



# A76XX Series\_ CNETCI\_Application Note

LTE Module

## **SIMCom Wireless Solutions Limited**

SIMCom Headquarters Building, Building 3, No. 289 Linhong  
Road, Changning District, Shanghai P.R. China

Tel: 86-21-31575100

[support@simcom.com](mailto:support@simcom.com)

[www.simcom.com](http://www.simcom.com)

<b>Document Title:</b>	A76XX Series_CNETCI_Application Note
<b>Version:</b>	1.00
<b>Date:</b>	2022.05.20
<b>Status:</b>	Released

## GENERAL NOTES

SIMCOM OFFERS THIS INFORMATION AS A SERVICE TO ITS CUSTOMERS, TO SUPPORT APPLICATION AND ENGINEERING EFFORTS THAT USE THE PRODUCTS DESIGNED BY SIMCOM. THE INFORMATION PROVIDED IS BASED UPON REQUIREMENTS SPECIFICALLY PROVIDED TO SIMCOM BY THE CUSTOMERS. SIMCOM HAS NOT UNDERTAKEN ANY INDEPENDENT SEARCH FOR ADDITIONAL RELEVANT INFORMATION, INCLUDING ANY INFORMATION THAT MAY BE IN THE CUSTOMER'S POSSESSION. FURTHERMORE, SYSTEM VALIDATION OF THIS PRODUCT DESIGNED BY SIMCOM WITHIN A LARGER ELECTRONIC SYSTEM REMAINS THE RESPONSIBILITY OF THE CUSTOMER OR THE CUSTOMER'S SYSTEM INTEGRATOR. ALL SPECIFICATIONS SUPPLIED HEREIN ARE SUBJECT TO CHANGE.

## COPYRIGHT

THIS DOCUMENT CONTAINS PROPRIETARY TECHNICAL INFORMATION WHICH IS THE PROPERTY OF SIMCOM WIRELESS SOLUTIONS LIMITED COPYING, TO OTHERS AND USING THIS DOCUMENT, ARE FORBIDDEN WITHOUT EXPRESS AUTHORITY BY SIMCOM. OFFENDERS ARE LIABLE TO THE PAYMENT OF INDEMNIFICATIONS. ALL RIGHTS RESERVED BY SIMCOM IN THE PROPRIETARY TECHNICAL INFORMATION ,INCLUDING BUT NOT LIMITED TO REGISTRATION GRANTING OF A PATENT , A UTILITY MODEL OR DESIGN. ALL SPECIFICATION SUPPLIED HEREIN ARE SUBJECT TO CHANGE WITHOUT NOTICE AT ANY TIME.

### **SIMCom Wireless Solutions Limited**

SIMCom Headquarters Building, Building 3, No. 289 Linhong Road, Changning District, Shanghai P.R. China  
Tel: +86 21 31575100  
Email: [simcom@simcom.com](mailto:simcom@simcom.com)

### **For more information, please visit:**

<https://www.simcom.com/download/list-863-en.html>

### **For technical support, or to report documentation errors, please visit:**

<https://www.simcom.com/ask/> or email to: [support@simcom.com](mailto:support@simcom.com)

Copyright © 2022 SIMCom Wireless Solutions Limited All Rights Reserved.

# About Document

## Version History

Version	Date	Owner	What is new
V1.00	2020.09.02	Liyue.liu	New version

## Scope

Based on module AT command manual, this document will introduce CNETCI application process. Developers could understand and develop application quickly and efficiently based on this document. This document applies to A1603 Series and A1601 Series .

# Contents

Version History .....	2
Scope .....	2
<b>1 Introduction .....</b>	<b>4</b>
1.1 Purpose of the document .....	4
1.2 Related documents .....	4
1.3 Conventions and abbreviations .....	4
1.4 The process of Using CNETCI AT Commands .....	5
<b>2 AT Command for CNETCI .....</b>	<b>6</b>
2.1 Overview of AT Command for CNETCI .....	6
2.1.1 AT+CNETCI Query the same frequency and different frequency cell information .....	6
<b>3 Example .....</b>	<b>9</b>

SIMCom  
Confidential

# 1 Introduction

## 1.1 Purpose of the document

This document describes how to use the CNETCI service to update the firmware on CAT1 modules of A76XX Series.

## 1.2 Related documents

[1] A76XX Series\_AT Command Manual

## 1.3 Conventions and abbreviations

In this document, the GSM engines are referred to as following term:

ME (Mobile Equipment);

MS (Mobile Station);

TA (Terminal Adapter);

DCE (Data Communication Equipment) or facsimile DCE (FAX modem, FAX board);

In application, controlling device controls the GSM engine by sending AT Command via its serial interface.

The controlling device at the other end of the serial line is referred to as following term:

TE (Terminal Equipment);

DTE (Data Terminal Equipment) or plainly "the application" which is running on an embedded system;

Other Conventions:

PDP (Packet Data Protocol);

FTP (File Transfer Protocol);

SSL (Secure Sockets Layer);

TLS (Transport Layer Security);

CNETCI (Firmware Over The Air)

## 1.4 The process of Using CNETCI AT Commands

Step 1: Confirm that the network status is OK

Step 2: Configure CNETCI mode.

Step 3: Query information using AT+CNETCI?

SIMCom  
Confidential

## 2 AT Command for CNETCI

### 2.1 Overview of AT Command for CNETCI

Command	Description
<b>AT+CNETCI</b>	Query the same frequency and different frequency cell information,

#### NOTE

Currently, only CAT1 modules support at commands for CNETCI.

#### 2.1.1 AT+CNETCI Query the same frequency and different frequency cell information

This command can query the same frequency different frequency neighborhood information.

Read command return the same frequency different frequency neighborhood information, CNETCIINTRAINFO returns the same frequency cell information , CNETCINONININFO returns heterofrequency cell information , GSMCIINFO returns GSM neighborhood cell information .Write instruction input CNETCI mode.

#### AT+CNETCI Query the same frequency and different frequency cell information

Read Command <b>AT+CNETCI?</b>	Response 1) <b>[+CNETCIINTRAINFO :</b> <b>MCC-MNC :&lt;plmn&gt;,TAC :&lt;tac&gt;,cellid :&lt;cellid&gt;,rsrp :&lt;rsrp&gt;,rsrq :</b> <b>&lt;rsrq&gt;]</b> <b>[+CNETCINONININFO :</b> <b>MCC-MNC :&lt;plmn&gt;,TAC :&lt;tac&gt;,cellid :&lt;cellid&gt;,rsrp :&lt;rsrp&gt;,rsrq :</b> <b>&lt;rsrq&gt;]</b> <b>[+GSMCIINFO :</b> <b>MCC-MNC :&lt;plmn&gt;,LAC :&lt;lac&gt;,cellid :&lt;cellid&gt;,rxSigLevel :&lt;</b> <b>rxSigLevel&gt;]</b>
-----------------------------------	---

	<p><b>+CNETCI: &lt;n&gt;</b></p> <p><b>OK</b></p> <p>2)</p> <p><b>ERROR</b></p> <p>3)</p> <p><b>+CME ERROR: &lt;err&gt;</b></p>
Write Command <b>AT+CNETCI=&lt;n&gt;</b>	<p>Response</p> <p>1)</p> <p><b>OK</b></p> <p>2)</p> <p><b>ERROR</b></p> <p>3)</p> <p><b>+CME ERROR: &lt;err&gt;</b></p>
Parameter Saving Mode	NO_SAVE
Max Response Time	9S
Reference	3GPP TS 36.133

### Defined Values

<n>	<p>0 – Oneshot gets information, which may be incomplete or unreachable, and responds quickly.</p> <p>1 – must decode system info to get Ncell, but in the end, may still not get NCELL, The response is slow.</p>
<plmn>	PLMN code
<tac>	Tracing Area Code.
<cellid>	Cell ID
<rsrp>	<p>integer type, reference signal received power (see 3GPP TS 36.133 [96] subclause 9.1.4).</p> <p>0 rsrp &lt; -140 dBm</p> <p>1 -140 dBm &lt; rsrp &lt; -139 dBm</p> <p>2 -139 dBm &lt; rsrp &lt; -138 dBm</p> <p>95 -46 dBm &lt; rsrp &lt; -45 dBm</p> <p>96 -45 dBm &lt; rsrp &lt; -44 dBm</p> <p>97 -44 dBm &lt; rsrp</p> <p>255 not known or not detectable</p>
<rsrq>	<p>integer type, reference signal received quality (see 3GPP TS 36.133 [96] subclause 9.1.7).</p> <p>0 rsrq &lt; -19.5 dB</p> <p>1 -19.5 dB &lt; rsrq &lt; -19 dB</p> <p>2 -19 dB &lt; rsrq &lt; -18.5 dB</p> <p>32 -4 dB &lt; rsrq &lt; -3.5 dB</p>

	33 -3.5 dB < rsrq < -3 dB
	34 -3 dB < rsrq
	255 not known or not detectable
<lac>	Location area code
<rxSigLevel>	Receive signal level

SIMCom  
Confidential

## 3 Example

Before all CNETCI related operations, we should ensure the following:

Ensure network is available:

**AT+CGREG?**

+CGREG: 0,1

OK

**AT+CPSI?**

+CPSI: LTE,Online,460-00,0x333C,39589680,308,EUTRAN-BAND3,1350,5,0,0,54,0,22

OK

**at+CNETCI=1**

OK

**at+CNETCI?**

+CNETCINONINFO: 0, MCC-MNC: 460-00,TAC: 13116,cellid: 39589680,rsrp: 63,rsrq: 0

+CNETCINONINFO: 1, MCC-MNC: 000-00,TAC: 0,cellid: -1,rsrp: 58,rsrq: 28

+CNETCINONINFO: 2, MCC-MNC: 000-00,TAC: 0,cellid: -1,rsrp: 22,rsrq: 10

+CNETCINONINFO: 3, MCC-MNC: 460-00,TAC: 13116,cellid: 60660547,rsrp: 42,rsrq: 0

+CNETCI: 1

OK