

Canadian Radio – television and  
Telecommunications Commission  
Interconnection Steering Committee

Report to the CRTC

by the

Emergency Services Working Group (ESWG)

**Wireless E9-1-1 Phase II Stage 2  
Feature Analysis - Update**

Report Number: ESRE0052

November 22, 2010

**The purpose of this report is to provide recommendations based on the findings of the Task Information Form (TIF) 58 Task sub-working group in response to CRTC Decision 2009-697.**

## **Introduction**

CRTC Decision 2009-697 was released in November 2009 in response to ESRE0049, Phase II Stage 2 Features. Among other things, the decision approved the ESGW recommendation to investigate options for creating a Canadian standard for the format of non-dialable Call Back Numbers (CBNs) to be delivered to the PSAP after deployment of Wireless Phase II Stage 1.

The ESGW considered that if the non-dialable CBNs were standardized the PSAP call taker would be able to identify the characteristics of the call type by the format of the non-dialable CBN. If the PSAP can quickly identify and describe to the Wireless Service Providers (WSP) 24x7 support centre the characteristics of the 9-1-1 caller's call type, a locate may be obtained in an expedited manner.

Following the decision, the TIF58 group reviewed and provided clarifications to members of the ESGW, which resulted in a need to analyse the Stage 2 call types in which non-dialable CBNs may be presented to the PSAP. It was determined that this usually occurred when there was an ANI (Automatic Number Identification) failure and in some of these cases Phase II location information was not delivered.

The goal of the TIF58 group was to develop a standard for the WSP's and Incumbent Local Exchange Carriers (ILECs) in their role as 9-1-1 Service Provider (9-1-1 SP) for the delivery of Phase II information to the Public Safety Answering Points (PSAPs) to facilitate 9-1-1 wireless call processing.

The call types analysed were:

1. Uninitiated
2. Unregistered
3. North American Roamer (with a telephone number greater than 10 digits)
4. International Roamer(with a telephone number greater than 10 digits)
5. Lapsed Pre-paid Subscribers
6. Unsubscribed
7. Suspended

This Report specifically standardizes the non-dialable CBNs provided to PSAPs for the call types that may create an ANI failure. It also identifies the cases in which, due to the ANI failure, Phase II location information is not capable of being delivered. The report also provides the solutions on how, in such cases, the PSAPs can acquire the Phase II location information and the customers real CBN. For full description the above listed call types, refer to ESRE009.

## Analysis

The group analyzed the ANI failures in order, where technically possible, to reduce the number of failures and where not, to identify possible solutions. The goal was also to ensure that the PSAP's are able to more readily identify the types of calls delivered, if location information was not provided automatically and determine what options existed.

The analysis provided the following information:

- Some failures are consistent and predictable
- Currently technical solutions do not exist for all situations
- Not all carriers are delivering the same information to the ILEC in the same manner
- The ILEC cannot pass on anything greater than, or less than, 10 digits to the PSAP's
- Different handset characteristics and networks create differences in the delivery

## Recommendations

**All participating Wireless Service Providers hereby support the following to be the standard, as defined below, and inclusive of Table 1.**

**Where these standards are not already in place it was agreed that they will be implemented by the end of first quarter 2011.**

By focusing on what could be resolved, the participants agreed on the following:

- The WSP will deliver to the ILEC the telephone number that is received regardless of the character length
- Where Phase II cannot be delivered automatically, the WSP 24/7 support centre will attempt to locate the call in the network and provide a location
- The locate requires a unique identifier in the network, and when a pseudo number is delivered by the WSP it may create a situation where multiple calls have the same number – meaning locate may not be possible
- When a failure to deliver the original Telephone Number occurs, there will be 2 formats that will be delivered to PSAP's – NPA-911-XXXX or 911-XXX-XXXX
  - NPA-911-XXXX is ILEC (911 Service Provider) manipulation
  - 911-XXX-XXXX is WSP manipulation
- **911-XXX-XXXX** is delivered by WSP for calls that do not have a valid CBN (Telephone Number which is normally provided by the Home carrier)
  - 911- XXX- XXXX is not dialable

*Note: 911-XXX-XXXX is also depicted as 911 and 7 digits (of ESN (Electronic Serial Number) –Mobile Equipment Identifier)*

- 911-XXX-XXXX allows for automatic location query, hence displayed at the CAD (Computer Aided Dispatch in the PSAP), etc.
- **NPA-911-XXXX** is ILEC generated, it is not dialable and cannot be used as a query reference to acquire Location (PH II).
  - Two step process of 1<sup>st</sup> contacting the 9-1-1 SP for the original number delivered by the WSP and 2<sup>nd</sup> contacting the WSP for a manual query with the original telephone number (CBN Call Back Number).

The Original number may not always be dialable if the full digit string is not available from the WSP (i.e. lack of country code etc).

For further details of the Standard, refer to Table 1 (Wireless Characteristics) at the end of this report identifying the wireless characteristics and the expected results.

### **Conclusion**

***The ESWG requests that the Commission approve the recommendations in this Report and mandate all Canadian WSP's to adhere to these 9-1-1 data delivery standards by the end of first quarter 2011.***

### **Further Activities**

With no further technical solutions available, at this time, it is the belief of the TIF58 Task Group that we have accomplished the identified task and that this TIF should be considered complete.

We do note that once approved, this information needs to be communicated to all WSP's and PSAP's to ensure an understanding of the expectations and limitations included in this report.

**Table 1: Wireless Characteristics and Description of formats for all call types**

Wireless E9-1-1 Call Type	Characteristics	Wireless E9-1-1 Phase I Service	Dialable Call-Back Number (CBN)	Wireless E9-1-1 Ph II Location Service	Mobile Sub #	CBN digits format presented to ILEC	CBN digits format presented to PSAP	Solutions for Phase II Location if not presented at PSAP	Solutions for real CBN if not presented at PSAP
<b>Uninitiated</b>	Handset has been manufactured and has some carrier information (such as a PRL) but no telephone number. This state includes any GSM handset without a SIM card.	Yes	No	Yes	Not Available	911+7 digit ESN	911+7 digit ESN	Not Applicable	WSPs' 7x24 PSAP Support Centre
<b>Unregistered</b>	A state where the handset has not passed registration, such as immediately after power-up. The subscriber may be valid or invalid. Calls other than 9-1-1 require the handset to first successfully pass registration.	Yes	No	Yes	CDN (NPA-NXX-XXXX)	911+7 digit ESN	911+7 digit ESN	Not Applicable	WSPs' 7x24 PSAP Support Centre
<b>Active</b>	Normal operation. Handset can place and receive calls and roam but handset is operating within its home network. Wireless Phase II Stage I E9-1-1 locates will normally be provided to handsets in this state.	Yes	Yes	Yes	CDN (NPA-NXX-XXXX)	CDN (NPA-NXX-XXXX)	CDN (NPA-NXX-XXXX)	Not Applicable	Not Applicable

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<b>Canadian Roamer</b>	A handset with a 10 digit Canadian telephone number and a valid subscription. Handset is roaming onto another Canadian WSP's network.	Yes	Yes	Yes	CDN (NPA-NXX-XXXX)	CDN (NPA-NXX-XXXX)	CDN (NPA-NXX-XXXX)	Not Applicable	Not Applicable
<b>North American Roamer</b>	A handset with a 10 or 11 digit non-Canadian North American Numbering Plan (NANP) telephone number and a valid subscription. Handset is roaming onto a Canadian WSP's network.	Yes	Yes	Yes.	NON – CDN (NPA-NXX-XXXX)	NON –CDN (NPA-NXX-XXXX)	NON – CDN (NPA-NXX-XXXX)	Not Applicable	Not Applicable
		Yes	Yes Note: PSAP needs to recognize that digits require preceding 1 like all Toll calls	Yes	NON – CDN (1+ NPA-NXX-XXXX)	NON –CDN (NPA-NXX-XXXX)	NON – CDN (NPA-NXX-XXXX)	Not Applicable	Not Applicable

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<b>International Roamer</b>	A handset with a non-NANP telephone number and a valid subscription. Handset is roaming onto a Canadian WSP's network.	Yes	Yes, if 10 digits are transmitted to 9-1-1 Service Provider, and include Country Code (PSAP needs to dial 011 prefix)	Yes	CC X-XXX-XXXX	CC X-XXX-XXXX	CC X-XXX-XXXX	Not Applicable	WSPs' 7x24 PSAP Support Centre
		Yes	No, if 10 digits are transmitted to 9-1-1 Service Provider and do not include Country Code	Yes	XXX-XXX-XXXX	XXX-XXX-XXXX	XXX-XXX-XXXX	Not Applicable	WSPs' 7x24 PSAP Support Centre
		Yes	No, if other than 10 digits are transmitted to 9-1-1 Service Provider.	No, if other than 10 digits are transmitted to 9-1-1 Service Provider.	>/<XXX-XXX-XXXX	>/<XXX-XXX-XXXX	NPA-911-XXXX	Call WSPs' 7x24 PSAP Support Centre (to obtain location)	PSAP call to 9-1-1 Service Provider Support Centre (to obtain CBN)

Wireless E9-1-1 Call Type	Characteristics	Wireless E9-1-1 Phase I Service	Dialable Call-Back Number (CBN)	Wireless E9-1-1 Ph II Location Service	Mobile Sub #	CBN digits format presented to ILEC	CBN digits format presented to PSAP	Solutions for Phase II Location if not presented at PSAP	Solutions for real CBN if not presented at PSAP
<b>Lapsed Pre-Paid Subscription</b>	Suspended by the carrier. This stage includes prepaid phones with an account balance of \$0.00. The telephone number is still valid, but the handset cannot place or receive calls. The handset can call 9-1-1 or the WSP's customer service.	Yes	No Telephone number is valid however due to suspension, the handset cannot be called.  Note: Some WSP may optionally allow call back.	Yes	CDN (NPA-NXX-XXX)	CDN (NPA-NXX-XXX) or 911 + 7 digit ESN	CDN (NPA-NXX-XXX) or 911 + 7 digit ESN	Not Applicable	If PSAP needs to call back handset, contact WSP's 7x24 PSAP Support Centre for support  Note: Some WSP may optionally allow call back.
<b>Unsubscribed</b>	Disconnected by the carrier. The telephone number has been recycled by the carrier (aged then reassigned to another handset) or the subscriber has ported the telephone number to another carrier.	Yes	No	Yes	CDN (NPA-NXX-XXX)  Note: Number does not belong to caller hence incorrect CBN	911+7 digit ESN	911+7 digit ESN	Not Applicable	WSPs' 7x24 PSAP Support Centre for additional Subscribers OLD information.  Note: Availability depends on length of deactivation.
<b>Suspended</b>	Carrier has temporarily suspended the user. The profile is active in the system. Caller can only dial 9-1-1 and customer service.	Yes	No	Yes	CDN (NPA-NXX-XXX)  Note: number may be reactivated in some cases of suspension	CDN (NPA-NXX-XXX) or 911 + 7 digit ESN	CDN (NPA-NXX-XXX) or 911 + 7 digit ESN	Not Applicable	WSPs' 7x24 PSAP Support Centre for additional Subscribers information