRD Delivery without a hybrid architecture at the SR; and Call Signaling Scenario (2) CBN and ESRD Delivery WITH a hybrid architecture at the SR. The NENA 05-501 authors elected to allow companies (like AT&T SE Region) who offer a hybrid solution to define their hybrid solution in their own documents. This document does that for AT&T SE Region's hybrid offering. 5

Call Scenario 1, ESRK Delivery

AT&T SE Region supports the following options as listed in table 4-1 (ESRK Delivery) in "NENA 05-501 Technical Information Document on SS7 Guidelines for MSC to Selective Router Connectivity":

A1, A2, A3, B1, B2, and B3 are supported using the E911_STD trunk options on the AT&T SE Region Nortel DMS E9-1-1 Tandem (Referred to as NDET throughout this document.). For all practical purposes these calls appear to be like wireline calls at the NDET.

Call Scenario 2, CBN and ESRD Delivery - WITHOUT a hybrid: (WITHOUT a hybrid architecture at the Selective Router)

AT&T SE Region supports the following options as listed in table 4-2 (CBN and ESRD Delivery) in "NENA 05-501 Technical Information Document on SS7 Guidelines for MSC to Selective Router Connectivity":

A1, A2, B1, B2, C1, C2, D1, D2 are supported using the E911_STD or WRLS_STD trunk options on the

AT&T SE Region NDET. The strongly preferred, and recommended, trunk option is WRLS_STD because it is seen asthe standard for wireless E9-1-1 calls.

A3, B3, C3, D3 are supported using the E911_STD trunk option only.

E1, E2, F1, F2, G1, G2, H1, H2, I1, I2, J1, J2, K1, K2, L1, L2 are supported using ONLY the WRLS_CLD

option on the NDET.

Option I3 is **NOT SUPPORTED** on the NDET platform.

NOTE: Call scenario 2 is sometimes called "20 digits to the PSAP". In Phase 1 it was known as CallpathAssociated Signaling (CAS). In Phase 2 (according to J-STD-036-A) it is known as Non-Callpath AssociatedSignaling (NCAS).

Call Scenario 2, CBN and ESRD Delivery - WITH a hybrid: (WITH a hybrid architecture at the Selective Router) 2

AT&T SE Region supports the following options as listed in table 4-2 (CBN and ESRD Delivery) in "NENA 05-501Technical Information Document on SS7 Guidelines for MSC to Selective Router Connectivity":

A1, A2, B1, B2, C1, C2, D1, D2 are supported using the E911_STD or WRLS_STD trunk options on theAT&T SE Region NDET. The strongly preferred, and recommended, trunk option is WRLS_STD because it is seen as the standard for wireless E9-1-1 calls.

A3, B3, C3, D3 are supported using the E911_STD trunk option only.

E1, E2, F1, F2, G1, G2, H1, H2, I1, I2, J1, J2, K1, K2, L1, L2 are supported using ONLY the WRLS_CLD option on the NDET.

Option I3 is **NOT SUPPORTED** on the NDET platform.

NOTE: Call scenario 2 is sometimes called "20 digits to the PSAP". In Phase 1 it was known as Callpath Associated Signaling (CAS). In Phase 2 (according to J-STD-036-A) it is known as Non-Callpath Associated Signaling (NCAS).

NOTE: Call Scenario 2, CBN and ESRD Delivery - WITH a hybrid may not be available on ALL of AT&T SE Region's (64) NDETs. 5

Call Scenario 3, CBN, ESRD and GLP Delivery: (GLP = Geodetic Location Parameter)

AT&T SE Region does not support this method at this time due to the inability of the selective router platform and the MSC platforms to use and/or route on the GLP, or to support ISDN PSAPs in an industry standard manner.

Database Steering Options

The NENA 05-501 document also defines data base steering options that are used to interconnect the wireless carrier's network with the AT&T SE Region Enhanced 9-1-1 ALI Database systems. AT&T SE Region will support the data steering options referred to as "E2" and "E2+", as defined in AT&T SE Region Technical Reference TR 73610, and in the Intrado technical document "AT&T SE Region SR/ALI to MPC Interface Specifications for TCP/IP Implementation of TIA/EIA/J-STD-036 E2" (Contact Intrado for the latest issue supported on AT&T SE Region ALI Data Base systems).

9. Cross Reference Tables to J-STD-036-A

The intention of this section is to provide a method for a WSP to assess which type of AT&T SE Region supported SS7/ ISUP signaling option can best fit their needs. Each decision MUST take into account the capability of the WSPs MSC and the capability of the PSAP CPE, and may be impacted by the type of ALI steering options involved.

The following pages in this section represent the different interconnection scenarios that are described in J-STD-036-A (or later) for Wireless E9-1-1 Phase 2.

Wireline Compatibility Mode (NDET uses signaling option E911_STD)

If the WSP will be using a Wireless E9-1-1 Phase 1 Non Callpath Associated Signaling (NCAS) Solution, as

described in J-STD-034 (or later) or Wireless E9-1-1 Phase 2 Wireline Compatibility Mode, as described in J-STD-036-A (or later) to deliver the Call Back Number (CBN) and/or x, y coordinates to the PSAP via the ALI database, Table "A" below describes an acceptable interconnection method (known as Wireline Compatibility Mode in , as described in J-STD-036-A (or later)). In this interconnection method ONLY the pANI is sent into the AT&T SE Region NDET, directly from the WSPs MSC over dedicated trunks. The pANI is used by the NDET for selective routing, and then the pANI is sent to the PSAP the same way ANI would be on a landline call. That may be as an 8 or 10 digit number, depending on the capability of the PSAP CPE.

The NCAS or WCM Solution provider is expected to create a record in the AT&T SE Region ALI database that will contain the CBN (among other data normally included by the NCAS provider, which may or may not also include Phase 2 data). That activity is beyond the scope of this document.

Extracted in part from Annex D: of J-STD-036-A (or later)**, clarified for use in AT&T SE Region.**

Table "A" ISUP Initial Address Message Parameter Contents for Wireline Compatibility Mode (ESRK).

In this mode only the ESRK is sent as the ANI over dedicated trunks to the Selective Router because the trunk between the Selective Router and the PSAP supports transport of only one 7/10 digit number.

Orreq Parameters	**ISUP Parameters**	**Value**
Digits(Dialed)	Called party number	(911) **(see Note 1 below)**
MDN (aka: CBN)	Calling party number **(see Note 2 below)**	ESRK
DMH_BillingDigits	Charge Number **(see Note 2 below)**	ESRK
GenericDigits	Generic digits parameter **(see Note 3 below)**	NOT ALLOWED **(see Note 3 below)**
GeographicPosition	Calling geodetic location	n/a
n/a	Originating Line Information (OLI)	If included, use value 00 (POTS)

NOTES:

For an ESC, the ISUP Called Party Number parameter shall only be populated with the digit value "911".

The Calling Party Number MUST be included in the IAM message. The Charge Number may also be included in the IAM, but if so it MUST be the SAME as the Calling Party Number.

The Generic digits parameter SHALL NOT be included in the IAM.

ISUP Initial Address Message Parameter Contents for NCAS (NDET uses signaling*option* WRLS_STD, because MSC can support GDP*)*

(NCAS as described in J-STD-036-A, Annex-D, Section D.1.2)

As this (NDET) signaling option's name implies, this should only be used on trunks handling wireless traffic exclusively, and is the industry standard for wireless calls (on an NDET). This option uses the pANI in the Generic Digits parameter to route the call and uses the Calling Party Number Parameter as the callback number. If the WSP will be using a Non Callpath Associated Signaling (NCAS) Solution (as described in J-STD-036-A (or later), Annex-D, Section D.1.2) that intends to deliver the Call Back Number (CBN) and the pANI to the PSAP via the trunk between the Selective Router and the PSAP, Table "B" below illustrates an acceptable interconnection method. In this interconnection method BOTH a pANI (ESRD) and the CBN (aka: MDN) are sent in the SS7/ ISUP IAM directly from the WSPs MSC over dedicated trunks into the AT&T SE Region NDET. The pANI is used by the NDET for selective routing, and then the CBN and the pANI are sent to the PSAP using Enhanced MF signaling (E-MF). This is of course dependant on the ability of the PSAP

CPE to receive and utilize E-MF. Many PSAPs in AT&T SE Region's E9-1-1 service area are using E-MF, but some do not.

When using this interconnection method the NCAS Solution provider might still create a record in the AT&T SE Region ALI database containing the pANI &/or the CBN (among other data normally included by the NCAS provider, which may or may not also include Phase 2 data). That is beyond the scope of this document.

See Table “B” below.

See prior page for an explanation of when this type of interconnection is acceptable.

NDET uses signaling option WRLS_STD, because MSC can **support GDP)**

Extracted in part from J-STD-036-A (or later)**, Annex-D, Section D.1.2, but clarified for use in AT&T SE Region**

Table "B" ISUP Initial Address Message Parameter Contents for Phase 2 NCAS.

In this mode both an ESRD and the MDN are sent in the IAM, assuming that the trunk between the Selective Router and the PSAP supports transport of at least two 7/10-digit numbers.

NOTE:

This 20 digit solution can be used between the MSC and the NDET even if the PSAP is not capable of receiving 20 digits from the NDET. This is accomplished by using the AT&T SE Region Wireless E9-1-1 Solution (WLS911), a Hybrid architecture functional in both Phase 1 and Phase 2 environments. WSPs should see their AT&T SE Region account team for details on how the WLS911 Solution may be of value in their overall architecture plans.

Orreq Parameters	UP Parameters	Value
Digits(Dialed)	Called party number (see Note 1 below)	911
MDN (aka: CBN)	Calling party number (see Note 3 below)	CBN or the non-dialable number used in lieu of a real callback
DMH_Billing Digits	Charge Number (see Note 3 below)	CBN or the non-dialable number used in lieu of a real callback (see Note 3 below)
GenericDigits	Generic digits parameter (see Note 2 below)	ESRD
Geographic Position	Calling geodetic location	n/a
n/a	Originating Line Information (OLI)	If included, use value 61 OR 62

NOTES:

911 is used as the Called party number. In AT&T SE Region the MSC MUST use dedicated trunks to the Emergency Services Network Entity (ESNE) to route the Emergency Services Call (ESC).

The Type of Digits field within the Generic Digits Parameter should be set to 01101 (decimal 13) to indicate Location Identification Number .

The Calling Party Number MUST be included in the IAM message. The Charge Number may also be included in the IAM, but if so it MUST be the SAME as the Calling Party Number. Although Charge Number Parameter is allowed as an optional parameter, it is ignored by the NDET when using either of the WRLS_xxx signaling options.

ISUP Initial Address Message Parameter Contents for NCAS (NDET uses signaling option WRLS_CLD because MSC **cannot** support GDP)

As this signaling option's name implies, this should only be used on trunks handling wireless traffic exclusively. This type of signaling (WRLS_CLD) looks for the pANI in the Called Party Number parameter rather than the Generic Digits Parameter. It uses the Calling Party Number parameter as the callback number. Signaling type WRLS_CLD assumes the Called Party Number is always the pANI. **This signaling option (WRLS_CLD) IS** NOT **TO BE USED IF WIRELINE COMPATIBILITY MODE IS DESIRED (use E911_STD instead).** The need to use WRLS_CLD is assumed to be the result of a situation where the WSP's MSC switch cannot support a GDP parameter. In that case the pANI would appear in the Called Party Number parameter, as long as WCM is NOT desired.

WARNING

If an MSC switch can support a GDP, and if Wireline Compatibility Mode is NOT desired, then the GDP is the recommended place to put the pANI.

If the WSP will be using a Non Callpath Associated Signaling (NCAS) Solution (as described in J-STD-036-A (or later), Annex-D, Section D.1.2) that intends to deliver the Call Back Number (CBN) and the pANI to the PSAP via the trunk between the Selective Router and the PSAP, Table "C" below illustrates an acceptable interconnection method. In this interconnection method BOTH a pANI (ESRD) and the CBN (aka: MDN) are sent in the SS7/ISUP IAM **directly** from the WSPs MSC **over dedicated trunks** into the AT&T SE Region NDET. The pANI is used by the NDET for selective routing, and then the CBN and the pANI are sent to the PSAP using Enhanced MF signaling (E-MF). This is of course dependant on the ability of the PSAP CPE to receive and utilize E-MF. Many PSAPs in AT&T SE Region's E9-1-1 service area are using E-MF, but some do not.

When using this interconnection method the NCAS Solution provider might still create a record in the AT&T SE Region ALI database containing the pANI &/or the CBN (among other data normally included by the NCAS provider, which may or may not also include Phase 2 data). That is beyond the scope of this document.

See Table “C” below.

See prior page for an explanation of when this type of interconnection is acceptable. **(NDET uses signaling option WRLS_CLD because MSC cannot support GDP).**

Extracted in part from J-STD-036-A, Annex-D, Section D.1.2, but clarified for use in AT&T SE Region

Table "C" ISUP Initial Address Message Parameter Contents for Phase 2 NCAS

In this mode both an ESRD and the MDN are sent in the IAM, assuming that the trunk between the Selective Router and the PSAP supports transport of at least two 7/10-digit numbers.

NOTE:

This 20 digit solution can be used between the MSC and the NDET even if the PSAP is not capable of receiving 20 digits from the NDET. This is accomplished by using the AT&T SE Region Wireless E9-1-1 Solution (WLS911), a Hybrid architecture functional in both Phase 1 and Phase 2 environments. WSPs should see their AT&T SE Region account team for details on how the WLS911 Solution may be of value in their overall architecture plans.

Orreq Parameters	**ISUP Parameters**	**Value**
Digits(Dialed)	Called party number **(see Note 1 below)**	pANI **(see Note 1 below)**
MDN (aka: CBN)	Calling party number **(see Note 3 below)**	CBN or the non-dialable number used in lieu of a real callback
DMH_Billing Digits	Charge Number **(see Note 3 below)**	CBN or the non-dialable number used in lieu of a real callback (see Note 3 below)
Generic Digits	Generic digits parameter **(see Note 2 below)**	NOT ALLOWED **(see Note 2 below)**
GeographicPosition	Calling geodetic location	n/a
n/a	Originating Line Information (OLI)	If included, use value 61 OR 62

NOTES:

The pANI is used as the Called party number. In AT&T SE Region the MSC MUST use dedicated trunks to the Emergency Services Network Entity (ESNE) to route the Emergency Services Call (ESC).

The Generic Digits Parameter IS NOT ALLOWED TO BE SENT IN THE IAM WHEN USING WRLS_CLD!

The Calling Party Number MUST be included in the IAM message. The Charge Number may also be included in the IAM, but if so it MUST be the SAME as the Calling Party Number. Although Charge Number Parameter is allowed as an optional parameter, it is ignored by the NDET when using either of the WRLS_xxx signaling options.

ISUP Initial Address Message Parameter Contents for CAS

There are no ISDN PSAPs in the AT&T SE Region E9-1-1 serving area. Therefore the interconnection arrangement shown in Table "D" below **IS NOT SUPPORTED. Shown here for reference ONLY.**

WARNING

This IS NOT SUPPORTED **in AT&T SE Region.**

Extracted in part from Annex D: of J-STD-036-A (or later)

Table "D" ISUP Initial Address Message Parameter Contents for CAS.

In this mode the initial position of the mobile is also sent in the IAM.

Orreq Parameters	**ISUP Parameters**	**Value**
Digits(Dialed)	Called party number	(911) or PSAP DN **(see Note 1 below)** or ESRD
MDN	Calling party number	CBN or the non-dialable number used in lieu of a real callback
DMH_Billing Digits	Charge Number **(see Note 3 below)**	CBN or the non-dialable number used in lieu of a real callback
GenericDigits	Generic digits parameter **(see Note 2 below)**	ESRD
Geographic Position	Calling geodetic location	geographic position (x, y)
n/a	Originating Line Information (OLI)	If included, use value 61 OR 62

NOTES:

1. 911 is used as the Called party number if the MSC uses dedicated trunks to the Emergency Services Network Entity (ESNE) to route the Emergency Services Call (ESC). The directory number of the PSAP is used as the called party number if the MSC uses a shared trunk to route the ESC to the ESNE. The ESRD may be used on dedicated trunks that do not support the ISUP Generic Digits parameter.

2. The Type of Digits field within the Generic Digits Parameter (IF USED) should be set to indicate Location Identification Number. GDP MUST NOT BE SENT IF WRLS_CLD signaling option is used at the NDET.

3. The Charge Number, Calling Party Number or both may be included in the IAM message. Although Charge Number Parameter is allowed as an optional parameter, it is ignored by the NDET when using either of the WRLS_xxx signaling options.

WARNING

Remember, Phase 2 CAS IS NOT SUPPORTED **in AT&T SE Region!**

10. Cross Reference Tables to NENA TID 05-501 - SS7 Guidelines for MSC to Selective Router Connectivity

The intention of this section is to provide a way for a WSP to assess which type of AT&T SE Region supported SS7/ ISUP signaling option can best fit their needs. Each decision MUST take into account the capability of the WSPs MSC and the capability of the PSAP CPE, and may be impacted by the type of ALI steering options involved.

Each of the following pages in this section represents a different interconnection scenario that is described in NENA TID 05-501- SS7 Guidelines for MSC to Selective Router Connectivity.

Call Scenario 1: ESRK Delivery

Call Scenario 1 describes the mode where an MSC uses ISDN User Part (ISUP) protocol to send an ESRK to an E911 selective router. Call Scenario 1 supports the **Wireline Compatibility Mode** 1 described in J-STD-036- A (or later), Annex D, Section D.1.1. Wireless carriers can use Call Scenario 1 to support Phase I and/or Phase II wireless E911 calls. The table below shows the possible alternatives for populating the parameters in the Initial Address Message (IAM).

AT&T SE Region's equivalent of NENA 05-501 Table 4-1 (ESRK Delivery):

ISUP Parameter Option	**OLI Wireless**	**CpCAT Emergency**	**CdPN**	**CPN**	**CHGN**	**GDP**	**NDET signaling option**	**Note (s)**
A1	No	Yes	911	ESPK	ESPK	Blank	E911_STD (WCM)	1, 2
A2	No	Yes	911	ESPK	Blank	Blank	E911_STD (WCM)	1, 2
A3	No	Yes	911	Blank	ESPK	Blank	E911_STD (WCM)	1, 2

1 J-STD-036 uses the term "Wireline Compatibility Mode" to describe scenarios where MSCs use the ISUP parameter mappings normally used by landline switches to signal E911 calls to E911 selective routers.

ISUP Parameter Option	OLI Wireless	CpCAT Emergency	CdPN	CPN	CHGN	GDP	NDET signaling option	Note(s)
B1	No	Yes	911	ESPK	ESPK	Blank	E911_STD (WCM)	1, 2
B2	No	Yes	911	ESPK	Blank	Blank	E911_STD (WCM)	1, 2
B3	No	Yes	911	Blank	ESPK	Blank	E911_STD (WCM)	1, 2

NOTES:

1. This ISUP parameter option is widely supported in the U.S. It is estimated that 95% of the E911 selective routers deployed in the U.S. support this option when the selective router has been equipped with wireless E911 features.

2. "Blank"-- this parameter **MUST NOT** be populated.

Call Scenario 2: CBN and ESRD Delivery

Call Scenario 2 describes the mode where a MSC uses ISUP protocol to send the caller's CBN and ESRD to an E911 selective router. Call Scenario 2 supports the **Phase 2 NCAS** 2 mode described in J-STD-036-A (or later), Annex D, Section D.1.2. Wireless carriers can use Call Scenario 2 to support Phase I and/or Phase II wireless E911 calls. The table below shows the possible alternatives for populating the parameters in the Initial Address Message (IAM).AT&T SE Region's equivalent of NENA 05-501 Table 4-2 (CBN & ESRD Delivery):**ISUP**

Parameter Option	OLI Wireless	CpCAT Emergency	CdPN	CPN	CHGN	GDP	NDET signaling option	Note (s)
A1	Yes	Yes	911	CBN	CBN	ESRD	WRLS_STD	1
A2	Yes	Yes	911	CBN	Blank	ESRD	WRLS_STD	1
A3	Yes	Yes	911	Blank	CBN	ESRD	E911_STD	1
B1	Yes	No	911	CBN	CBN	ESRD	WRLS_STD	3
B2	Yes	No	911	CBN	Blank	ESRD	WRLS_STD	3
B3	Yes	No	911	Blank	CNB	ESRD	E911_STD	3
C1	No	Yes	911	jCBN	CBN	ESRD	WRLS_STD	3
C2	No	Yes	911	jCBN	Blank	ESRD	WRLS_STD	3
C3	No	Yes	911	Blank	CBN	ESRD	E911_STD	3
D1	No	No	911	CBN	CBN	ESRD	WRLS_STD	3
D2	No	No	911	CBN	Blank	ESRD	WRLS_STD	3

2 J-STD-036 uses the term NCAS to describe scenarios where an MSC uses ISUP protocol to send CBN and ESRD to an E911 selective router.

ISUP Parameter Option	OLI Wireless	CpCAT Emergency	CdPN	CPN	CHGN	GDP	NDET signaling option	Note (s)
D3	No	No	911	Blank	CBN	ESRD	WRLS_STD	3
E1	Yes	Yes	ESRD	CBN	CBN	Blank	WRLS_STD	1, 2
E2	Yes	Yes	ESRD	CBN	Blank	Blank	E911_STD	1, 2
F1	Yes	No	ESRD	CBN	CBN	Blank	WRLS_STD	2, 3
F2	Yes	No	ESRD	CBN	Blank	Blank	WRLS_STD	2, 3
G1	No	Yes	ESRD	CBN	CBN	Blank	E911_STD	2, 3
G2	No	Yes	ESRD	CBN	Blank	Blank	WRLS_STD	2, 3
H1	No	No	ESRD	CBN	CBN	Blank	WRLS_STD	2, 3
H2	No	No	ESRD	CBN	Blank	Blank	E911_STD	2, 3
I1	Yes	Yes	WSRD	CBN	CBN	ESRD	WRLS_STD	1
I2	Yes	Yes	ESRD	CBN	Blank	ESRD	WRLS_STD	1
I3	Yes	Yes	ESRD	Blank	CBN	ESRD	not supported	3
J1	Yes	No	ESRD	CBN	CBN	ESRD	WRLS_STD	3
J2	Yes	No	ESRD	CBN	Blank	ESRD	WRLS_STD	3
K1	No	Yes	ESRD	CBN	CBN	ESRD	WRLS_STD	3
K2	No	Yes	ESRD	CBN	Blank	ESRD	WRLS_STD	3
L1	No	No	ESRD	CBN	CBN	ESRD	WRLS_STD	3
L2	No	No	ESRD	CBN	Blank	ESRD	WRLS_STD	3

NOTES:

This ISUP parameter option is widely supported in the U.S. It is estimated that 95% of the E9-1-1 selective routers deployed in the U.S. support this option when the selective router has been equipped with wireless E9-1-1 features.

"Blank"-- this parameter **MUST NOT** be populated.

This ISUP parameter option is available in some areas. It is estimated that 50% of the E9-1-1 selective routers deployed in the U.S. support this option when the selective router has been equipped with wireless E9-1-1 features.

11. Attachment "A" - CPCat & OLI Notes

Calling Party Category parameter (CPC):

Prior to NA013 the Nortel DMS E9-1-1 Tandem (NDET) did not set or reference the CPC parameter in the IAM of ISUP calls for E9-1-1 purposes.

In NA013, feature 59006371 entitled "E9-1-1 ISUP Enhancements" implemented setting the CPC parameter in the outgoing IAM of ISUP E9-1-1 calls to "Emergency Service Call" which is a value of #E0. This was to fulfill Telcordia standards. Even though the NDET began setting the CPC parameter, the logic still did not require this value to be set to recognize E9-1-1 calls.

In NA016, feature 59029627 entitled "E9-1-1 ISUP and Log Enhancements" introduced a new Boolean sub field named DEDICATD for the E9-1-1 option on ISUP IT trunks incoming to the tandem. If this Boolean value is set to Y, the NDET assumes the trunk is dedicated to E9-1-1 traffic and the NDET does not check the CPC parameter. If the DEDICATD Boolean is set to N, the NDET assumes the trunk is being shared for both E9-1-1 and non-E9-1-1 traffic, and the NDET checks the CPC parameter to identify E9-1-1 calls.

Originating Line Parameter (OLI):

Prior to NA013 the Nortel DMS E9-1-1 Tandem did not set or reference the OLI parameter in the IAM of ISUP calls for E9-1-1 purposes.

In NA013, Nortel feature 59006371 entitled "E9-1-1 ISUP Enhancements" implemented setting the OLI parameter in the outgoing IAM for wireless E9-1-1 calls to "Cellular Services Type 1" (#3D) if the originating office did not send the parameter. If the originating office sends the parameter, the NDET does not modify it, it simply passes whatever value it receives. Once again, the NDET sets this value, but as of NA013 does not use it to identify wireless calls.

In NA016, the NDET began checking the OLI parameter on wireless E9-1-1 calls ONLY when using AIN Selective routing. If the received value was #3d, #3e, or #3f (61, 62, 63), the ChargePtyStationType was set accordingly in the TCAP TAT message to the remote database. If the originating wireless office did not send the parameter, the NDET set the ChargePtyStationType to #3d (61) so the remote database knows to use the correct parameter to perform Selective Routing. Other than when using AIN Selective routing, the OLI parameter is not used for E9-1-1 purposes.

12. Attachment "B" - Wireless Customer Questions & Answers:

Why is AT&T SE Region issuing this document?

[2]There have been conflicting views on the meaning of the terms "CAS" and "NCAS" in the Phase 2 environment, and on what data should be placed in the various IAM parameters of an SS7 wireless call. NENA recognized this conflict and established a committee that included members from the wireless carriers, service providers, and public safety community. They created the "NENA 05-501 Technical Information Document on SS7 Guidelines for MSC to Selective Router Connectivity" document so that 9-1-1 Service System Providers could clearly define the call setup methods supported in their respective networks. AT&T SE Region is documenting our supported interconnection guidelines through the perspective of the NENA document so that all wireless carriers and switch providers see the requirements in a consistent and uniform method.

Do I have to change my existing trunks to SS7?

No, this is an additional signaling option. As a WSP you should determine if it fits your needs. If you choose to do so, AT&T SE Region will utilize the same basic process that you currently use when ordering E9-1-1 trunks. This document is merely a tool to clarify the interconnection requirements for wireless E9-1-1 service if you intend to utilize SS7 signaling.

Will this let me deliver ESRDs/ESRKs from more than one NPA on the SS7 trunk group?

SS7 signaling does allow multiple NPAs to be delivered over a common trunk group. BUT, this may be dependent on how default routing is defined.

Will this let me reduce the number of trunk groups I have in place?

Separate trunk groups may still be required dependent on how default routing is defined, and/or dependent on congestion control needs.

What if I don't have SS7 signaling "A" link connectivity to support trunking to the appropriate NDET?

You can order it through your normal AT&T SE Region circuit ordering procedures.

What do I do for Continuity Testing on these SS7 trunks?

AT&T SE Region encourages the use of continuity testing for 911 trunks using SS7 signaling, with the testing rate of 100%. We also recommend the use of continuity tone levels of Transmit High - Receive High for 4 wire or digital switches (i.e., 4W4W (5ESS), THRH (DMS-100), etc.). We have no provisions to deviate from the national standards of THRH if digital, and TLRH if the MSC is a 2-wire analog switch, which isn't likely today. If you need any other continuity test, please let your account team know so that it can be provisioned separately.

2

13. Attachment "C" - Wireless Customer Checklist

Wireless Customer Checklist (in no particular order):

Does the MSC have SS7 signaling link connectivity to support trunking to the appropriate NDET?

Do we know what call scenario we plan to follow? (i.e. WCM or NCAS WITH the AT&T SE Region hybrid 5 functionality, etc.)

Do we know what trunk continuity test levels, and testing percentages that we plan to use? (AT&T SE Region encourages that the percentage be 100%.) Remember, AT&T SE Region has no provisions to deviate from the national standards of THRH if digital, and TLRH if the MSC is a 2-wire analog switch, which isn't likely today.

Do we know what TCICs we're going to use?

Are the proper Destination and Originating Point Codes identified for the new trunk group(s)?

Is this group properly ordered as 1-Way, outgoing from the MSC, SS7, with the Mobile Carrier office as the "A" end, and the AT&T SE Region office as the "Z" end?

Do we have a testing method to generate a call on the SS7 E9-1-1 group, and a written Call Through

Test Plan to ensure these trunks are working correctly **BEFORE** we put live wireless E9-1-1 service on them?

NOTE: This list is NOT intended to be all inclusive of the steps necessary to deploy wireless E9-1-1 service using SS7 signaling.

NOTE: Specific information regarding AT&T SE Region's point codes may be obtained from each carrier's AT&T SE Region's account team when orders are being placed for SS7 controlled trunk groups.