GSM QuecCell

AT Commands Manual

GSM/GPRS Module Series

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About the Document

History

Revision	Date	Author	Description
1.0	2012-09-28	Bob DENG	Initial
1.1	2015-04-08	Bob DENG	Added applicable modules

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1 Introduction

QuecCell function is a feature embedded in Quectel modules that can scan the detailed information about the base station, lock the specified GSM frequency, and forbid the specified operator. With this feature, the customer can choose the network they expect in the certain place.

This document is applicable to all Quectel GSM modules.

2 AT Commands for GSM QuecCell

2.1. Overview of AT Commands for GSM QuecCell

Table 1: Overview of AT Commands for GSM QuecCell

Command	Description
AT+QOPS	Scan Basic Station Information
AT+QENG	Switch on or off engineering mode
AT+QLOCKF	Lock the Base Station
AT+QSCANF	Scan ARFCN receiving Level
AT+QCHINFO	Get channel information
AT+QLASTTA	Get last valid TA value
AT+QFORBIDMNC	Forbid operator

2.1.1. AT+QOPS Scan Basic Station Information

The command can scan all the GSM frequencies. After that, the operator with the best network coverage can be chosen through the results of QuecCellScan.

AT+QOPS Scan Basic Station Information	
Read Command **AT+QOPS?**	Response **+QOPS:<stat>,<Oper in string>,<Oper in short string>,<Oper in number><CR LF>** **<index1>,<lac>,<ci>,<bsic>,<rxlev>,<arfcn> <CR LF>** **<index2>,<lac>,<ci>,<bsic>,<rxlev>,<arfcn><CR LF>** … **<indexN>,<lac>,<ci>,<bsic>,<rxlev>,<arfcn><CR LF>** **+QOPS:<stat>,<Oper in string>,<Oper in short string>,<Oper in number><CR LF>** **<index1>,<lac>,<ci>,<bsic>,<rxlev>,<arfcn><CR LF>**

	<index2>,<lac>,<ci>,<bsic>,<rxlev>,<arfcn><CR LF> **…** **<indexN>,<lac>,<ci>,<bsic>,<rxlev>,<arfcn><CR LF>** **+QOPS:<stat>,<Oper in string>,<oper in short string>,<oper in number><CR LF>** **….** **OK** If error is related to ME functionality: **+CME ERROR: <err>**

Parameter

<stat>	0	Unknown
	1	Operator available
	2	Current Operator
	3	Forbidden Operator
<Oper in string>	Operator in long format alphanumeric	
<Oper in short string>	Operator in short format alphanumeric	
<Oper in number>	Operator in numeric format	
<indexN>	Radio frequency channel number in decimal display, Renumber again under different operator	
<lac>	Location Area Code in hex format, 4-byte in fixed width	
<ci>	Cell ID in hex format, 4-byte in fixed width	
<bsic>	Base Station Identity Code in hex format, 2-byte in fixed width	
<rxlev>	Receive level in decimal format, volatile width	
<arfcn>	Absolute Radio Frequency Channel Number in decimal format, volatile width	

NOTES

1. The maximum index is 10 for each operator.
2. Allow to scan all GSM frequency even without SIM card inserted in the module.

2.1.2. AT+QENG Switch on or off Engineering Mode

Engineering Mode is designed to report the information of serving cells and the neighboring cells.

AT+QENG Switch on or off Engineering Mode	
Test Command **AT+QENG=?**	Response **+QENG: (**list of supported **<mode>**s**),(**list of supported **<dump>**s**)** **OK**

Read Command **AT+QENG?**	Response The type of the cell information URCs is control by **<dump>** parameter: **+QENG: <mode>,<dump>** URCs of the serving cell information: **+QENG: 0,<mcc>,<mnc>,<lac>,<cellid>,<bcch>,<bsic>,<dbm>,<c1>,<c2>,<txp>,<rla>,<tch>,<ts>,<maio>,<hsn><ta>,<rxq_sub>,<rxq_full>** URCs of 1-6 the neighboring cell information: **[+QENG: 1,list of (<ncell>,<bcch>,<dbm>,<bsic>,<c1>,<c2>,<mcc>, <mnc>,<lac>,<cellid>)**…**]** URCs of cell frequency list(CA) of the serving cell: **[+QENG: 2,list of (<arfcn>)…]** **OK**
Write Command **AT+QENG =<mode>[,<dump>]**	Response Switch on or off engineering mode. It will report +QENG: (network information) automatically if **<mode>**=2. **OK** **ERROR** **+CME ERROR: <err>**

Parameter

<mode>	0	Switch off engineering mode
	1	Switch on engineering mode
	2	Switch on engineering mode, and activate the URC report of network information
<dump>	0	Only display the information of serving cell
	1	Display the information of serving cell and 1-6 neighboring cells
	3	Display the information of serving cell and 1-6 neighboring cell, list of ARFCN and Cell frequency list (CA) of the serving cell
<mcc>	Mobile country code	
<mnc>	Mobile network code	
<lac>	Location area code in hex format	
<cellid>	Cell ID in hex format	
<bcch>	Absolute Radio Frequency Channel Number of Broadcast Control Channel BCCH	
<bsic>	Base station identity code	
<dbm>	Receive signal level in dBm unit	
<c1>	C1 value	

<c2>	C2 value
<txp>	Transmit power maximum access a CCH
<rla>	Receive level access minimum
<ts>	Timeslots
<maio>	MAIO value
<hsn>	HSN value
<tch>	ARFCN of TCH, ‘h’ figure hopping
<ta>	Timing Advance, range 0~63
<rxq_sub>	RX quality (sub), range 0-7
<rxq_full>	RX quality (full), range 0-7
<ncell>	Number of neighboring six cell ID 1~6
<arfcn>	Absolute radio frequency channel number

NOTES

1. When mode is 2, auto URCs are reported per 5 seconds.
2. The **<lac>** and **<cellid>** parameters in hex format, other parameter is in decimal format.
3. If the cell information is not detected, the parameter is replaced by ‘x’ char.
4. If the detecting is not expert mode, the **<tch>**, **<ts>, maio>**, **<hsn>**, **<ta>**, **<rxq_sub>** and **<rxq_full>** parameter do not display the value of the parameter and replaced by ‘x’ char.
5. Duration of the network connecting, if the hopping frequency is supported by the network, so the channel of TCH is instable. Using the ’h’ figure **<tch>** under this mode.
6. Under expert mode, when the **<c1>** and **<c2>** of the serving cell cannot be updated. Using the ‘-1’ figure to display the illegal value. At the same time, the **<txp>** and **<rla>** parameter cannot be updated in a certain condition, all the same holding the value of idle mode. This is because ME cannot be updated in this mode and cannot update the selection of cell and reselection of the parameter. When the connecting is over, mobile device goes back idle mode and gives out the correct value.
7. If TA can report the information of the neighboring cell, the URCs of six neighboring cell should be reported. If some cells cannot be measured, the ‘x’ char will be filled in the parameter of these cells.
8. Under the special mode, the **<c1>** and **<c2>** parameters of the neighboring cell may be measured, then will report an unmeaning value. When the **<mcc>**, **<mnc>**, **<lac>** and **<cellid>** parameter of the neighboring cell cannot be measured, the 'x' char will be filled in these parameters of all the six cells.
9. The command does not report the RX level and the RX quality. The **AT+CSQ** command can be used to query the values of RX level and RX quality.
10. The **AT+QSPCH** command can be used to re-query the type of the voice channel during calling (FR, HR, EFR, AMR_FR, AMR_HR).

2.1.3. AT+QLOCKF Lock the Base Station

This command can lock a specified Base Station.

AT+QLOCKF Lock the Base Station	
Test Command **AT+QLOCKF=?**	Response **+QLOCKF:** (list of supported <**mode**>s), (list of supported <**band1900**>s) , (list of supported <**freq**>s) **OK**
Read Command **AT+QLOCKF?**	Response **+QLOCKF: <status>** **OK**
Write Command **AT+QLOCKF=<mode>,<band1900>, <arfcn1>[,<arfcn2>] [,<arfcn3>]**	Response **OK** **ERROR** **+CME ERROR: <err>**

Parameter

<mode>	0	Disable lock frequency
	1	Enable lock frequency
<band1900>	0	Not a cell ID of 1900 band
	1	Cell ID of 1900 band
<arfcn>	0-1024	ARFCN information
<status>	0	ME has not locked a certain ARFCN
	1	ME has locked a certain ARFCN

NOTE

<arfcn> parameter is overlapped in the DCS1800 and PCS1900 bands, so **<band1900>** parameter can distinguish which Band ARFCN is located.

2.1.4. AT+QCHINFO Get Channel Information

This command can report the detailed network information of the serving channel. It can be set as report or query mode.

AT+QCHINFO Get Channel Information	
Test Command **AT+QCHINFO=?**	Response **OK**
Read Command **AT+QCHINFO?**	Response **+QCHINFO: <rr_state>,<arfcn>,<dbm>,<ch_type>,<ta>,<rxq_sub>,<rxq_full>** **OK**
Write Command **AT+QCHINFO=<0-1>**	**Response** Set the module whether automatic report QCHINFO **OK**

Parameter

<rr_state>	0	Null state
	1	Inactive state
	2	Cell select state
	3	Idle state
	4	Access state
	5	Packet transfer state
	6	Dedicated state
	7	Cell reselect state
<arfcn>	Frequency	
<dbm>	Receiving level in dBm	
<ch_type>	Channel type	
<ta>	Timing Advance, the value 255 is unavailable	
<rxq_sub>	Receiving quality (sub), range is 0-7, the same as the parameter of QENG	
<rxq_full>	Receiving quality (full), range is 0-7, the same as the parameter of QENG	
<0-1>	0	Automatic report
	1	Non-automatic report

NOTES

1. This command is available only when the parameter **<mode>** of the command "**AT+QENG=<mode>[,<dump>]**" is 1 or 2.
2. The parameter **<TA>** will be changed when SMS CALL or GPRS is transmitted.

2.1.5. AT+QLASTTA Get TA Value

This command can get the last valid Time Advance.

AT+QLASTTA Get TA Value	
Test Command **AT+QLASTTA=?**	Response **OK**
Execution Command **AT+QLASTTA**	Response **+QLASTTA: <value>** **OK**

Parameter

<value>	Last valid TA value

NOTES

This command is available only when the parameter **<mode>** of the command "**AT+QENG=<mode>[,<dump>]**" is 1 or 2.

2.1.6. AT+QFORBIDMNC Forbid Operator

The command can forbid the specified operator and radio bands. Even if the SIM card is not inserted, this function can also be enabled.

AT+QFORBIDMNC Forbid Operator	
Test Command **AT+QFORBIDMNC=?**	Response **+QFORBIDMNC: (list of supported <mode>s)[,(list of supported <line>)][,(list of supported <forbidder>s)]** **OK**
Execution Command **AT+QFORBIDMNC=<mode>[,line][,forbidden data]**	Response **OK** **ERROR** **+CME ERROR: <err>**

Parameter

<mode>	0	Read a line of forbidden data
	1	Write a line of forbidden data

	2 Clean a line of forbidden data 3 Clean all forbidden data 4 Read the forbidden data [0] 5 Write the forbidden data [0]
<line>	The parameter is line number of a forbidden data when **<mode>** is 0, 1 or 2. The parameter is value of data [0] when <**mode>** is 4 or 5.
<forbidden data>	String type in hex format. The detail is: MCC + MNC + Band 0xff, 0xff, 0xff, 0xff, 0x00 ... ---------- ---- ---- MCC + MNC Band force to zero | | | | | | | | | ----> 0x00 => GSM 850 | 0x01 => GSM 900 | 0x02 => GSM 1800 | 0x03 => GSM 1900 | -----> 0x00, 0x0f, 0xff => all country 0x73, 0x2f, 0xff => all networks in MCC=732 0x73, 0x20, 0x1f => MCC=732, MNC=01f Example: CMCC 850 46000f0000, 46002f0000, 46007f0000 CMCC 900 46000f0100, 46002f0100, 46007f0100 CMCC1800 46000f0200, 46002f00200, 46007f0200

NOTES

The setting value can be stored in NVRAM automatically. The setting value can take effect when the module is started next time.

2.1.7. AT+QSCANF Scan ARFCN Receiving Level

This command can scan the specified frequency or a certain band, then show the list of ARFCN and RxLevel from the strongest signal level to the lowest when CFUN is 0 or 4.

AT+QSCANF Scan ARFCN Receiving Level	
Test Command **AT+QSCANF=?**	Response **+QSCANF:** (list of supported <**band>**s),(list of supported **<arfcn>**s))

	OK
Write Command **AT+ QSCANF=<band>,<arfcn>**	Response **OK** **ERROR** **+CME ERROR: <err>**

Parameter

<band>	0	GSM900 band
	1	DCS1800 band
	2	PCS1900 band
	3	GSM850 band
<arfcn>	0-1023	ARFCN or 9999
<status>	0	ME have not locked a certain ARFCN
	1	ME have locked a certain ARFCN

NOTES

1. Scan ARFCN receiving level in dBm when CFUN is 0 or 4.
2. List the receiving level of 20 CHs according to descending in dBm when ARFCN is 9999.
3. AT Command is invalid when **AT+CFUN=1**.

3 Example

3.1. AT+QOPS

The module can scan all the GSM frequencies and report the detailed information of the Basic Station even without SIM card inserted in it by this command. Two examples are shown as below:

With SIM card:

```
Call Ready                    //Phonebook initialized.

AT+QOPS?                      //Query nearby base station information.
+QOPS: 2,"CHINA MOBILE","CMCC","46000"     //Current Operator CMCC.
1,1877,0872,34,60,9           //Discovery of nine CMCC base stations in the vicinity as below.
2,1877,01C2,18,39,581
3,1877,0013,31,43,22
4,1877,0012,29,33,2
5,1877,0152,0F,32,24
6,1877,01C3,0B,33,576
7,1877,03A3,32,30,583
8,1806,2031,1C,29,26
9,1877,0023,2E,30,16
+QOPS: 3,"CHINA UNICOM GSM","CU-GSM","46001"    //Forbidden Operator CU-GSM.
1,144B,1ACD,18,40,118         //Discovery of seven CU-GSM base stations in the vicinity as below.
2,144B,C097,19,39,119
3,144B,CC12,13,31,123
4,144B,C096,16,29,111
5,144B,CC13,17,28,115
6,144B,8C52,15,28,716
7,144B,3E65,1B,27,733
OK
```

Without SIM card inserted:

```
+CFUN: 1
+CPIN: NOT READY          //Without SIM Card inserted.

AT+QOPS?                  //Query nearby base station information.
+QOPS: 2,"CHINA MOBILE","CMCC","46000"
1,1877,0872,34,60,9
2,1877,0013,31,40,22
3,1806,20A2,26,38,24
4,1877,01C3,0B,34,576
5,1877,01C2,18,31,581
6,1806,2031,1C,28,26
7,1877,03A3,32,28,583
8,1877,0012,29,30,2
9,1806,2032,2C,28,18
+QOPS: 1,"CHINA UNICOM GSM","CU-GSM","46001"
1,144B,C097,19,39,119
2,144B,1ACD,18,37,118
3,1059,6C8A,21,32,111
4,144B,CC12,13,29,123
5,144B,8C52,15,28,716
OK
```

3.2. AT+QENG

Engineering Mode is designed to allow a field engineer to view and test the network information received by a module, when the module is either in idle mode or dedicated mode (that is: with a call active). In each mode, the engineer is able to view network interaction for the "serving cell" (the cell the module is currently registered with) or for the neighboring cells. Example is as the following.

```
AT+QENG =1,3              //Enable engineering mode 1.
OK
AT+QENG?                  //Display the serving cell information, 1-6 neighboring cell information list of
                            ARFCN and cell frequency list (CA) of the serving cell.

+QENG: 1,3

+QENG: 0,460,00,1877,872,9,52,-49,185,185,5,14,x,x,x,x,x,x,x //Base station information of the serving
                                                               cell, ARFCN of which is 9.

+QENG:
1,1,24,-71,15,99,99,460,00,1877,152,2,26,-83,28,52,36,460,00,1806,2031,3,13,-85,42,41,41,460,00,187
```

```
7,151,4,516,-95,48,12,28,460,00,1806,2081,5,x,x,x,x,x,x,x,x,x,6,x,x,x,x,x,x,x,x,x      //The neighboring cell information.

+QENG: 2,9,55,64,68,83,94                    //Cell frequency list (CA) of the serving cell (ARFCN is 9).

OK
```

3.3. AT+QLOCKF

By getting some information of the nearby Base Stations via **AT+QOPS** or **AT+QENG**, and locking a certain Base Station using **AT+QLOCKF** command, the module can work very well. The following is the example on how to lock the base station after querying Base Station information via **AT+ QENG**.

```
RDY
+CFUN: 1
+CPIN: NOT INSERTED          //Without SIM card inserted.

AT+QENG=1,1
OK
AT+QENG?
+QENG: 1,1

+QENG: 0,460,00,1877,872,9,52,-62,159,159,5,8,x,x,x,x,x,x,x

+QENG:
1,1,22,-73,49,115,115,460,0,1877,13,2,24,-77,15,98,98,460,0,1877,152,3,26,-83,28,57,57,460,0,1806,2
031,4,49,-84,55,71,71,460,0,1877,871,5,583,-86,50,63,63,460,0,1877,3a3,6,15,-88,54,53,53,460,0,1877
,11

OK
AT+QLOCKF =1,0,22          //Lock to the base station of 22 and its ARFCN is 22. Since 22 is not belonged to the 1900 band, so the second parameter is 0.
OK
AT+QENG?

+QENG: 1,1

+QENG: 0,460,00,1877,13,22,49,-76,102,102,5,8,x,x,x,x,x,x,x     //Lock to 22 successfully.

+QENG:
1,1,x,x,x,x,x,x,x,x,2,x,x,x,x,x,x,x,x,x,3,x,x,x,x,x,x,x,x,x,4,x,x,x,x,x,x,x,x,x,5,x,x,x,x,x,x,x,x,x,6,x,x,x,
x,x,x,x,x,x
```

```
OK
AT+QLOCKF?                  //Whether or not to lock the base station.
+QLOCKF: 1                  //Already locked.

OK

AT+QLOCKF=0                 //Unlock all.
OK
AT+QLOCKF?                  //Whether or not to lock the base station.
+QLOCKF: 0                  //Not locked.

OK
AT+QLOCKF=1,0,26,49,15      //Lock to 26,49,15 three frequency points.
OK
AT+QENG?

+QENG: 1,1

+QENG: 0,460,00,1877,871,49,55,-86,64,64,5,8,x,x,x,x,x,x

+QENG:
1,1,26,-86,28,47,47,460,0,1806,2031,2,15,-91,54,43,43,460,0,1877,11,3,x,x,x,x,x,x,x,x,4,x,x,x,x,x,x,x
,x,x,5,x,x,x,x,x,x,x,x,x,x,6,x,x,x,x,x,x,x,x,x

OK
AT+QLOCKF=0                 //Unlock all
OK
```

3.4. AT+QCHINFO

This command can report the detailed network information of the serving channel. It can be set as report or query mode. The example is as below.

```
AT+QENG=1,3                 //Enable engineering mode 1.

OK
AT+QCHINFO?                 //Query detailed information of the serving channel.
+QCHINFO: 3,9,-50,8,255,255,255

OK
ATD15618380236;
```

```
OK
AT+QLOCKF=1,0,22
OK
AT+QCHINFO?                    //Query the serving channel information.

+QCHINFO: 6,22,-71,27,2,6,4    //TA value changes.

OK
```

3.5. AT+QLASTTA

The command can get last valid Time Advance .The example is as below.

```
AT+QENG=1,1            //Enable engineering mode.

OK
AT+QENG?               //Query engineering mode information.

+QENG: 1,1

+QENG: 0,460,00,1877,872,9,52,-56,182,182,5,8,x,x,x,x,x,x,x   //Display the serving cell information.
+QENG:
1,1,22,-68,49,135,119,460,0,1877,13,2,24,-69,38,132,116,460,0,1806,20a2,3,583,-76,50,104,88,460,0,1
877,3a3,4,26,-77,28,82,66,460,0,1806,2031,5,49,-79,31,89,73,460,0,1877,511,6,584,-86,33,46,62,460,0
,1806,2081             //The neighboring cell information.

OK
AT+QLOCKF=1,0,22
OK
ATD15618380236;
OK
AT+QLASTTA             //Query the last TA value.

+QLASTTA: 2

OK
```

3.6. AT+QFORBIDMNC

The command can forbid the specified operator and radio bands. The operator is CU-GSM. Its MCC is “460” and MNC is “01”. It has two radio bands, one is GSM 900, and the other is PCS 1800. The following example shows how to forbid the operator.

```
RDY

+CFUN: 1

+CPIN: NOT READY                        //Without SIM card inserted.

//Forbid CU-GSM
AT+QFORBIDMNC=1,1,"46001F0100"   //Forbid 46001 in the GSM 900 band.

OK
AT+QFORBIDMNC=1,2,"46001F0200"   //Forbid 46001 in the PCS 1800 band.

OK
AT+QFORBIDMNC=0,1                       //Read the first forbidden data.

+QFORBIDMNC: "46001F0100"          //Forbid 46001 in the GSM 900 band.

OK
AT+QFORBIDMNC=0,2                       //Read the second forbidden data.

+QFORBIDMNC: "46001F0200"          //Forbid 46001 in the PCS 1800 band.

OK

//The above settings will take effect after reboot.
//Restart the module.
//No matter SIM card is inserted or not, the module will not camp on the operator CU-GSM.
```

3.7. AT+QSCANF

This command can scan the specified frequency or a certain band, and then show the list of ARFCN and RxLevel from the strongest signal level to the lowest when CFUN is 0 or 4.

```
AT+CFUN=4              //Disable phone both transmitting and receiving RF circuits.

OK
AT+CFUN?               //Query CUFN settings.

+CFUN: 4               //The CUFN value is 4.

OK
AT+QSCANF=?            //Test mode of QSCANF.
+QSCANF: (0-3),(0-1023,9999)

OK
AT+QSCANF=0,9999       //List the receiving level of 20 CHs in GSM 900 band according to descending in
                         dBm.
+QSCANF:

1, CH9, -57.2          //The receiving level of channel 9 is -57.2 dBm.

2, CH22, -66.2

3, CH24, -68.8

4, CH28, -70.0

5, CH66, -72.0

6, CH123, -72.0

7, CH69, -74.5

8, CH8, -74.5

9, CH10, -74.5

10, CH47, -75.0

11, CH3, -76.0

12, CH86, -76.5

13, CH55, -77.2

14, CH119, -77.2
```

15, CH115, -77.2

16, CH5, -77.8

17, CH56, -78.2

18, CH2, -78.5

19, CH59, -78.5

20, CH7, -78.5

OK

AT+QSCANF=1,9999 //List the receiving level of 20 CHs in DCS 1800 band according to descending in dBm.

+QSCANF:

1, CH576, -74.0 //The receiving level of channel 576 is -74.0 dBm.

2, CH581, -79.5

3, CH708, -80.2

4, CH583, -80.2

5, CH580, -80.5

6, CH713, -81.5

7, CH584, -85.2

8, CH724, -85.2

9, CH573, -85.5

10, CH518, -85.8

11, CH548, -86.0

12, CH736, -86.5

13, CH560, -87.0

14, CH551, -87.0

15, CH520, -87.5

16, CH720, -88.2

17, CH721, -89.2

18, CH612, -89.5

19, CH577, -89.5

20, CH539, -89.8

OK

AT+QSCANF=2,9999 //List the receiving level of 20 CHs in PCS 1900 band according to descending in dBm.

+QSCANF:

1, CH662, -109.0

2, CH663, -109.2

3, CH675, -109.5

4, CH666, -109.5

5, CH665, -109.8

6, CH661, -109.8

7, CH667, -109.8

8, CH671, -109.8

9, CH668, -109.8

10, CH664, -110.0

11, CH670, -110.0

12, CH669, -110.2

13, CH679, -110.2

14, CH673, -110.2

15, CH672, -110.5

16, CH674, -110.5

17, CH677, -110.5

18, CH678, -110.5

19, CH676, -110.5

20, CH680, -110.8

OK

AT+QSCANF=3,9999 //List the receiving level of 20 CHs in GSM 850 band according to descending in dBm.

+QSCANF:

1, CH175, -75.0

2, CH135, -75.2

3, CH173, -76.0

4, CH172, -76.0

5, CH176, -76.2

6, CH177, -76.8

7, CH174, -77.0

8, CH137, -77.8

9, CH139, -77.8

10, CH144, -77.8

11, CH136, -78.5

12, CH140, -79.0

```
13, CH138, -79.2

14, CH142, -79.2

15, CH165, -80.5

16, CH163, -80.5

17, CH161, -80.5

18, CH162, -80.5

19, CH164, -80.8

20, CH147, -81.5

OK
AT+QSCANF=0,7        //Scan ARFCN 7 receiving level in dBm.

+QSCANF:

CH7, -90.2           //The receiving level of channel 7 is -90.2 dBm.

OK
```

4 Appendix A Reference

Table 2: Related Documents

SN	Document Name	Remark
[1]	Quectel_Mxx_ATC	The introduction to AT commands for Mxx

Table 3: Terms and Abbreviations

Abbreviation	Description
ARFCN	Absolute radio frequency channel number

5 Appendix B Summary of <err> Code

Table 4: Different Coding Schemes of +CME ERROR: <err>

Code of <err>	Meaning
0	Phone failure
1	No connection to phone
2	Phone-adaptor link reserved
3	Operation not allowed
4	Operation not supported
5	PH-SIM PIN required