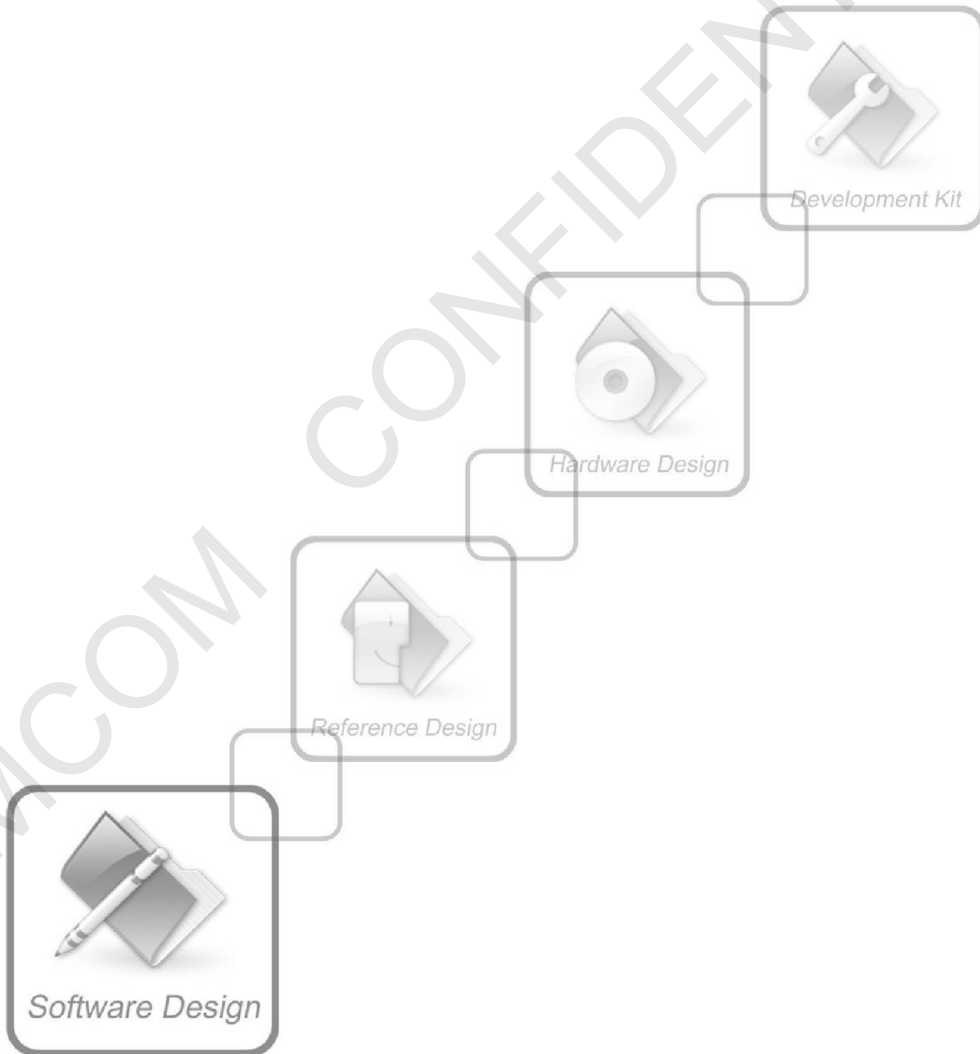




SIM5300E_NETWORK_Application Note



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1 5300E_NETWORK STRUCTURE

1.1 OVERVIEW OF AT COMMANDS FOR SIM NETWORK

Command	Description
AT+CNMP	Selection of Radio Access Technology
AT+CSACT	Select presentation of <Act>&<rac>
AT+CREG	Network Registration Status
AT+CGREG	Network GPRS Registration Status
AT+COPS	Operator Selection
AT+CENG	Switch on or off Engineering Mode
AT+CBAND	Get and set mobile operation band

2 GET THE INFORMATION OF NETWORK STATUS

2.1 SELECT PRESENTATION OF <ACT> AND <RAC>

Demonstration	Syntax	Expect Result
Get the value of <Act>&<rac>, and the presentation of <Act>in +CREG and <Act>&<rac>in +CGREG	AT+CSACT?	+CSACT: 1,"01",0,0 OK Note:ACT_creg&ACT_cgreg are default no-display

AT+CSACT	the presentation of <Act> in +CREG	the presentation of <Act>&<rac>in +CGREG
AT+CSACT=0,0	+CREG: 2,1,"A835","B6B8A7" OK Note: present no ACT	+CGREG: 2,1,"A835","B6B8A7" OK Note: present no <Act>&<rac>

AT+CSACT=1,1	+CREG: 2,1,"A835","B6B8A7",6 Note: present ACT	+CGREG: 2,1,"A835","B6B8A7",6,"34" OK Note: present <AcT>&<rac>
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2.2 AT+CREG NETWORK REGISTRATION

Demonstration	Syntax	Expect Result
Show the current value	AT+CREG?	+CREG: 2,1,"A835","B6B8A7" OK//Without <AcT> presentation is the default setting.
Show the value of presentation information	AT+CREG=?	+CREG: (0-2) OK
Disable network registration information	AT+CREG=0	OK
Enable network registration information +CREG: <n>, <stat>	AT+CREG=1	OK
Enable network registration and location information +CREG: <n>,<stat>[,<lac>,<ci>]	AT+CREG=2	OK
	AT+CSACT=0	OK
Enable network registration and location information +CREG: <n>,<stat>[,<lac>,<ci> [<AcT>]]	AT+CREG=2	OK
	AT+CSACT=1	OK

2.3 AT+CGREG GPRS NETWORK REGISTRATION STATUS

Demonstration	Syntax	Expect Result
Show the current value	AT+CGREG	+CGREG: 2,1,"1816","F1A3"

		OK
Show the value of presentation information	AT+CGREG=?	+CGREG: (0-2)
Disable network registration information unsolicited result code:<stat>	AT+CGREG=0	OK
enable network registration +CGREG: <stat>	AT+CGREG=1	OK
Enable network registration unsolicited result code <stat>[, <lac>,<ci>]	AT+CGREG=2	OK
	AT+CSACT=,0	OK
Enable network registration unsolicited result code <stat>[, <lac>,<ci>,<AcT>,<rac>]	AT+CGREG=2	OK
	AT+CSACT=,1	OK

3 SWITCH 2G/3G NETWORK REGISTRATION

User can use AT+CNMP to select the 2G/3G network registration including automatic mode or the single mode. In automatic mode, If got no preferred registration, ME is currently searching a new operator to register to. In single mode, ME register only the preferred network.

3.1 CHOOSE 2/3G SINGLE MODE

The single mode is set by the first parameter <AcT>. In single mode, ME register only the preferred network.

Demonstration	Syntax	Expect Result
Select 2G single mode	AT+CNMP=13	OK
Select 3G single mode	AT+CNMP=14	OK

3.2 CHOOSE 2/3G AUTOMATIC MODE

In automatic mode, If gotten no preferred registration, ME is currently searching a new operator to register to.

Demonstration	Syntax	Expect Result
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Select automatic mode, preferring 2G mode.	AT+CNMP=2,13	OK
Select automatic mode, preferring 3G mode.	AT+CNMP=2,14	OK
Get the range of supported <AcT> and <PreferredAcT> values.	AT+CNMP?	+CNMP: 2,14 OK

4 OPERATER SELECTION

Select and register the GSM, UMTS network.

Demonstration	Syntax	Expect Result
Get available networks and lists of supported <mode>s and <format>s.	AT+COPS=?	+COPS: (2,"CHN-UNICOM","UNICOM", 46001"),(0,1,2,3,4),(0,1,2) OK
Get current network	AT+COPS?	+COPS: 0,0,"CHN-UNICOM",2 OK Note: If TE registered no network, <format> and <oper> will not be returned.
Set automatic network selection	AT+COPS=0	OK
Set manual network selection	AT+COPS=1,, "46001"	OK
	AT+COPS=1,2,"46001"	OK AT+COPS? +COPS: 1,2,"46001",2 OK
	AT+COPS=1,1,"UNICOM"	OK AT+COPS? +COPS: 1,1,"UNICOM",2

		OK
Set <format> being alphanumeric type and mandatory input	AT+COPS=3,1	OK AT+COPS? +COPS: 1,1,"UNICOM",2
Set manual/automatic network selection.	AT+COPS=4,2,"46001"	OK

5 SWITCH ON OR OFF ENGINEERING MODE

5.1 THE DESCRIPTION OF THE PARAMETERS IN +CENG

Registered the GSM Network, the return values are different from that when ME registered the UTMS Network.

Parameter	Description
Mode	0 Not display the cell information
	1 display the detail cell information
	2 display the cell information automatically
	3 display the concise cell information(Note: in 3G mode, ME will return the same value when mode=1, or 3)
	4 display the serving cell information
CELLID	0 not display the neighbor cellid (In 3G mode, There is no neighbor cellid, Since ME will return the same value when CELLID=0, or 1)
	1 display the neighbor cellid

5.2 THE DEMONSTRATION OF +CENG IN 2G MODE

Demonstration	Syntax	Expect Result
Switch off the engineering mode	AT+CENG=0	OK

<p>Switch on the engineering mode, displaying the cell details without the neighbor cellid display.</p>	<p>AT+CENG=1,0</p>	<p>+CENG: 1,0</p> <p>OK</p> <p>AT+CENG?</p> <p>+CENG: 1,0</p> <p>0,"0097,24,99,460,01,1e,b5f0,20,05,144f,0"</p> <p>+CENG: 1,"0671,06,09,460,01,144f"</p> <p>+CENG: 2,"0669,00,ff,ffff,ffff,ffff"</p> <p>+CENG: 3,"0668,00,ff,ffff,ffff,ffff"</p> <p>+CENG: 4,"0666,00,ff,ffff,ffff,ffff"</p> <p>+CENG: 5,"0663,00,ff,ffff,ffff,ffff"</p> <p>+CENG: 6,"0662,00,ff,ffff,ffff,ffff"</p> <p>OK</p>
<p>Switch on the engineering mode, displaying the cell details with the neighbor cellid display.</p>	<p>AT+CENG=1,1</p>	<p>+CENG: 1,1</p> <p>OK</p> <p>AT+CENG?</p> <p>+CENG: 0,"0097,26,99,460,01,1e,b5f0,20,05,144f,0"</p> <p>+CENG: 1,"0671,06,09,ffff,460,01,144f"</p> <p>+CENG: 2,"0669,00,ff,ffff,ffff,ffff"</p> <p>+CENG: 3,"0668,00,ff,ffff,ffff,ffff"</p> <p>+CENG: 4,"0666,00,ff,ffff,ffff,ffff"</p> <p>+CENG: 5,"0663,00,ff,ffff,ffff,ffff"</p> <p>+CENG: 6,"0662,00,ff,ffff,ffff,ffff"</p> <p>OK</p>
<p>Report network information) automatically</p>	<p>+CENG: AT+CENG=2</p>	<p>OK</p> <p>+CENG: 0,"0097,25,99,460,01,1e,b5f0,20,05,144f,0"</p> <p>+CENG: 1,"0671,07,09,460,01,144f"</p> <p>+CENG: 2,"0666,00,ff,460,01,144f"</p> <p>+CENG: 3,"0669,00,ff,ffff,ffff,ffff"</p> <p>+CENG: 4,"0668,00,ff,ffff,ffff,ffff"</p> <p>+CENG: 5,"0663,00,ff,ffff,ffff,ffff"</p> <p>+CENG: 6,"0662,00,ff,ffff,ffff,ffff"</p> <p>+CENG: 0,"0097,27,99,460,01,1e,b5f0,20,05,144f,255"</p> <p>+CENG: 1,"0671,07,09,460,01,144f"</p> <p>+CENG: 2,"0666,00,ff,460,01,144f"</p> <p>+CENG: 3,"0669,00,ff,ffff,ffff,ffff"</p>

		<pre>+CENG: 4,"0668,00,ff,ffff,ffff,ffff" +CENG: 5,"0663,00,ff,ffff,ffff,ffff" +CENG: 6,"0662,00,ff,ffff,ffff,ffff" </pre>
Switch on the engineering mode to display the cell concise information without the neighboring cellid display.	AT+CENG=3,0	<pre>OK AT+CENG? +CENG: 3,0 +CENG: 0,"460,01,144f,b5f0,1e,24" +CENG: 1,"460,01,144f,ffff,09,07" +CENG: 2,"460,01,144f,0e94,3c,00" +CENG: 3,"ffff,ffff,ffff,ffff,ff,00" +CENG: 4,"ffff,ffff,ffff,ffff,ff,00" +CENG: 5,"ffff,ffff,ffff,ffff,ff,00" +CENG: 6,"ffff,ffff,ffff,ffff,ff,00" OK</pre>
Set the mode being 4 to display the serving cell information only.	AT+CENG=4	<pre>OK AT+CENG? +CENG: 4,0 +CENG: 0,"0097,22,99,460,01,1e,b5f0,20,05,144f,0" OK</pre>

5.3 THE DEMONSTRATION OF +CENG IN 3G MODE

Demonstration	Syntax	Expect Result
Switch off the engineering mode	AT+CENG=0	OK

<p>Switch on the engineering mode, displaying the cell details</p>	<p>AT+CENG=1</p>	<p>OK</p> <p>AT+CENG?</p> <p>+CENG: 1,0</p> <p>network is UMTS (It's the tip for 3G only)</p> <p>+CENG:</p> <p>0,"10663,460,01,a835,b6b8a7,279,89,26,-128"</p> <p>+CENG: 1,"10663,279,99,24,255"</p> <p>+CENG: 2,"10663,471,99,24,255"</p> <p>+CENG: 3,"10663,129,99,24,255"</p> <p>+CENG: 4,"10663,274,99,24,255"</p> <p>+CENG: 5,"10663,437,99,24,255"</p> <p>+CENG: 6,"10663,140,99,24,255"</p> <p>OK</p>
<p>Report +CENG: network information) automatically</p>	<p>AT+CENG=2</p>	<p>OK</p> <p>network is UMTS</p> <p>+CENG:</p> <p>0,"10663,460,01,a835,b6b8a7,279,90,25,-128"</p> <p>+CENG: 1,"10663,279,99,24,255"</p> <p>+CENG: 2,"10663,471,99,24,255"</p> <p>+CENG: 3,"10663,129,99,24,255"</p> <p>+CENG: 4,"10663,274,99,24,255"</p> <p>+CENG: 5,"10663,437,99,24,255"</p> <p>+CENG: 6,"10663,140,99,24,255"</p> <p>network is UMTS</p> <p>+CENG:</p> <p>0,"10663,460,01,a835,b6b8a7,279,87,28,-128"</p> <p>+CENG: 1,"10663,279,99,24,255"</p> <p>+CENG: 2,"10663,471,99,24,255"</p> <p>+CENG: 3,"10663,129,99,24,255"</p> <p>+CENG: 4,"10663,274,99,24,255"</p> <p>+CENG: 5,"10663,437,99,24,255"</p> <p>+CENG: 6,"10663,140,99,24,255"</p>

6 HOW TO CHOOSE BAND

The 2G bands and 3G bands are set separately.

Note: ALL_BAND include all the 2G bands and 3G bands.

Demonstration	Syntax	Expect Result
Get the previously set of <band> values.	AT+CBAND=?	+CBAND: (EGSM_MODE,DCS_MODE,GSM850_MODE,PCS_MODE,EGSM_DCS_MODE,GSM850_PCS_MODE,EGSM_PCS_MODE,UMTS_I_MODE,UMTS_VIII_MODE,ALL_BAND) OK
Get current registered band, and the list of supported <band>s	AT+CBAND?	+CBAND: EGSM_MODE,ALL_BAND OK Note: This example is default setting.
Register 2G band	AT+CBAND="DCS_MODE"	OK AT+CBAND? +CBAND: DCS_MODE, DCS_MODE,ALL_BAND_3G OK Note: Because 2G&3G band should be set separately When ME registered 2G band, the 3G<band>s is still default setting.
Register 3G band	AT+CBAND="UMTS_I_MODE"	OK AT+CBAND? +CBAND: UMTS_I_MODE,ALL_BAND_2G,UMTS_T_MODE OK Note: The first parameter is the previously registered band, and the others are the supported bands. In this case, that 2G band has been registered, Only the registered 2G band and 3G band are supported.

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