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June, 2006

**9-1-1 Public Emergency Reporting Service
(9-1-1 PERS)
Network-to-Network Interface
Between Wireless Service Providers (Wireless Carriers)
and Bell Canada's Network**

Version 3.0

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DOCUMENT HISTORY

1.0	August 2002	Initial Release
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2.0	November 2003	Sections 4.2, 5.1, 6.1 and 6.3 were modified to reflect the introduction of a web based access arrangement for Electronic File Transfer.
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3.0	June 2006	Sections 4.2.1, 4.2.2, 5.1, 6.1 and 6.3 were revised to remove references to the e-mail method for file transfers.
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DISCLAIMER

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1.0 INTRODUCTION

1.1 PURPOSE

This document describes the interfaces between a Wireless Service Provider's (WSP, hereafter referred to as Wireless Carrier) network and the Bell Canada 9-1-1 Public Emergency Reporting Service (hereafter referred to as 9-1-1 PERS) network for the purpose of providing wireless end users access to emergency service providers. These interfaces allow 9-1-1 calls originating from Wireless Carrier customers to be passed through the 9-1-1 PERS network to the appropriate 9-1-1 service bureau. These interfaces also allow the Wireless Carriers to interconnect to the 9-1-1 PERS Data System and transmit the pertinent cell site / sector location information.

This document covers only Wireless Carrier interconnection with 9-1-1 PERS. Interconnection to Basic 9-1-1 Emergency Service, where provided, is outside the scope of this document.

The Terminal-to-Network interfaces between Bell Canada 9-1-1 PERS network and a 9-1-1 Service Bureau are outside the scope of this document.

Operational issues that deal with interconnection between the Wireless Carrier and Bell Canada are also outside of the scope of this document. Those issues are dealt with in Bell Canada Wireless E9-1-1 Implementation Support documentation and in special agreements with a particular Wireless Carrier.

1.2 GENERAL

9-1-1 PERS provides the transport of all 9-1-1 calls between callers and primary Public Safety Answering Points (P-PSAPs), and between the primary PSAP and associated police, fire and ambulance dispatch centres (referred to as secondary PSAPs). The municipalities and the various agencies are responsible for answering and responding to the emergency calls.

Wireless 9-1-1 trunk-side interconnection to the 9-1-1 PERS network provides the Wireless Carrier with the ability to transport additional information critical to assisting wireless 9-1-1 callers. When a Wireless Carrier's customer dials 9-1-1, the call is switched at the Mobile Switching Centre (MSC) and transported to Bell Canada designated 9-1-1 tandem (a.k.a. Selective Router) switch. The 9-1-1 call is then routed from the 9-1-1 tandem switch, based on the Emergency Service Routing Digits (ESRD) received, to the designated PSAP, where the wireless 9-1-1 caller's calling party number (referred to as call back number) and the originating cell site / sector location information are delivered to the 9-1-1 PSAP call taker's terminal.

To enable appropriate response to 9-1-1 calls from wireless customers, each Wireless Carrier must transmit the ESRD Customer Record Information (i.e. cell site / sector's ESRD 10-digit number and ALI) to the Bell Canada 9-1-1 PERS Data System. Interconnection by Wireless Carriers to the Bell Canada 9-1-1 PERS is available only within the boundaries of municipalities that have subscribed to the service.

Wireless Carrier 9-1-1 trunk-side interconnection is accomplished by establishing the following:

- a) Establishment of dedicated trunk interconnection using the User Part of the CSS7 signalling specification for Integrated Services Digital Network (ISDN) (i.e. ISUP);
- b) Appropriate trunk-side connections between the Wireless Carrier switch and the designated Bell Canada 9-1-1 tandem switches;
- c) The use of ISUP (CCS7) signalling on 9-1-1 trunks; and
- d) A data entry facility to enable encrypted data transfer between the Wireless Carrier and Bell Canada 9-1-1 PERS Data System to exchange data record and error files.

2.0 SERVICE DESCRIPTION

In a typical emergency response operation, the 9-1-1 call is delivered to a Primary PSAP where the call taker determines the nature of the emergency and forwards the call to the appropriate police, fire prevention or ambulance dispatch centre. The Primary PSAP call taker is supported by a number of special features which can facilitate targeted and accurate response. 9-1-1 PERS is provided in conjunction with all primary exchange services. Local governments are responsible for the PSAPs and dispatch centres.

2.1 SERVICE OVERVIEW

Following is a brief description of the activities performed by the Bell Canada 9-1-1 PERS network:

The **9-1-1 PERS Data System** receives data from the Wireless Carrier's Emergency Service Routing Digit (ESRD) Record Information System, to create and maintain the 9-1-1 centralized databases. A matching procedure is performed between the ESRD Customer Records Information (CRI) data and the Management System's 9-1-1 Street Address Guide (9-1-1 SAG) to create a database containing cell site / sector pseudo addresses, ESRDs' routing telephone number and Emergency Service Number (ESN). That database is used to support Selective Routing and Automatic Location Identification (ALI) features.

The **Wireless 9-1-1 SAG** is a database, which contains pseudo addresses in a given area, listed as street names and corresponding civic number ranges. For wireless cell sites / sectors, special mapping is created to allow ESRDs' Emergency Service Number (ESN) assignment. The civic number range is the ESN assigned to the Emergency Service Zone (ESZ).

The **ALI** feature is the capability to display the wireless caller's originating cell site / sector pseudo address and call back number at the PSAP's call-taker position.

Selective Routing is the capability of routing 9-1-1 calls to the designated PSAPs based on the wireless ESRD's designated location.

An **ESN** corresponds to a geographical area (i.e. Emergency Service Zone) where all wireline residents and wireless cell site / sectors aiming at that area are served by the same set of primary and secondary PSAPs.

When a wireless customer located in a Bell Canada 9-1-1 PERS served area dials 9-1-1, the call is answered at the Primary PSAP associated to the cell site / sector's ESRD designated location. The wireless cell site / sector's pseudo address and ESRD number are automatically displayed at the 9-1-1 call-taker screen, when available. The 9-1-1 call-taker determines which public service is required (police, fire prevention or ambulance) and conferences and/or transfers the call to the appropriate secondary PSAP.

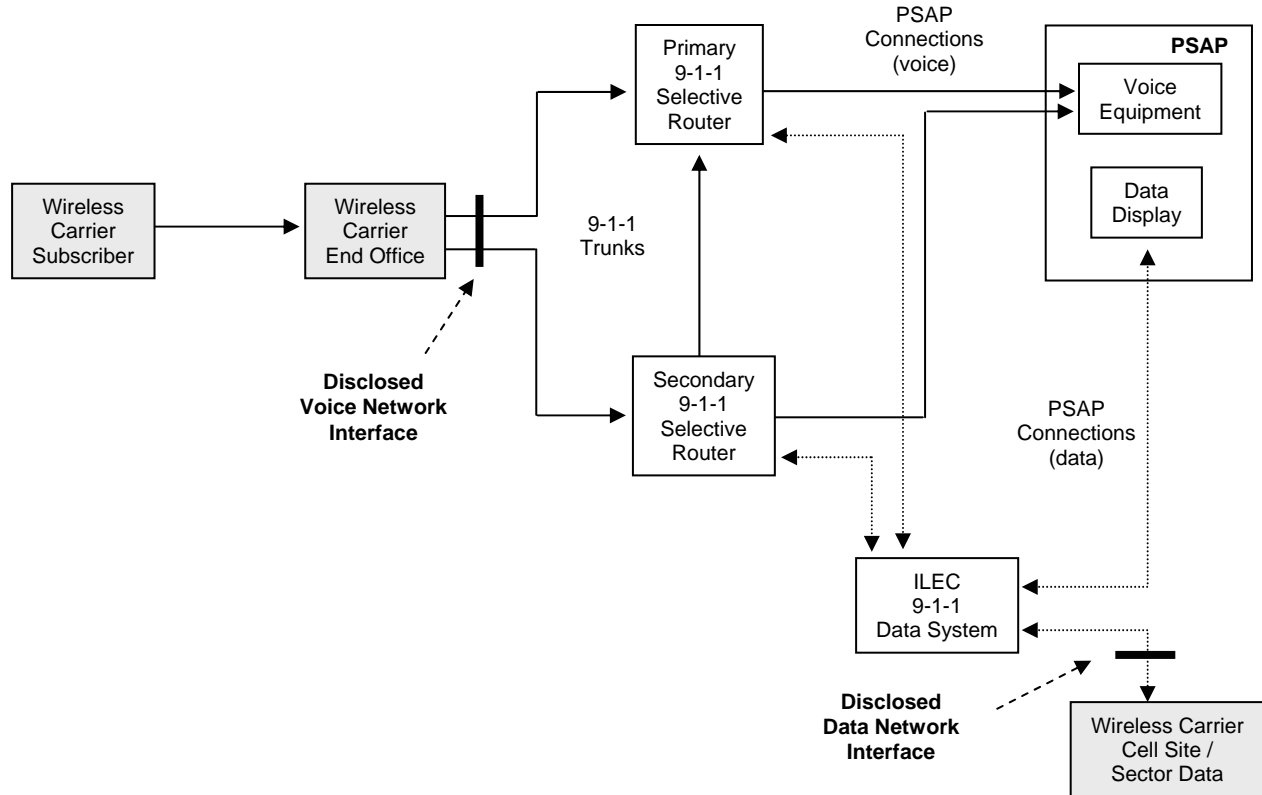
2.2 NETWORK OVERVIEW

9-1-1 PERS utilizes two networks, voice and data. The voice network is based on E9-1-1 tandem switches. The 9-1-1 tandem switches are paired for redundancy purposes; end-offices and Mobile Switching Centre (MSC) switches connect to both the primary and secondary tandem switches with dedicated 9-1-1 trunks (i.e. 9-1-1 interconnection service arrangement trunks) and facilities connect the 9-1-1 tandem switches to the primary and secondary PSAPs. The data network is comprised of 9-1-1 ALI computers and facilities connecting PSAP display terminals to the 9-1-1 PERS data network.

The proper operation of Bell Canada 9-1-1 PERS service is dependent on a number of requirements that must be met prior to service turn-up. These requirements include:

- a) Establishment of ISUP (CCS7) interconnection;
- b) establishment of the interconnecting 9-1-1 trunks to gain access to the 9-1-1 PERS voice network;

- c) the collection and assignment of cell site / sector location data from several sources (Wireless Carrier, PSAPs and Bell Canada) in order to create and maintain a centralized E9-1-1 database; and,
- d) the creation of a selective routing database that is then uploaded to the 9-1-1 tandem switches in order to route wireless 9-1-1 call to the designated PSAP.



Trunk Side Interconnection to the 9-1-1 PERS Network

2.3 9-1-1 FEATURES

9-1-1 PERS service supports the following network features on wireless trunk-side 9-1-1 interconnection:

2.3.1 Selective Call Routing

The Bell Canada 9-1-1 PERS Management System matches the wireless cell site / sector pseudo address to an Emergency Service Zone (ESZ). The ESZ can represent Municipality boundaries (i.e. police, fire and ambulance serving areas). Providing that the wireless cell site / sector associated ESRD has been loaded and processed, the selective call routing feature automatically routes an emergency call to the 9-1-1 PSAP serving the wireless cell site / sector location coverage / tower orientation.

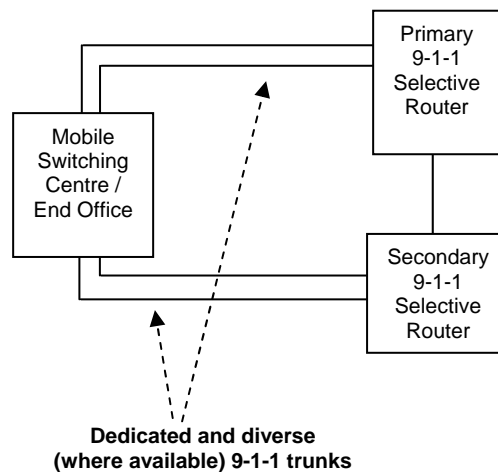
2.3.2 Cell Site / Sector Location Information

This feature provides the PSAP call taker with a visual display of the wireless 9-1-1 call information including but not restricted to Wireless Carrier name, cell site / sector pseudo address, and class of service. 9-1-1 PERS also provides emergency service zone and appropriate police, fire prevention, and ambulance dispatch centres.

3.0 Voice Network Interface

This section provides details of the interface requirements to interconnect with the Bell Canada 9-1-1 PERS voice network.

Each 9-1-1 tandem (Selective Router) switch is paired with a backup switch; they are designated as a primary and secondary tandem switch, based on a Bell Canada assignment. Dedicated 9-1-1 interconnection service arrangement trunks link all wireless switch / end-offices in the served area to both tandem switches. 9-1-1 calls are routed using the trunks that connect the wireless switch / end-office to the primary tandem switch. In the event of a primary trunk failure or a primary tandem switch failure, the originating switch re-directs the 9-1-1 calls to the secondary tandem switch.



3.1 PHYSICAL TRUNK INTERFACE

Dedicated 9-1-1 trunks link each wireless switch / end office in the served area to a pair of 9-1-1 tandem switches, which are designated as primary and secondary tandems based on Bell Canada assignment. Under normal circumstances, 9-1-1 calls are routed by the Wireless Carrier using the dedicated 9-1-1 trunks that connect the wireless switch to the primary 9-1-1 tandem. In the event of a failure of the primary trunks or the primary 9-1-1 tandem, the Wireless Carrier can invoke an automatic overflow to redirect the 9-1-1 calls to the secondary 9-1-1 tandem. The secondary 9-1-1 tandem always attempts to carry overflowed traffic back to the primary 9-1-1 tandem switch for delivery to the primary PSAP.

The primary function of the trunks connecting the wireless switches / end-offices to the 9-1-1 tandem switches is to provide the signalling capabilities. These can be grouped into two main areas:

- protocol between the wireless switch / end-office and the 9-1-1 tandem switches for call set-up,
- 9-1-1 features set support

The interface specifications for the ISUP (CCS7) signalling trunks are the same as those defined in Schedule 1 Part 5, Intercarrier Interface Specification, "Feature Group D" Access Using Common Channel Signalling System Number Seven (CCS7), dated April 6, 1993, as filed by Bell Canada under Tariff Notice 4774.

3.2 ISUP (CCS7) SIGNALLING REQUIREMENTS

The ISUP (CCS7) signalling requirements are further described in the following Telcordia documents:

- GR-2956-CORE, *CCS/SS7 Generic Requirements in Support of E9-1-1 Service*, describes the Signalling System No. 7 signalling between the originating switch and the E9-1-1 tandem, and between E9-1-1 tandems. Interworking with this SS7 signalling is also described in this document.
- GR-905-CORE, *Common Channel Signalling (CCS) Network Interface Specification (CCSNIS) Supporting Network Interconnection, Message Transfer Part (MTP), and Integrated Services Digital Network User Part (ISDNUP)*.
- GR-1432-CORE, *CCS Network Interface Specification (CCSNIS) Supporting SCCP and TCAP*.

It is expected that the A-link arrangement described in Section 2 of GR-905-CORE will be utilized for CCS-based interconnection in support of E9-1-1 Service.

Common Channel Signalling No. 7 (CCS7) is the layered CCS protocol used by national and international telecommunications networks to provide highly reliable information transfer with low delay and without loss or duplication of messages.

GR-905-CORE and GR-1432-CORE describe the interface protocol and messages expected to cross the network interface. Specifically, Section 3.1 of GR-905-CORE describes the Message Transfer Part (MTP), Section 3.2 of GR-905-CORE describes the Integrated Services Digital Network (ISDN) User Part (ISDNUP) for non-call related messages, and Section 3.3 of GR-905-CORE describes the ISDNUP for call-related messages.

In addition, Section 2 of GR-1432-CORE describes the Signalling Connection Control Part (SCCP), and Section 3 of GR-1432-CORE describes the Transaction Capabilities Application Part (TCAP) portion of the SS7 protocol, which play a role in non-circuit related message exchanges.

The following ISUP Signalling (IAM) parameters are used for wireless trunk-side 9-1-1 interconnection:

IAM Parameter Description	IAM Parameter Use
Generic Digits	pANI/ESRD 10-digit Number
Calling Party Number	10-digit Call Back Number
Called Party Number	Must be « 911 or 11 »

3.3 9-1-1 TANDEM / SELECTIVE ROUTER SWITCH SIGNALLING

In addition to the above, the 9-1-1 tandem switches use specific ISUP (CCS7) signalling on the inter-tandem trunks to support wireline-based 9-1-1 PERS features. These features are not supported on 9-1-1 trunks between the wireless switch and the 9-1-1 tandem switch.

4.0 Data Network Interface

4.1 GENERAL

This interface is intended to transport the ESRD routing “telephone” number associated with a Wireless Carrier’s cell site / sector and the cell site / sector pseudo location information for the purpose of updating Bell Canada 9-1-1 PERS Data System.

4.2 DATA COMMUNICATION WITH THE 9-1-1 PERS DATA SYSTEM

4.2.1 ACCESS ARRANGEMENT

A web based interface is used to communicate with the Bell Canada 9-1-1 PERS Data System.

The web based access arrangement requires the following:

- access to the Internet, either direct or via an internet access provider (ISP);
- Internet Explorer 5.5 or Netscape 4.7 or later with 128 bit encryption;
- an e-mail address; and
- for an optional system-to-system mode of operation, a server that supports HyperText Transfer Protocol Secure (HTTPS) posts.

4.2.2 DATABASE COMMUNICATIONS PROCESS

Customer Record files from the LSP to the 9-1-1 Data System are uploaded to the web site. Error Return files from the 9-1-1 Data System to the LSP are downloaded from the web site.

This file transfer process may be user driven (i.e. a user accesses the web site for the purposes of uploading Customer Record files or retrieving Error Return files). Additionally, an automated, system-to-system arrangement can also be implemented.

5.0 ESRD Customer Record Information Files and Records

This section defines the wireless ESRD identification and cell site / sector pseudo location information to be transmitted by the Wireless Carrier to Bell Canada 9-1-1 PERS Data System.

After processing the received data, the 9-1-1 PERS Data System will generate an Error Return file (serving as a processing acknowledgement as well as for returning any file or record error to the Wireless Carrier). Details of Error Return files are discussed in Section 6.

5.1 FILE EXCHANGE PROTOCOL

The wireless ESRD Customer Record Information files and Error Return files will be exchanged, between the Wireless Carrier and Bell Canada, using the web based arrangement as described in Section 4.2 of this document.

5.2 FILE NAMING CONVENTION

The wireless ESRD Customer Record Information files must be named according to the file naming convention described below.

The filename must be 8 characters long and conform to this format:

CO9999T

where:

“***CO***” is the Company Code (uniquely assigned to each sender company by Bell Canada 9-1-1 Competitive Local Exchange Carrier (CLEC)/Carrier Administrator).

“***9999***” is the File Sequence Number (FSN). It is right justified and zero filled.

“***T***” is the file type. The only valid value for any incoming Wireless Carrier files is “***I***” (Incoming file).

The **Company Code** is provided by the Bell Canada CLEC/Carrier Administrator, and is used to determine and validate the origin of the file. It is different from the WC Identifier / LSP ID.

The **File Sequence Number** (FSN) is used to determine if files have been lost in transit. It starts at “00001” (first file transferred) and must be incremented by 1 for each subsequent file transfer, unless the previous file was rejected. When “99999” is reached, the File Sequence Number must be reset to “00001”.

The Bell Canada 9-1-1 PERS Data System maintains and keeps track of a separate File Sequence Number for each company. Each time the 9-1-1 PERS Data System successfully processes a Wireless Carrier file, it increments the next expected FSN by one, except in the case where the file was rejected, in which case the FSN remains the same.

If the File Sequence Number sent by a specific Wireless Carrier and the File Sequence Number expected by the 9-1-1 PERS Data System do not match, the system will generate an “Out of Sequence” error return file, which will contain the missing File Sequence Number. The 9-1-1 PERS Data System will not process nor keep any other file received from that company until the problem is resolved.

The **File Type** is used by the Bell Canada 9-1-1 PERS Data System and the Wireless Carrier to distinguish between incoming Customer Location “***I***” information files and outgoing “***E***” error return files.

5.3 *INITIAL LOAD AND UPDATE FILES*

An Initial Load file is the first file generated by a Wireless Carrier, and contains the information necessary to update the Bell Canada 9-1-1 PERS Data System with the Wireless Carrier data. The Initial Load file contains only "Add" records.

Update files should contain all subsequent changes, additions and deletions that occur on the Wireless Carrier's served ESRD TNs; they can contain "Add", "Delete" and "Unlock" records. Changes are sent as "Add" records. As an ESRD TN cannot migrate to another LSP, "Unlock" records must not be used for the "typical" Wireless Carriers.

The two types of files (Initial Load and Update) have exactly the same file and record formats.

5.4 *FILE FORMAT*

ESRD Customer Record Information files must always contain at least three records: a Header record, one or more Transaction records, and a Trailer record. Files that do not conform to this format will be rejected.

Each record must be 363 characters long and must be separated by one Carriage Return (CR) character.

IMPORTANT:

ESRD Customer Record Information records must only contain standard ASCII upper case characters, digits and symbolic characters (i.e. ASCII codes between 32 and 93 inclusively). No other character is accepted. Any record containing one or more invalid characters (e.g., control character, lower case character, accented character, etc.) will result in rejection of the entire file.

5.5 *TYPES OF RECORDS*

The first record of a file must always be a valid Header record; one or more valid Transaction records must follow it. The last record of the file must always be a valid Trailer record.

The Header record contains information about the Wireless Carrier, along with a time stamp.

The Transaction record contains the actual ESRD Customer Record Information (i.e. wireless cell site / sector).

The Trailer Records contains a record count (number of Transaction records in the file) and a time stamp.

5.6 *TYPES OF TRANSACTION RECORDS*

There are only three types of valid Transaction records:

- "Add" records will add the ESRD record in the 9-1-1 PERS Data System, unless a matching ESRD TN record already exists in the database; in that case, the new ESRD record will completely overwrite the existing one.
- "Delete" records will delete the corresponding ESRD TN record from the 9-1-1 PERS Data System. The ESRD record must exactly match the ESRD TN record kept in the 9-1-1 PERS Data System, i.e. the exact same information that was previously sent and /or updated).
- "Unlock" records are used in place of "Delete" records when and only when a customer TN migrates from one LSP to another LSP. They must contain the same information as normal Delete records. This type of record will trigger the unlocking of the matching customer TN record in the 9-1-1 PERS Data System, so that it can be updated by the new LSP. Unlock is NOT used for wireless ESRD records.

When a record already exists in the Bell Canada 9-1-1 PERS Data System, the WC Identifier / LSP ID of the new Transaction record must always matches the identifier of the existing record.

Any change or update to an existing ESRD Customer Record Information must be sent as an Add record, which will completely overwrite the existing record. It must contain ALL the information an Add record would contain, and not only the information that has changed.

Examples:

- *Situation 1:*

A cell site / sector is moved to another location, keeping the same Wireless Carrier and ESRD 10-digit routing telephone number.

Transaction records 1:

The Wireless Carrier sends an “Add” record, containing the complete ESRD information. This record will overwrite the existing record (provided there is a WC Identifier / LSP ID match).

- *Situation 2:*

A cell site / sector changes ESRD 10-digit routing telephone number only, without changing location.

Transaction records 2:

The Wireless Carrier first sends a “Delete” record for the old ESRD 10-digit routing TN, followed by an “Add” record for the new ESRD 10-digit routing TN; the records must be sent in the right sequential order, and in the SAME file (to avoid any service interruption).

5.7 SORTING OF TRANSACTION RECORDS

The Wireless Carrier must sort the Transaction records in each ESRD Customer Record Information file, first by ESRD 10-digit routing TN, then in chronological order. The Transaction records will be processed sequentially, in the order in which they are received. For example, an “Add” followed by a “Delete” on the same ESRD 10-digit routing TN will result in the ESRD 10-digit routing TN no longer existing in the 9-1-1 PERS Data System.

5.8 RECORD FORMATS

5.8.1 HEADER RECORD

The Header record is used for administrative and file validation purposes.

The following layout is to be used for the Header record (i.e. the first record of every ESRD Customer Record Information and Error Return file).

Field Name	Starting Position	Length	Type	Value
Record Type	01	1	Alphabetic	"H" for Header
Company Code	02	2	Alphabetic	Assigned by Bell Canada 9-1-1 CLEC/Carrier Administrator
Contact Name	04	15	Alphabetic	Name of the person to contact for file related problem resolution
Contact Telephone Number	19	12	Numeric	Contact's telephone number, for file related problem resolution Format: NPA-NXX-LINE
Date and time	31	14	Numeric	Date and time of the beginning of the file preparation Format: YY:MM:DD:HH:MM using a 24 hour clock
Return Status (to be used by the Bell Canada 9-1-1 PERS Data System in Error Return files only)	45	21	Alphanumeric	For Incoming "I" files: Spaces. For Error Return "E" files: Spaces if no file transmission or validation error. Otherwise, reason for the file rejection. Ex.: "Record Count Mismatch", "File Out of Sequence", "Invalid Format" or "Invalid character(s)", etc. depending on the problem.
Error Feedback (to be used by the Bell Canada 9-1-1 PERS Data System in Error Return files only)	66	13	Alphanumeric	For Incoming file: spaces For Error Return file: Additional error information
Filler	79	285	Blank	Spaces

5.8.2 TRANSACTION RECORD

The following layout is to be used for the Transaction records (i.e. for all records between the Header and the Trailer of every ESRD Customer Record Information and Error Return file).

The Transaction records contain ESRD identification and related cell site / sector pseudo location information. It is used to populate and update the 9-1-1 databases.

Field Name	Starting Position	Length	Type	Value
Transaction Code	01	1	Alphabetic	“A”, “D” or “U”
NPA	02	3	Numeric	As per PSAP/tandem serving area
NXX	05	3	Numeric	Always "511"
LINE	08	4	Numeric	Last 4 digits of ESRD number
Customer Account ID	12	3	Numeric	«999» for wireless ESRD
Service Class	15	3	Alphanumeric	"CEL"
Postal Code	18	6	Alphanumeric	Always «NA» for wireless ESRD
Municipality Code	24	3	Alphanumeric	As per value provided by Bell Canada
Pilot NPA	27	3	Numeric	Same as NPA above
Pilot NXX	30	3	Numeric	Same as NXX above
Pilot LINE	33	4	Numeric	Same as LINE above
Class of Service	37	5	Alphanumeric	BLANK for wireless ESRD
System Source	42	1	Alphabetic	«W» for wireless ESRD
Language Indicator	43	1	Alphabetic	“F” for French or Français, “A” for Anglais and “E” for English
Subscriber Name	44	75	Alphanumeric	cell site / sector location + additional location info, if applicable + Wireless Carrier name
Civic Number	119	6	Numeric	ESN number
Civic Number Suffix	125	4	Alphanumeric	BLANK for wireless ESRD
Street Name	129	75	Alphanumeric	Ontario "Cellular" / Quebec "Cellulaire"
Street Direction	204	2	Alphabetic	BLANK for wireless ESRD
Street Suffix	207	2	Alphanumeric	Ontario «ST» / Quebec «RU»
Location Type	208	15	Alphanumeric	BLANK for wireless ESRD
Location Number	223	6	Alphanumeric	BLANK for wireless ESRD
Additional Information	229	60	Alphanumeric	In Incoming file: BLANK for wireless ESRD In Error Return file: one to three error codes (000 to 999)
Service Municipality	289	35	Alphanumeric	Municipality Name for serving area
Extended Municipality Name	324	28	Alphabetic	Ontario «Cellular» / Quebec «Cellulaire»
Province	352	2	Alphabetic	«QC», «ON», or «NB»
LSP Identifier	354	5	Alphanumeric	LSP ID assigned to the Wireless Carrier
Data LSP Identifier	359	5	Alphanumeric	LSP ID assigned to the WC providing data

5.8.3 TRAILER RECORD

The Trailer record is used for administrative and file validation purposes.

The following layout is to be used for the Trailer record (i.e. the last record of every ESRD Customer Record Information and Error Return file).

Field Name	Starting Position	Length	Type	Value
Record Type	01	1	Alphabetic	"T" for Trailer
Filler	02	29	Blank	Spaces
Date and time	31	14	Numeric	Date and time of the end of the file preparation Format: YY:MM:DD:HH:MM using a 24 hour clock
Number of Transaction Records	45	6	Numeric	Number of records, excluding Header and Trailer records
Filler	51	313	Blank	Spaces

6.0 Error Return Files

6.1 GENERAL

The Error Return file is intended to be used by the Wireless Carrier to validate the complete and proper sequential transmission as well the fact that an ESRD Customer Record Information (i.e. wireless cell site / sector records) file was error-free.

After receiving an ESRD Customer Record Information file, the Bell Canada 9-1-1 PERS Data System validates it and generates a corresponding Error Return file. That Error Return file must be retrieved and analyzed by the Wireless Carrier in order to ensure proper file and record sequence.

The 9-1-1 PERS Data System first validates the file based on the following criteria:

- File name is valid;
- The File Sequence Number is the one expected;
- File contains only valid ASCII characters;
- Header and Trailer records are present and valid; and
- The ESRD record count is valid.

If the file does not completely validate, it will be rejected. The ESRD records in it will not be processed and the Error Return file will contain a message indicating the problem. The Error Return file will be deposited in the LSP's account on the web site. An e-mail will also be sent to the LSP to indicate that the Error Return file is available for viewing and downloading. If the LSP is using the optional system-to-system method, the Error Return file will be sent to the LSPs HTTPS server. In either case, the Wireless Carrier must correct the file and re-submit it using the SAME File Sequence Number (since the ESRD records were never actually processed), before sending any other file.

If the file is valid, the 9-1-1 PERS Data System processes the ESRD records contained in the file, validating each one.

Each valid ESRD record will be input, but if an ESRD record does not completely validate, that record will be written to the Error Return file, along with the appropriate Error Code(s) in the Additional Information field (up to three codes may be indicated). The Error Return file will be deposited in the LSP's account on the web site. An e-mail will also be sent to the LSP to indicate that the Error Return file is available for viewing and downloading. If the LSP is using the optional system-to-system method, the Error Return file will be sent to the LSPs HTTPS server. In either case, the Wireless Carrier must submit a new file, containing corrections for erroneous ESRD record(s) along with updates, if any, using the next File Sequence Number (i.e. previous one + 1).

The Error Return file also contains information about the processing of each and every ESRD record sent by the Wireless Carrier.

Condition	Indication in the Error Return file
ESRD record valid and posted to the Bell Canada 9-1-1 PERS Database	None (normal processing, no error)
Invalid ESRD record	Same ESRD record as in the input file, except that the "Additional Information" value is replaced with up to three error codes specifying the problem(s) with the Wireless Carrier ESRD Customer Record Information ESRD record.
ESRD record cannot be processed immediately because ESRD routing TN is currently owned by another Wireless Carrier; ESRD routing record is kept in a special waiting file for processing when the ESRD routing TN has been analyzed and the Wireless Carrier corrects the situation.	Same ESRD record as in the input file, except that the "Additional Information" value is replaced with a special error code indicating that the ESRD record has been posted to or taken out of the special waiting file. (<i>An action is required by the Wireless Carrier for every ESRD record handled that way.</i>)

6.2 CONDITIONS AND FREQUENCY

Bell Canada 9-1-1 PERS Data System produces one Error Return file for each ESRD Customer Record Information file processed.

6.3 FILE NAMING STANDARDS

The file naming convention for Error Return files is the same as the one for the Customer Record Information files, except that the file type is "E" (for Error) instead of I, and a 5 digit sequence number is appended.

The filename will be 14 characters long and conform to this format:

CO99999T.FFFFF

where:

- "CO" is the Company Code (uniquely assigned to each sender company by Bell Canada's 9-1-1 CLEC Administrator).
- "99999" is the File Sequence Number (FSN). It is right justified and zero filled.
- "T" is the file type. The only valid value for outgoing files is "E" (Error file).
- "FFFFF" is a second sequence number. It is right justified and zero filled.

6.4 FILE FORMAT

The format of the Error Return file is the same as the ESRD Customer Record Information file, described in Section 5.

If there were absolutely no errors on any of the Transaction records, the Error Return file would contain, in addition to the normal Header and Trailer records, only one special Transaction record containing the following message: "No errors found".

6.5 RECORD FORMAT

The format of the Error Return file's records is the same as the ESRD Customer Record Information file, described in Section 5.

6.6 RECORD CONTENT

The content of each Error Return record is the same as the ESRD Customer Record Information file, as described in Section 5, except for the following fields (that are specific or different for Error Return files):

Header Record:

“Return Status”
“Error Code”

Transaction Record:

“Additional Information ” Up to three error codes, each separated by a space.

Note: The complete list of Error Codes and their significance will be provided to the Wireless Carrier at the time of interconnection.

6.7 FILE VALIDATION ERROR

6.7.1 RETURN STATUS

The “Return Status” field in the Header record will contain one of the following status and associated error feedback values:

Return Status	Error Feedback
“File OK”	Nil
“No Header record”	Nil
“No Trailer record”	Nil
“Invalid Character”	Nil
“File Out of Sequence”	Format: 999999 999999 First 6 digits: FSN of the file received Last 6 digits: FSN expected by Bell Canada 9-1-1 PERS Data System The two numbers are separated by a space; they are right justified and zero filled. <i>Example:</i> <i>FSN Received: 000020</i> <i>Expected FSN: 000019</i> <i>Error Feedback Field: “000020 000019”</i>
“Record Count Mismatch”	Format: 999999 999999 First 6 digits: Record count of the file received Last 6 digits: Number of records counted by the Bell Canada 9-1-1 PERS Data System The two numbers are separated by a space; they are right justified and zero filled. <i>Example:</i> <i>Trailer record: 75</i> <i>Records received: 74</i> <i>Error Feedback Field: “000074 000075”</i>

Appendix 1: Glossary

9-1-1 PERS	9-1-1 Public Emergency Reporting Service Bell Canada 9-1-1 system that provides Automatic Location Identification (ALI), Automatic Number Identification (ANI) and Selective Routing.
9-1-1 PERS Data System	Complete set of processes, databases and supportive hardware that form the data sub-network of the Bell Canada 9-1-1 PERS.
ALI	Automatic Location Identification For WSP E9-1-1 Service, the pseudo and physical location information associated with the wireless cell site / sector's ESRD 10-digit routing telephone number
ANI	Automatic Number Identification Cell site / sector's telephone number (ESRD for wireless)
CBN	Call Back Number The 10-digit telephone number for the wireless device placing the 9-1-1 call
CCS7	Common Channel Signalling Number 7
CLEC	Competitive Local Exchange Carrier Competitive provider of local telephone service
CRI	Customer Record Information For WSP E9-1-1 Service, wireless ESRD transaction records contains in the source system
CSG	Carrier Services Group Department in Bell Canada which interfaces and deals directly with the carriers
ESN	Emergency Service Number Number of the emergency service zone defined by a unique set of one primary PSAP and three secondary PSAPs (police, fire and ambulance).
ESRD	Emergency Service Routing Digit 10-digit routing number of cell site / sector used for selective routing and ALI display key
ESZ	Emergency Service Zone Area defined by a unique set of one primary PSAP and three secondary PSAPs (police, fire and ambulance).
FSN	File Sequence Number Number assigned to ESRD Customer Record Information and Error Return files.
HTTPS	HyperText Transfer Protocol Secure
ILEC	Incumbent Local Exchange Carrier
LSP	Local Service Provider Provider of local telephone service; includes ILECs, CLECs and Resellers.
NPA	Number Plan Area The three-digit area code.
NXX	Network Exchange (prefix) The first 3 digits of the 7-digit Telephone Number (TN).
PSAP	Public Safety Answering Point The answering location for 9-1-1 calls originating within a specified area.
Wireless Carrier	Also referred to as Wireless Service Provider Provider of mobile telephone service
Wireless 9-1-1 SAG	9-1-1 Street Address Guide Database, which contains pseudo addresses, listed as street names and corresponding civic number ranges, where the civic number range is the ESN assigned to the ESZ