

# Ad Hoc Alliance for Public Access to 911

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EX PARTE COMMUNICATION

September 3, 1997

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FCC MAIL ROOM

John Cimko  
Wireless Division  
Federal Communications Commission  
2025 M Street, NW  
Room 5002A  
Washington, DC 20554

re: CC Docket 94-102  
Ex Parte Communication

Dear Mr. Cimko:

The Commission requested comments concerning certain technical issues which have been raised in *ex parte* presentations by the E911 Wireless Coalition (Coalition)<sup>1</sup> in the above referenced proceeding. The Alliance and others responded to this request in June of 1997. The Commission then asked for public comment concerning these replies and directed that such "[c]omments must be filed by July 28, 1997".<sup>2</sup> The Coalition filed comments on or about August 8. We respectfully submit that these late filed comments should be regarded as yet another *ex parte* presentation by the Coalition to which we may reply. This letter is for that purpose.

The Coalition's comments are filled with incorrect information. It is apparent that the Coalition is either unaware of, or chooses to ignore, the large body of information produced during this proceeding. This letter will attempt to set the record straight on these matters.

<sup>1</sup> The Coalition is made up of members who have individually participated in this proceeding. Just why they feel the need to now form a coalition has not been disclosed.

<sup>2</sup> Federal Register Vol. 62, No 139, Monday, July 21, 1997, pp. 38951-38952.

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## **THE TELECOMMUNICATIONS INDUSTRY ASSOCIATION (TIA) SUPPORTS THE USE OF TEMPORARY NUMBER ASSIGNMENTS FOR CALL BACK IN EMERGENCY SITUATIONS**

The Alliance observed in its response to the Commission's questions that there is nothing in the rules which prohibits the wireless carriers from providing *all* PSAPs with a temporary local call back number<sup>3</sup> for *all* 911 callers. This **temporary call back number solution** was selected by TIA in its 1994 Joint Experts Report<sup>4</sup> as **the preferred call back method in emergency situations**.<sup>5</sup> On September 25, 1996, the Alliance filed comments which identified this temporary number assignment as a solution for the PSAP need for call back capacity. (See Attachment E of that filing)<sup>6</sup>. The Alliance also established that the cost to implement this universal call back solution was trivial. There was no challenge to this solution in the formal proceedings.

The Coalition now tells us that the TIA Standards Committee TR45.2 "has already considered, and rejected, the use of temporary number assignments for call back delivery."<sup>7</sup> A copy of the TR45.2 report was not attached in support of the Coalition's statement. Perhaps that is because such a report has not been adopted and is only in ballot form.<sup>8</sup> Or perhaps the Coalition did not produce the proposed TR45.2 report because *this tentative report does not* consider or reject temporary call back numbers!

## **THE CURRENT INSTALLED BASE OF CELLULAR MOBILE SWITCHES CAN UTILIZE PSEUDO-MIN FOR CALL BACK PURPOSES**

The JEM Report states that *all* wireless switches have the technical capacity to use temporary numbers for PSAP call back.<sup>9</sup> However, the Coalition says that *some* types of wireless switches, as *presently configured*, cannot provide temporary number assignments for 911 call back capability. Again, no details are given, no attachments are provided, only conclusionary statements support such a proposition. While there is not sufficient information for comment on this statement, we can say that, in making their

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<sup>3</sup> Also called "TLDN" or "Pseudo-MIN".

<sup>4</sup> Attachment 1 is a copy of the JEM Report. The JEM Report was considered and discussed in the Commission's Report and Order.

<sup>5</sup> p. 2, JEM Report.

<sup>6</sup> A copy of Attachment E is attached as "Attachment 2" for convenient reference.

<sup>7</sup> Page 3, Comments of E911 Wireless Coalition.

<sup>8</sup> Attachment 3 is a copy of the tentative TR45.2 report.

<sup>9</sup> See page 11, column 1, Path A "Existing", row number 13 "Ability to Call Back . . . ."

arguments against the use of temporary numbers, the Coalition distorts and misstates the *facts* in this proceeding. For example:

The Coalition comment on page 3 “The Coalition specifically noted that only when a fully validated subscriber is service initialized and registered on the serving network can these *requirements of subscriber information and call-back number* be fully met by all technologies.

**The Report & Order imposes no requirements for subscriber information delivery to the PSAP for wireless E911.**

In section IV.C.3.a.126, the Commission specifically addressed the issue of expanded subscriber and carrier information delivery to the PSAP and the commission clearly specifies the user data to be provided to the PSAP in section IV.C.3.b.131 as the “caller’s ANI, which provides the PSAP with call back capability”. Further in the same paragraph, the Commission reserves the right to “consider whether further information should be furnished to the PSAP”.

The Coalition statement on page 3 paragraph two, “In its *ex parte* filing, the Ad Hoc Alliance has now gone beyond the phase I requirements...” as if this is the initial suggestion by the Alliance to use pseudo-MIN as a call back solution for 911 calls.

**The “911 Call-Back Solution” paper was initially filed by the Alliance in its Comments on the Report & Order filed September 25, 1996 as Attachment E.**

The Coalition statement on page 3 paragraph two, “the Ad Hoc Alliance proposal reflects a limited understanding about the use of temporary number assignments within cellular switches...”

The “911 Call-Back Solution” paper is very detailed in concept and scope and has been available for almost a year for the industry to take issue with. The paper admits that the existing cellular switch use of Temporary number assignments would need to be modified and suggests the costs and level of difficulty involved.

Of special interest is the reference in the Report & Order to the existence of pseudo-ANI and its most common use today. See R&O Section IV.4.b.1.57 and the associated footnote 98 in which the comment is made by the commission “Pseudo-ANI numbers are utilized by carriers for several purposes, *one of which is to act as a surrogate identification number for mobile units operating in a roamer mode. See JEM Report at 17-18.*”

Coalition statement on page 5 paragraph one, “Cellular switches *are currently able to assign TLDNs in a manner that superficially resembles the capabilities* requested by the Ad Hoc Alliance. Since, however, the switches *are incapable of performing the exact*

*functions described by the Ad Hoc Alliance, there remain significant technical and economic obstacles... ”.*

**The “911 Call-Back Solution” paper recognized the fact that some software modification would be required and gave estimates as to the level of difficulty and costs involved.**

Coalition statement on page 5 paragraph three, “... Alliance’s proposal would require development and implementation of a third and significantly more complex mechanism to assign a non-TLDN, “temporary number” automatically...” this statement is incorrect.

**The Alliance proposal specifies the use of the same Temporary Local Directory Number process for call-back that is in wide-spread use for roamers today. The roamer initiates the service by dialing “\*18” or a similar “code” that is recognized by the switch to assign a TLDN to this caller’s MIN/ESN pair for a limited time period. When a user dials “911” as the triggering “code”, the switch could be programmed to assign a TLDN to the caller’s MIN/ESN pair for call-back for a limited time period.**

The Coalition then proceeds on page 5 and 6 to conjure up examples of when the “temporary assignment process, could, in theory, be implemented”. None of the Coalition’s examples applies to the Alliance proposed solution.

**The Alliance proposal specifies that *all* callers to 911 would be assigned a pseudo-MIN for call-back to their unique MIN/ESN pair, and the pseudo-MIN would be the number passed to the PSAP. There was no convoluted process suggested by the Alliance. The proposed “Solution” is straight forward and implementable using existing switch capabilities with some minor changes to the switch software and *no changes to call processing and call delivery systems.***

The Coalition states on page 6 paragraph two, “It would also require an additional partitioned block of the serving system’s allocated directory numbers to be set aside...”.

**This set aside is identical to set aside currently performed to support roamers who enter and leave the carrier’s system. The pool of numbers needs to be sized to supply call-back to the number of 911 callers that will be simultaneously accessing the carrier during the supported call-back window.**

**THE AD HOC ALLIANCE DID NOT ADDRESS GSM BASED TECHNOLOGY BECAUSE THAT TECHNOLOGY WAS DEPLOYED WITH FULL KNOWLEDGE OF THIS PROCEEDING.**

The Commission began the Wireless E911 rulemaking with the issuance of a Notice of Proposed Rulemaking on October 19, 1994 (RM-8143). GSM systems were

not even deployed until 1996.<sup>10</sup> Therefore, it is reasonable for us to assume that the Wireless Industry took this proceeding into consideration in designing, adopting and deploying GSM equipment.

The Coalition states that no call back is available when a customer removes the SIM card. However, the GSM customer is specifically instructed “[p]lease do not remove the [SIM] card from your mobile phone -- the phone will not work without it”.<sup>11</sup> Well no call back is available when a customer removes the battery either -- the phone will not work without it. Therefore, we regard this hypothetical situation as remote and not worth consideration.

The second situation discussed by the Coalition is the roamer that failed registration. Here the Coalition says that call back is not possible because the “network does not have a copy of the subscriber’s information in its VLR.” Of course, this information can be quickly uploaded to the GSM network directly from the handset. Over the air registration is one of the selling features of GSM. Advertising by PCS carriers using GSM technology emphasizes the power and flexibility of GSM systems. For example, current GSM switch technology permits the customer to establish a fixed amount per month for air time and, once that limit is reached, no further calls will be accepted by the network *unless* the customer overrides that instruction with a simple over the air command which changes the information in the switch. Logic tells us that the same process used for initial over-the-air registration could be used to obtain a temporary local directory number in order to meet the PSAP emergency call back requirements.

#### **THE COMMISSION SHOULD NOT ACCEPT SELF CREATED EXCUSES.**

The Wireless Industry has had almost a year to reconfigure their switches to pass only code identified calls to PSAPs in accordance with the requirements of the Report and Order (FCC 96-264). A year later, it now appears that many of the wireless carriers have done little, if anything, to comply with this requirement. Instead of “creative problem-solving”, the Coalition has spent its efforts towards finding “creative” reasons why the problem cannot be solved, except by requiring the use to be a paid up subscriber to their wireless systems. However, the record clearly establishes that there are a number of alternatives which provide a easy, low cost way to give PSAPs the ability to call back the caller who is not a paid up subscriber to the wireless system that handled the emergency call. These solutions may not work in a remote circumstance but there is little question that they will work to enhance the emergency service the public receives without any “drastic changes” to wireless systems. It is certainly reasonable for us to expect that recently installed systems would have been designed with the capacity to meet the long evident requirement that the public be provided with unimpaired access to 911. It is

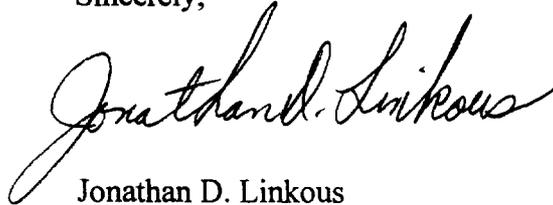
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<sup>10</sup> Attachment 4. Pac Bell Newswire of 9/2/96 “GSM Customers in North America Top 100,000 . . .”.

<sup>11</sup> Attachment 5. Pacific Bell Mobile Services. “SIM Card (“Smart Card”).

submitted that the Coalition's reliance on remote contingencies and unsupported conclusions represents an intransigent attitude of non-compliance -- not a good faith effort to solve the problem. We respectfully request that the Commission reject these latest efforts of some members of the Wireless Industry to impede public access to the nation's 911 system.

Sincerely,

A handwritten signature in cursive script that reads "Jonathan D. Linkous". The signature is written in black ink and is positioned above the printed name.

Jonathan D. Linkous

901 15th Street, NW  
Suite 230  
Washington, DC 20005

September 3, 1997

cc: William Caton, Secretary



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**Attachment 1**

**TR 45 report**

**TR4**

# **Emergency Services**

## ***Joint Experts Meeting Report***

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# 1. Executive Summary

The TR45 Joint Experts Meeting (JEM) on *Public 800 Mobile and Personal Communications* Support of Basic 9-1-1 (9-1-1) and Enhanced 9-1-1 (E9-1-1) Emergency Services was held in Chicago, IL. The JEM was convened on August 1, 1994 at 9:07AM and was adjourned on August 5, 1994 at 11:47AM. Terry Jacobson (AT&T) was the chair and Jeff Crollick (GTE) was the co-chair.

The purpose of the JEM was to:

- Define and prioritize the Emergency Services call taker features for Wireless Cellular.
- Define the requirements for the information flow between the Wireless System and the Public Safety Answering Point (PSAP), and to associate this information flow with the 9-1-1 call by the Mobile Station (MS). MS is a collective term that includes vehicular, portable, transportable, fixed, aircraft and other wireless subscriber stations.

The outcome of the JEM was:

- A prioritized list of Emergency Services call taker features.
- The mapping of the call taker features to four evolutionary paths:

Path	Wireless Cellular System	Mobile Stations	9-1-1 E9-1-1 System
A	Existing	Existing	Existing
B	Expanded	Existing	Expanded
C	Enhanced	Existing	Enhanced
D	Enhanced	Expanded or Enhanced	Enhanced

*Existing:* No change to existing equipment or protocols.

*Expanded:* Minor changes to existing equipment or protocols.

*Enhanced:* Major changes to existing equipment or protocols.

- The information elements needed between the Wireless System and the Emergency Services System to support the call taker features.
- The identification of radio location techniques that may provide more accurate Mobile Station location information.

The views expressed in this report represent an evolutionary path. The public safety and cellular service provider communities each have a unique set of challenges that includes economic, operational and technological feasibility. These factors should be considered in the use of this report.

## 2. Introduction

### 2.1 Background

The basic 9-1-1 (9-1-1) and Enhanced 9-1-1 (E9-1-1) systems in existence today have been designed to provide rapid response to calls for emergency services from wireline subscribers. Basic 9-1-1 Emergency Services Systems establish routing of calls to a Public Safety Answering Point (PSAP). E9-1-1 provides added capabilities including selective routing of a call to the appropriate PSAP for rapid response to emergency calls and the display of calling number, address, and in most cases, the name of the subscriber at the calling number. However, these Emergency Services Systems do not address the unique characteristics of wireless communications.

The mobile nature of wireless communications and the unique characteristics of Radio Frequency (RF) propagation may require modification of existing Emergency Services Systems and the development of special capabilities in wireless systems.

Emergency services access (9-1-1/E9-1-1) by a wireless caller requires that the MS location information (at least the serving cell site or sector) be used to assist in routing the call to the appropriate PSAP. The location information may be used to dispatch an emergency vehicle to the incident site.

### 2.2 Perspective

The views expressed in this report represent an evolutionary path. The public safety and cellular service provider communities each have a unique set of challenges that includes economic, operational and technological feasibility. These factors should be considered in the use of this report.

### 2.3 JEM Methodology

Tutorials were presented on Mobility, Emergency Services, Current Industry Practices, TR45 Standards, and Emergency Services for Wireless Cellular. The tutorials established a common frame of reference and terminology for the JEM participants.

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The tutorials and contributions provided a basis for discussion of:

- Call taker features and feature priorities.
- Information flows between the Wireless System and the Emergency Services System.
- Radio location techniques that may provide more accurate Mobile Station location information.

A prioritized list of call taker features was generated. The list was reviewed and the features were mapped to the four evolutionary paths.

The flow of information needed between the Wireless System and the Emergency Services System to support the call taker features was identified. Information elements were identified and information flow models were defined.

### 3. E9-1-1 Call Taker Feature Priority

#### 3.1 Call Taker Feature Descriptions

The following is a list of call taker features and a high level description and requirements. The list is in priority order.

##### 1. Emergency Services Reached by Dialing 9-1-1-SEND

- A Mobile Station user dialing 9-1-1-SEND shall access Emergency Services.
- \*9-1-1-SEND should be treated as a 9-1-1 call. (This non-preferred sequence should not be publicized.)
- Dialing 9-1-1-SEND shall bypass other call origination restriction features (e.g., PIN access, PIN intercept).
- A Mobile Station may have an emergency service or 9-1-1 call button to speed dial the 9-1-1-SEND sequence.
- Mobile Stations should allow 9-1-1-SEND to be dialed at all times (even when locked or when served by a restricted system).

##### 2. 9-1-1 Call Precedence

- An originating 9-1-1 call should be given priority over other non-emergency call originations.
- The alternate Priority Access and Channel Assignment (Alt. PACA) procedures described in PN-2977 (the proposed IS-53A Cellular Feature Descriptions) provides an interim solution for precedence of 9-1-1 calls:
  - three levels of priority are established designated A, B, and C.
  - a number of channels are reserved for A (highest), B and C (lowest) priority calls.
  - a caller with "A" priority has access to the A, B, C channels.
  - a caller with "B" priority has access to the B, C channels.
  - a caller with "C" priority has access to the C channels.

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— a 9-1-1 call may be treated as a priority call subject to local operating practices or regulations.

- Priority Queuing could be considered as another mechanism to provide access for an emergency call. If a traffic channel is not available when the Mobile Station user attempts to originate the 9-1-1 call, the call would be "queued" and the Mobile Station would be paged and alerted when a radio channel becomes available.
- Future 800 MHz air interface standards should support the Priority Access and Channel Assignment (PACA) feature defined in PN-2977 (the proposed IS-53A Cellular Feature Descriptions).

### 3. Identify Caller's Initial Location

- Obtaining location information shall not require overt action on the part of the caller.
- The method of sending location information from the Wireless System to the Emergency Services System shall be standardized. The location information should describe the Mobile Station's position in terms of:
  - Longitude.
  - Latitude.
  - Altitude.
  - Resolution or Accuracy.
- Location information should be obtainable for all callers.
- Accuracy Goals:<sup>1</sup>
  - Near term goal: within 400 feet (longitude, latitude, resolution).
  - Long term goal: within 40 feet (longitude, latitude, altitude, resolution).

### 4. Subscriber Identity Information

- Name.
- Address.
- Home Phone Number.

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<sup>1</sup> It is important to note that these are goals and are not requirements. The realization of these goals are contingent on economic and technical feasibility.

- Other Subscriber Information (e.g., medical condition).
- The source of the subscriber identity information is the subscriber's "Home" System.

**5. 9-1-1 Call Related information**

- Serving Wireless System ID.
- Mobile Identification Number (MIN), International Mobile Station Identification (IMSI).
- Electronic Serial Number (ESN).
- Callback Number, one or more of the following:
  - Emergency Services Access Port Number.
  - Temporary Local Directory Number (TLDN) associated with this 9-1-1 call.
  - Mobile Directory Number.

**6. Ability to Request Updated Caller Location Information**

- PSAP may request the Wireless System to provide the updated location information.
- PSAP may request the Wireless System to report updated location information periodically.

**7. Ability to Communicate With and Determine the Type of Emergency Services Needed**

- The MSC shall provide a standard voice connection (or data connection for a data terminal) to the PSAP.
- Air interface encryption may be used, however, it must be removed before delivery of the call to the PSAP.

**8. Receive 9-1-1 calls at the Appropriate PSAP**

- The 9-1-1 caller's location should determine the PSAP to which the call is routed.

**9. Originate 9-1-1 calls from the Current Serving System**

- If the Mobile Station user is engaged in a call and dials    , the Serving Mobile Switching Center shall initiate a 9-1-1 call.

- After handoff, the current serving Mobile Switching Center (MSC) shall route the 9-1-1 call toward the PSAP (not the Anchor MSC per normal procedures).
- The caller may use flash to add a held party to a three-way (or conference) call.

10. Ability to detect and communicate with TDD callers

- TDD callers shall be able to use cellular telephones in the 30 kHz analog mode.

11. Ability to Hold the Line After the Caller Has Disconnected or the Call Has Dropped, Under Direction of the Controlling PSAP

- The Mobile Station is precluded from receiving other calls.
- The Mobile Station is precluded from originating another call.
- Any origination attempt is connected to the Call Taker.
- Automatically "ring back" the caller.

12. Suspend Flash Privileges for New Service Requests

- The Mobile Station is precluded from receiving another call.
- The Mobile Station is precluded from originating another call.

13. Ability to Call Back if the Call is Disconnected or the Call is Ended Prior to Completion of the Event

- Local callback number.
- Emergency Services access port.
- *Exact* location information is more important than a callback number; however, if only an *approximate* location can be provided, then a callback number is more important.

14. Ability to Transfer the Caller to the Appropriate PSAP

- While communicating with the caller, bridge on another PSAP; transfer the call and call control upon disconnect by the controlling PSAP.

**15. Ability to Provide ALI Information and Information Captured During the Call, to Another PSAP**

- When a call is transferred all information regarding the call (including subscriber information, location information, service provider information, and information captured during a call) should be transferred with the call.

**16. Ability of the PSAP to Force Disconnect for MS-to-PSAP Calls**

- When a PSAP disconnects the Mobile Station (MS) is disconnected regardless of its switchhook state.

**17. Area Cell Congestion Control**

- The Wireless System should be able to "throttle" 9-1-1 calls from the same area since the calls may be related to a single incident. Throttling is a concept for constricting flow by discarding or delaying selected call attempts.

**18. System Congestion Control**

- The PSAP should be able to request MSC to "throttle" 9-1-1 calls.
- The PSAP should be able to "broadcast" messages regarding conditions (perhaps using a broadcast short message service).

**19. Silent Callback**

- The PSAP should be able to call back specialized Mobile Stations silently, provided that the special Mobile Station does not alert audibly and automatically answers.

**20. Authorization Override**

- Serving System option to block or allow 9-1-1 calls from:
  - Unauthorized Mobile Stations.
  - Specific Mobile Stations.
  - Specific locations.
- New Mobile Stations that utilize Identity Modules may be able to initiate 9-1-1 calls if the Identity Module is not present.
- Mobile Stations should allow the caller to initiate a 9-1-1 call when locked.

- Mobile Stations should allow the caller to initiate a 9-1-1 call when the Mobile Station's programming prevents it from accessing the system for other wireless services.

### 3.2 Impact of Call Taker Feature Priority

The amount of changes required to implement a particular feature were analyzed to determine if the changes required are:

- Existing:* No change to existing equipment or protocols.
- Expanded:* Minor changes to existing equipment or protocols.
- Enhanced:* Major changes to existing equipment or protocols.

The changes were analyzed for the wireless cellular system (the Home Location Register, the Visitor Location Register, the Mobile Switching Center, and other required functions), Mobile Stations, and the 9-1-1 and E9-1-1 systems (selective routers, PSAPs, etc.).

The changes and the degree of the changes were applied to select a particular migration path as shown in the following table:

Path	Wireless Cellular System	Mobile Stations	9-1-1 E9-1-1 System
A	Existing	Existing	Existing
B	Expanded	Existing	Expanded
C	Enhanced	Existing	Enhanced
D	Enhanced	Expanded or Enhanced	Enhanced

The following table summarizes the Call Taker Feature Priorities and maps them onto four evolutionary migration paths based on the amount of changes required for implementation. Where possible the required technology is indicated (with possible limitations).

**TR45 EMERGENCY SERVICES JEM  
CALL TAKER FEATURE PRIORITY**

N U M	DESCRIPTION	PATH	PATH	PATH	PATH
		A	B	C	D
		Existing	Expanded	Enhanced	Enhanced
		Existing	Existing	Existing	Enhanced
	M S C :	Existing	Expanded	Enhanced	Enhanced
	M S :	Existing	Existing	Existing	Enhanced
	P S A P :	Existing	Expanded	Enhanced	Enhanced
1	Emergency Services Reached by Dialing <b>9-1-1</b> <b>-SEND</b>	Now			
2	0-1-1 Call Precedence				
3	Identify Caller's Initial Location* - Location technology should not require overt action on the part of the user. - Location information shall be available for all calls - Near Term Goal:** Within 400 ft. (Lat., Long., Resolution). - Long Term Goal:** Within 40 ft. (Lat., Long., Alt., Resolution). * Method of sending location information should be "universal." ** It is important to note, this is a goal and not a requirement; realization of the goal is contingent on economic and technical feasibility.				
4	Subscriber Identity Information - Source (home). - Name, Address, MIN, IMSI.				
5	Terminal Identity Information - ESN, type.				
6	Ability to Request Location Update Information - single report. - automatically reported by the serving system at periodic intervals. - Same resolution as initial request.				
7	Ability to Communicate with and Determine the Type of Emergency Services Needed				
8	Receive 9-1-1 Calls at the Appropriate PSAP				
9	Originate 9-1-1 Call from the Current Serving System (mobile is given flash privilege to add held party to call)				
10	Ability to Detect and Communicate with TDD and Data Callers				
11	Ability to Hold Line after the Caller Disconnected or the Call Was Dropped. Under Direction of the PSAP - precluded from receiving other calls. - precluded from originating other calls. - call originations are connected to the call taker. - automatically "ring back" the caller.				

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**TR45 EMERGENCY SERVICES JEM  
CALL TAKER FEATURE PRIORITY**

M C N	DESCRIPTION	PATH	PATH	PATH	PATH
		A	B	C	D
	MSC :	Existing	Expanded	Enhanced	Enhanced
	MS :	Existing	Existing	Existing	Enhanced
	PSAP :	Existing	Expanded	Enhanced	Enhanced
12	Suspend Flash Privileges for New Service Requests				
13	Ability to Call Back If The Call is Disconnected, or Ended Prior to Finalization of the Event - Local Callback Number.  - Roamer Port Number.				
14	Ability to Transfer* Caller to the Appropriate PSAP * While communicating with the caller, bridge on another PSAP, transfer the call and call control upon disconnect by the controlling PSAP.				
15	Ability to Provide ALI and Information Captured During the Call to Another PSAP				
16	Ability of PSAP To Force Disconnect For Mobile Station To PSAP Calls				
17	Area Congestion Control - MSC "throttles" 9-1-1 calls from same area.				
18	System Congestion Control - PSAP can request MSC to "throttle" incoming calls.  - PSAP can request MSC to "broadcast" messages regarding conditions.				
19	Silent Callback - Specialized Mobile Station provides no alert tones and automatically answers.				
20	Authorization Override - Serving MSC may block or allow 9-1-1 calls from: > Unauthorized Mobile Stations. > Specific Mobile Stations. > Specific locations. - New Mobile Stations that utilize Identity Modules should be able to initiate 9-1-1 calls if the Identity Module is not present. - Locked terminals. - Mobile Station access restrictions (e.g., A-side only, B-side only, blocked list).				

## 4. Information Elements

The following is a list of possible information elements for transfer between a wireless cellular system and an emergency service system.

### A. Subscriber Information

1. Mobile Identification Number—Electronic Serial Number (MIN-ESN)
2. International Mobile Station Identifier (IMSI)
3. Billing number
4. Subscriber name
5. Subscriber billing address
6. Subscriber home telephone number
7. Subscriber priority indication
8. Priority Access and Channel Assignment (PACA) level (A, B, or C)
9. Preferred Language
10. Personally provided medical information
11. Home wireless service provider information

### B. Callback Number

1. Temporary Local Directory Number (TLDN)
2. Roamer Port Number
3. Emergency Service Access Port Number
4. Mobile Directory Number (MDN) (may be international)

### C. Terminal Information

1. Electronic Serial Number (ESN)
2. Mobile Station Type
  - a) Fixed
  - b) Automobile
  - c) Transportable
  - d) Portable
  - e) Aircraft

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**D. Caller Geographic Location**

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1. Latitude
2. Longitude
3. Altitude
4. Resolution
5. Source
  - a) Mobile Station (MS)
  - b) Base Station Controller (BSC)
  - c) Mobile Switching Center (MSC)
  - d) Home Location Register (HLR) —for fixed mobiles
  - e) Selective Router

**E. Caller Street Location**

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1. Street address
2. City
3. Source
  - a) Mobile Station (MS)
  - b) Base Station Controller (BSC)
  - c) Mobile Switching Center (MSC)
  - d) Home Location Register (HLR) —for fixed mobiles
  - e) Selective Router
4. Serving Wireless Service Provider Information
5. Access Directions
6. In-house security number

**F. PSAP Information**

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1. Primary PSAP
2. Alternate PSAP(s)
3. Up to 6 Emergency Service Providers including:
  - a) Directory Number
  - b) Type, such as:
    - Fire
    - Local Law Enforcement
    - Highway Law Enforcement
    - Medical
    - Poison Control
    - Suicide Prevention Hot Line

**G. Call Information**

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1. Type of emergency information
2. Additional location information
3. Source of information

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## 5. Information Flow Scenarios

These are generic information flow models, no single model will solve all of the requirements.

### 5.1 CAMA ANI

The emergency service call is made over a CAMA (Centralized Automated Message Accounting) trunk. Only 7 (or 8) digits of ANI (Automatic Number Identification) information are conveyed. The ANI may identify non-roaming callers only. It is not specified how roamers are to be identified over the interface.

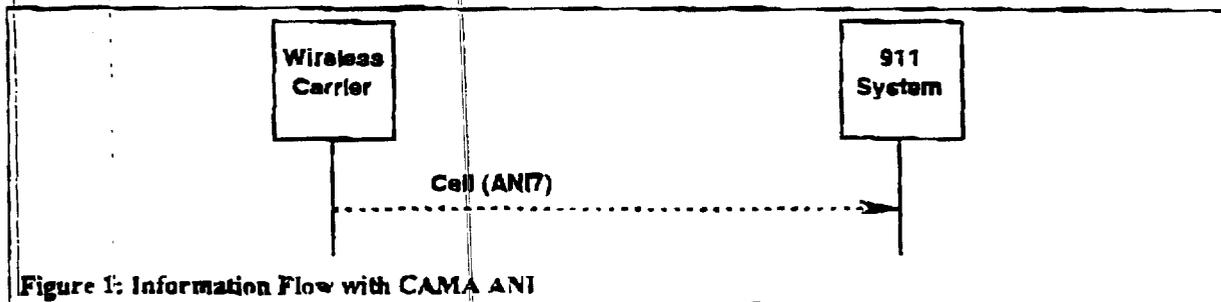


Figure 1: Information Flow with CAMA ANI

### 5.2 CAMA with Pseudo ANI

The emergency service call is made over a CAMA trunk. The 7 (or 8) digits of ANI information are used to convey a pseudo ANI (pANI). The pseudo ANI is usually used to identify the caller's serving cell (or sector) and indirectly the serving service provider.

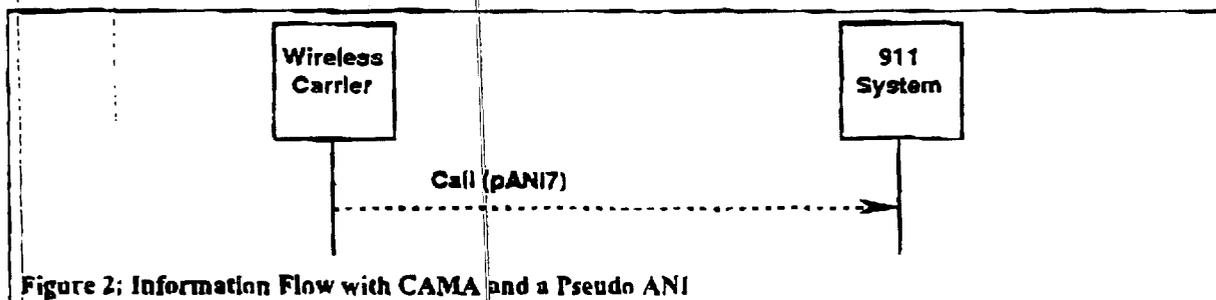


Figure 2: Information Flow with CAMA and a Pseudo ANI

### 5.3 CAMA with Subscriber Specific Pseudo ANI

The emergency service call is made over a CAMA trunk. The 7 (or 8) digits of ANI information are used to convey a pseudo ANI. The pseudo ANI is usually used to identify the caller's serving cell (or sector) and the caller. The caller's identity is temporary, but it allows other information to