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## LLD ACI CNMI Buffering

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## 0.2 Document History

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## 0.3 References, Abbreviations, Terms

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## 1 Introduction

This document deals with the change in SMS unsolicited event reporting to the AT command sources. The problem and shortcomings of the current implementation is stated first, followed by the proposed change in design and the expected behavior.

## **2 Problem with the current implementation**

With the current implementation, the unsolicited indications related to the SMS are handled for all the sources irrespective of whether the source is interested in the SMS indications. Depending on the default settings or the settings enabled by any one of the sources, the SMS indications are buffered or broadcasted to all the registered sources. This implementation where the SMS indication is sent to sources that are not interested in them is reported to cause problems and inconsistencies.

### 3 Proposed Changes

The ACI starts with the default setting to buffer all the unsolicited SMS indications and these indications are flushed to the source only when an explicit request is made by a source, through an AT command. It is proposed that the source that invokes the AT command “AT+CNMI” be the only source that receives further SMS indications and for which buffering is done if need be. If subsequently another source invokes the “AT+CNMI”, further SMS indications are sent to this source.

By adopting the above strategy we can ensure that only the source indicating explicit interest in SMS indications through “AT+CNMI” are given the indications while other sources are excluded. Further the buffer utilization is optimized, as an indication is stored only once.

#### 3.1 Implementation strategy

The proposed implementation strategy would require very minimal changes to the data structures and functions already implemented for buffering.

New member “*smsSrcId*” can be added to the structure “T\_SMS\_SHRD\_PRM”. The value of “*smsSrcId*” is initialized to “CMD\_SRC\_NONE”. Whenever a source issues the “AT+CNMI” command, its source ID is stored in “*smsSrcId*”. The value “*smsSrcId*” is used to buffer or forward the SMS indications.

The current buffer is designed to be source specific; Each SMS indication is buffered for all the sources. With the new implementation, the buffer will be made source independent and the contents of the buffer will always be flushed to the source whose ID is stored in “*smsSrcId*”.

#### 3.2 Scenarios with the new implementation

With two sources SRC1 and SRC2

##### 3.2.1 No AT+CNMI command issued before receiving unsolicited SMS indications

Default mode for unsolicited SMS indications is buffering, hence all the SMS indications are buffered and smsSrcId value is set to CMD\_SRC\_NONE.

##### 3.2.2 No AT+CNMI initially, but SRC1 sends it with mode set to 2(buffer and flush) after some SMS indications are buffered.

The initial behaviour is as stated in 3.2.1. Once the CNMI command is received, the smsSrcId is updated to SRC1. The previous buffered indications are flushed to SRC1 or cleared depending on the <bfr> value of CNMI command. All further SMS indications are either buffered or flushed directly to SRC1 depending on the AT channel state.

##### 3.2.3 No AT+CNMI initially, but SRC1 sends it with mode set to 0(buffer only) after some SMS

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**indications are buffered.**

The initial behaviour is as stated in 3.2.1. Once the CNMI command is received, the smsSrcId is updated to SRC1. The previously buffered SMS indications remain as it is and all further SMS indications are buffered,

**3.2.4 AT+CNMI command issued by SRC1 with mode set to 2(buffer and flush)**

Once the CNMI command is received, the smsSrcId is updated to SRC1. All the subsequent unsolicited SMS indications are buffered for SRC1 or directed directly to SRC1 depending on the state of the AT channel state.

**3.2.5 AT+CNMI command is issued by SRC1 first and later SRC2 issues the AT+CNMI command with mode set to 2(buffer and flush)**

Once the CNMI command is received, the smsSrcId is updated to SRC1. All the subsequent unsolicited SMS indications are buffered for SRC1 or directed directly to SRC1 depending on the chosen settings.

On receiving CNMI command from SRC2, the smsSrcId is updated to SRC2. If there are any SMS indications buffered for the previous source, they are either flushed to SRC2 or cleared, depending on the value of <bfr> in the CNMI command. All further SMS indications are either buffered or flushed directly to SRC2 depending on the AT channel state.

**3.2.6 AT+CNMI command is issued by SRC1 first and later SRC2 issues the AT+CNMI command with mode set to 0(buffer)**

Once the CNMI command is received, the smsSrcId is updated to SRC1. All the subsequent unsolicited SMS indications are buffered for SRC1 or directed directly to SRC1 depending on the chosen settings.

On receiving CNMI command from SRC2, the smsSrcId is updated to SRC2. The previously buffered SMS indications remain as it is and all further SMS indications are buffered.

**3.3 Drawbacks**

- The AT+CNMI settings by one source will affect the indications sent to the other sources. The settings issued by one source can be changed anytime by another source without the knowledge of the first source. This behaviour can possibly cause inconsistencies.
- If multiple sources are interested in unsolicited SMS indications, this implementation will not cater to that requirement.