WCDMA&GSM
Module_EXTRA_FUNCTION_for_Network
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## Version History

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1 Introduction

1.1 Scope

This document presents the AT Command Set for SIM5210V, suitable for End-User.

1.2 References

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1.3 Abbreviations

For the purposes of the present document, the following abbreviations apply:

- **AT**: Attention; this two-character abbreviation is always used to start a command line to be sent from TE to TA
- **ME**: Mobile Equipment
- **UE**: User Equipment
- **PLMN**: Public Land Mobile Network
- **UMTS**: Universal Mobile Telecommunications System
- **WCDMA**: Wide-band Code Division Multiple Access

1.4 Definitions and conventions

1. For the purposes of the present document, the following syntactical definitions apply:

   - **<CR>**: Carriage return character
   - **<LF>**: Linefeed character
   - **<...>**: Name enclosed in angle brackets is a syntactical element. Brackets themselves do not appear.
   - **[…]**: Optional subparameter of a command or an optional part of TA information response is enclosed in square brackets. Brackets themselves do not appear.

2. In this document, all AT commands and return values will display italic, but AT commands in the cutline do not follow above rule.

   For example:
   
   \[AT+C SQ\]
   \[+CSQ: 25, 99\]
   \[OK\]

3. The contents between “"<" and “">" are command parameters.

   For example: \[ATD<dial_no>\];

   In this case, \(<dial_no>\) is a parameter. User needs enter a phone number that user wants to dial.

4. The contents between “"[" and “"]" are optional parameters.

   For example: \[<par1>[,<par2>]\];

   In this case, \(<par2>\) is an optional parameter.

5. The return-results (parameters) between “"[" and “"]" are optional parameters, which indicate the return-results depend on specific situation.

   For example: \[par_a,[par_b,par_c,par_d]\];

   In this case, \(par_b, par_c, par_d\) are optional return-results.
2 AT interface synopsis

2.1 Interface settings

Module and DTE are using standard RS-232 interface, the default value for cluster setting is 115200bps, eight data bits, no parity, 1 stop bit, and no data stream control.

2.2 AT command syntax

AT command start with header AT, and end with <CR>. If the format of AT command input was correct, the terminal will return the corresponding request information, and finally will return “OK”; Otherwise, the terminal will return “ERROR”. When parameters follow with AT command, 1) For string type, we will put quotation marks to the both side of input string, 2) For numeric string type, able to input numeric value immediately.

2.3 AT command response

The response data package for AT command could be existing between <CR><LF>.

1. If AT command implemented successful, then return “OK”;
2. If AT command syntax error, then return “ERROR”;
3. If AT command implemented failed, return “ERROR”.

Note: The following sections will ignore <CR> and <LF>.

3 GSM and UMTS

3.1 Set band preference

Description
Set the band to the <band> value.

3.2 Reboot the system

Description
The command is used to reboot the system immediately.

3.3 Set the frequency band

Description
This command sets the modem to use a particular frequency band. You must use this command to select a WCDMA band before running WCDMA commands, or to select a GSM band before running GSM commands.

Notes: Before execute this command, you must use command (AT+CFUN=5) to set the factory test mode. In the end, use command (AT+CFUN=1) to set the online mode.

3.4 Force location area update request

Description
Execute this command to send location area update request.

3.5 Force routing area update request
Description

Execute this command to send routing area update request.

3.6 Lock UE at DCH state

Description

The command is used to set whether UE could do switch which is at DCH state or not. If AT+*** =1 and UE is at DCH state, UE will not do any switch.

3.7 Operator selection

Description

Set command forces an attempt to select and register the GSM/UMTS network operator. <mode> is used to select whether the selection is done automatically by the ME or is forced by this command to operator <oper> (it shall be given in format <format>). If the selected operator is not available, no other operator shall be selected (except <mode>=4). The selected operator name format shall apply to further read commands (+COPS?) also. <mode>=2 forces an attempt to deregister from the network. The selected mode affects to all further network registration (e.g. after <mode>=2, ME shall be unregistered until <mode>=0 or 1 is selected).

Read command returns the current mode and the currently selected operator. If no operator is selected, <format> and <oper> are omitted.

Test command returns a list of quadruplets, each representing an operator present in the network. Quadruplet consists of an integer indicating the availability of the operator <stat>, long and short alphanumeric format of the name of the operator, and numeric format representation of the operator. Any of the formats may be unavailable and should then be an empty field. The list of operators shall be in order: home network, networks referenced in SIM, and other networks.

It is recommended (although optional) that after the operator list TA returns lists of supported <mode>s and <format>s. These lists shall be delimited from the operator list by two commas.

3.8 Manual select specific network

Description

This command is used to manual select specific network, if the network is not available, the modem lock to no service.

3.9 Set SGSN version

Description

This command is used to set the SGSN version.

Note: Once the version is set, UE must be reset by command (AT+***).

3.10 Set MSC version

Description

This command is used to set the MSC version. MSCR (MSC revision number).

Note: Once the version is set, UE must be reset by command (AT+***).

3.11 Set WCDMA RRC version

Description
This command is used to set the WCDMA RRC version.

Note: Once the version is set, UE must be reset by command (AT+***).

3.12 Refresh SIM card

Description
This command is used to refresh SIM card after inserted or removed.

4 GSM

4.1 GRPS and EDGE class type

Description
The command is used to set multi-slot class type of GPRS and EDGE for the ME, so that the ME could send and receive data at specified speeds of downlink and uplink.

Note: Once the class is set, UE must be reset by command (AT+***).

4.2 GSM service cell information

Description
The command is used to check some information for service-cell in GSM.

4.3 Inquiring system information

Description
The execution command returns the system information; currently show the information of GSM only.

4.4 GSM neighbor cells information

Description
The command is used to check neighbor-cells information in GSM.

4.5 Monitor cell

Description
Inquiring serving cell and neighbour cell system information.

4.6 Lock AFRCN

Description
Lock a specific service-cell through appointed AFRCN in GSM network.

4.7 Lock cell through AFRCN and BSIC in GSM

Description
Lock a specific service-cell through appointed AFRCN and BSIC in GSM network.

4.8 Network full band scan in string format

Description
The command is used to perform a quick survey through channels belonging to the band selected by last AT+/#BND command issue, starting from channel <s> to channel <e>. If parameters are omitted, a full
band scan is performed.
   After issuing the command, the information for every received BCCH(BCCH-Carrier and non
   BCCH-Carrier) is given in the format of string.

4.9 Network band survey of appointed channels in string format

Description
   The command is used to perform a quick survey of user defined channels. It scans the given channels.
The result format is in string format.

5 UMTS

5.1 Check service cell information in UMTS

Description
   The command is used to check some information for the UMTS service-cell.

5.2 Request cell system information in UMTS

Description
   This command is used to inquire the system information from the last four cells that the UE camped on.

5.3 Cell sets information in UMTS

Description
   The command is used to extract setting information in the UMTS.

5.4 Inquiring system information

Description
   The execution command returns the mobile phone system information; currently show the information
   of GSM only.

5.5 Lock DL frequency

Description
   Lock frequency through appointed DL frequency in UMTS network.

5.6 Lock cell through frequency and PSC in UMTS

Description
   Lock a specific cell through appointed DL frequency and PSC in UMTS network.
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