GSM SMTPS

Application Note

GSM/GPRS Module Series

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About the Document

History

Revision	Date	Author	Description
3.0	2013-09-25	Andy CHEN	Initial
3.1	2015-04-08	Andy CHEN	Added applicable modules

Contents

Table Index

1 Introduction

This document describes how to use the SMTPS function of Quectel standard module.

In some cases, in order to ensure communication privacy, the communication between the server and the client should be in an encrypted way. So that it can prevent the communication data from eavesdropping, tampering, or forging. The SSL function meets these demands.

This document is applicable to Quectel M10, M66, M85 and M95 modules.

1.1. SSL Version and CipherSuite

So far, several SSL versions have been released. They are SSL2.0, SSL3.0, TLS1.0, TLS1.1, and TLS1.2. The following versions are supported by Quectel modules.

Table 1: SSL Version

SSL Version
SSL3.0
TLS1.0
TLS1.1
TLS1.2

The following table shows the names of the CipherSuites that Quectel module supports. Please refer to RFC 2246-The TLS Protocol Version 1.0 on the CipherSuite definitions for details.

Table 2: SSL CipherSuite

CipherSuite Code	CipherSuite Name
0X0035	TLS_RSA_WITH_AES_256_CBC_SHA

0X0005	TLS_RSA_WITH_RC4_128_SHA
0X0004	TLS_RSA_WITH_RC4_128_MD5
0X000A	TLS_RSA_WITH_3DES_EDE_CBC_SHA
0X002F	TLS_RSA_WITH_AES_128_CBC_SHA
0X003D	TLS_RSA_WITH_AES_256_CBC_SHA256

1.2. The Usage of SMTP/SMTPS Function

There are three kinds of connections between SMTP client and SMTP server, which are no SSL, SSL and SSL with STARTTLS. Some SMTP servers support only two kinds and some support all of them, you can choose one kind according to your needs. The steps of the usage of SMTPS function are briefly listed as below.

Step 1: The command “AT+QICSGP” is used to configure the APN, username, password of the context profile, and so on.

Step 2: The command “AT+QIREGAPP” is used to register to the TCP/IP stack.

Step 3: The command “AT+QIACT” is used to activate GPRS PDP context. After PDP context is activated, the command “AT+QILOCIP” is used to query the local IP address.

Step 4: The command “AT+QSSLCFG” is used to configure SSL version, CipherSuite, connection between SMTP client and SMTP server and so on.

Step 5: Execute the command “AT+QSMTPUSER” and “AT+QSMTPPWD” to set the user name and password for authentication.

1) Execute the command “AT+QSMTPNAME” and “AT+QSMTPADDR” to set the name and the email address of the sender.
2) The command “AT+QSMTPSRV” is used to set the SMTP server and port. The command “AT+QSMTPDST” is used to add or delete recipients.
3) Execute the command “AT+QSMTPSUB” and “AT+QSMTPBODY” to edit the subject and the body of the email. Execute the command “AT+QSMTPATT” and “AT+QSMTPDATT” to add or delete an attachment for the email. The attachments can be RAM files or UFS files. It is strongly recommended to use RAM file to upload the attachments.

Step 6: The command “AT+QSMTPPUT” is used to send email.

Step 7: The command “AT+QSMTPCLR” is used to clear all email configuration, “AT+QFDEL” is used to delete the files as attachments, and “AT+QIDEACT” is used to deactivate GPRS PDP context.

"AT+QSMTPCLR" will clear the email configuration in Step 5. Of course, if you want to change the type of SMTP server, the SMTP server address and user information, Step 4 to Step 5 can be repeated. If you have not sent email for a long time, such as 30 minutes or even longer, you should deactivate the PDP context by AT+QIDEACT.

NOTES

1. If you want to know the usage of AT commands QICSGP, QIACT, QILOCIP, QIMUX and QIDEACT for details, please refer to *Mxx_AT_Commands_Manual*. And please refer to *GSM_SMTP_AT_Command_Manual_V1.0.pdf* on SMTP AT commands for more information.
2. About the usage of QFDEL and other FILE AT commands, please refer to *GSM_FILE_ATC_Vx.x.*
3. For other AT commands, please refer to the corresponding documentation of the corresponding module.

1.3. Evading Failure of Certificate Verification Due to RTC Time

In the normal case, the RTC time of module must be within the period of validity of the certificate, otherwise the result of verifying certificate will be failure. In order to resolve this problem, the first method is to set a proper time for the module via AT command "AT+CCLK=<time>". And the second one is to execute AT command "AT+QSSLCFG="ignorertctime",1", after configuring <ignorertctime> value as 1, module will ignore the period of validity of the certificate.

NOTE

If you want to know detailed usage of AT commands CCLK, please refer to *Mxx_AT_Commands_Manual.*

1.4. Error Handling

1.4.1. PDP Activation Fails

If you failed to activate PDP context by AT+QIACT command, please check the following aspects:

1. Query whether the PS domain is attached by AT+CGATT? command, if not, execute AT+CGATT=1 to attach PS domain.
2. Query the CGREG status by AT+CGREG? and make sure the PS domain is registered to.
3. Query the PDP context parameters by AT+QIREGAPP command, make sure the APN of specified PDP context is set.

4. Make sure the specified PDP context ID is neither used by PPP nor activated by AT+CGACT command.

If the result of checking is OK, but the result of executing AT+QIACT command always fails, please reboot the module to resolve this issue. After booting the module, please check the terms mentioned above at least three times and each time at an interval of 10 minutes to avoid frequently rebooting the module.

1.4.2. DNS Parse Fails

When executing AT+QSMTPPUT commands, if it responds “+QSMTPPUT: -4”, please check following aspects:

1. Make sure the domain name of SMTP server is valid.
2. Execute "AT+QILOCIP", if it can acquire a valid IP address, it means that the PDP context is activated successfully. Otherwise the PDP context is in a deactivate state.

1.4.3. Error Response of AT+QSMTPPUT

After executing AT+QSMTPPUT, “+QSMTPPUT: <result>” will be returned to indicate the result of sending mail, and <result> is an error code. If <result> is 0, it means it is successful to send the mail. If it is a negative numeric, it means sending mail is failed, please resend it.

If <result> is not 0, it indicates the sending is failed, please resend it. If resending is not successful, you should deactivate the PDP context by AT+QIDEACT command, and try again. (Please refer to Chapter 1.4.1.)

If <result> is a negative numeric, you can refer to Chapter 4 to check the reason of this errorcode. For example, if <result> is -535 (Authentication failed), <username> or <password> may be wrong. If <result> is -530 (Access denied), you may send email too frequently and the SMTP server rejects to post email. For details, you can refer to the document RFC2821 (Simple Mail Transfer Protocol).

2 Description of AT Command

2.1. General Description

Test Command	**AT+<*x*>=?**	This command returns the list of parameters and value ranges set by the corresponding Write Command or internal processes.
Read Command	**AT+<*x*>?**	This command returns the currently set value of the parameter or parameters.
Write Command	**AT+<*x*>=<…>**	This command sets the user-definable parameter values.
Execution Command	**AT+<*x*>**	This command reads non-variable parameters affected by internal processes in the GSM engine

2.2. AT Command Syntax

2.2.1. AT+QSSLCFG SSL Configuration

This AT command is used to configure the SSL version, CipherSuite, secure level, CA certificate, client certificate, client key, ignoring RTC time, HTTP/HTTPS, and SMTP/SMTPS. These parameters will be used in the handshake procedure.

CTX is the abbreviation of the SSL (Secure Socket Layer) context. <ctxindex> is the index of the SSL context. Quectel standard module supports 6 SSL contexts at most. On the basis of a SSL context, several SSL connections can be established. The settings such as the SSL version and the CipherSuite are stored in the SSL context, and the settings will be applied to the new SSL connection which is associated with the SSL context.

AT+QSSLCFG SSL Configuration	
Test Command **AT+QSSLCFG=?**	Response **+QSSLCFG: "type",(0-5),"value"** **OK**
Query the setting of the context	**+QSSLCFG: <ctxindex>,<sslversion>,<seclevel>,**

AT+QSSLCFG="ctxindex",<ctxindex>	**<ciphersuite>,<cacert>,<clientcertname>,<clientkeyname>** **OK** Otherwise response **ERROR**
Configure the SSL version **AT+QSSLCFG="sslversion",<ctxindex>[,<sslversion>]**	Response **OK** Otherwise response **ERROR** If the third parameter is omitted, query the "sslversion" value. **+QSSLCFG: "sslversion",<sslversion>** **OK**
Configure the CipherSuite **AT+QSSLCFG="ciphersuite",<ctxindex>[,<list of supported <ciphersuite>s>]**	Response **OK** Otherwise response **ERROR** If the third parameter is omitted, query the "ciphersuite" value. **+QSSLCFG: "ciphersuite",<ciphersuite>** **OK**
Configure the authentication mode **AT+QSSLCFG="seclevel",<ctxindex>[,<seclevel>]**	Response **OK** Otherwise response **ERROR** If the third parameter is omitted, query the "seclevel" value. **+QSSLCFG: "seclevel",<seclevel>** **OK**
Configure the path of root certificate **AT+QSSLCFG="cacert",<ctxindex>[,<cacertname>]**	Response **OK** Otherwise response **ERROR** If the third parameter is omitted, query the "cacertname" value. **+QSSLCFG: "cacert",<cacertname>** **OK**
Configure the path of client certificate **AT+QSSLCFG="clientcert",<ctxindex>[,<clientcertname>]**	Response **OK** Otherwise response **ERROR**

	If the third parameter is omitted, query the “clientcertname” value. **+QSSLCFG: “clientcert”,<clientcertname>** **OK**
Configure the path of client key **AT+QSSLCFG=“clientkey”,<ctxindex>[,<clientkeyname>]**	Response **OK** Otherwise response **ERROR** If the third parameter is omitted, query the “clientkeyname” value. **+QSSLCFG: “clientkey”,<clientkeyname>** **OK**
Configure whether to ignore the RTC time **AT+QSSLCFG=“ignorertctime”[,<ignorertctime>]**	Response **OK** Otherwise response **ERROR** If the second parameter is omitted, query the “ignorertctime” value. **+QSSLCFG: “ignorertctime”,<ignorertctime>** **OK**
Enable/Disable the HTTPS function **AT+QSSLCFG=“https”[,<httpsenable>]**	Response **OK** Otherwise response **ERROR** If the second parameter is omitted, query the “httpsenable” value. **+QSSLCFG: “https”,<httpsenable>** **OK**
Configure the SSL context index for HTTPS **AT+QSSLCFG=“httpsctxi”[,<httpsctxindex>]**	Response **OK** Otherwise response **ERROR** If the second parameter is omitted, query the “httpsctxindex” value. **+QSSLCFG: “httpsctxi”,<httpsctxindex>** **OK**
Configure the type of SMTP/SMTPS **AT+QSSLCFG=“smtpstyle”[,<smtpstyle>]**	Response **OK** Otherwise response

	ERROR If the second parameter is omitted, query the "smtpstyle" value. **+QSSLCFG: "smtpstyle",<smtpstyle>** **OK**
Configure the SSL context index for SMTPS **AT+QSSLCFG="smtpsctxi"[,<smtpsctxindex>]**	Response **OK** Otherwise response **ERROR** If the second parameter is omitted, query the "smtpsctxindex" value. **+QSSLCFG: "smtpctxi",<smtpsctxindex>** **OK**
Reference	

Parameter

<ctxindex>	SSL context index 0~5
<sslversion>	Configure the SSL version 0 SSL3.0 1 TLS1.0 2 TLS1.1 3 TLS1.2 4 ALL SUPPORT
<ciphersuite>	Configure the CipherSuite 0X0035 TLS_RSA_WITH_AES_256_CBC_SHA 0X002F TLS_RSA_WITH_AES_128_CBC_SHA 0X0005 TLS_RSA_WITH_RC4_128_SHA 0X0004 TLS_RSA_WITH_RC4_128_MD5 0X000A TLS_RSA_WITH_3DES_EDE_CBC_SHA 0X003D TLS_RSA_WITH_AES_256_CBC_SHA256 0XFFFF All support
<seclevel>	Configure the authentication mode 0 No authentication 1 Manage server authentication 2 Manage server and client authentication if requested by the remote server. If no authentication is set, no security data are needed (Client certificate, Server CA certificate and Client private key).
<cacertname>	String format, configure the server CA certificate

<clientcertname>	String format, configure the client certificate
<clientkeyname>	String format, configure the client key
<ignorertctime>	Configure whether ignore the RTC time 0 Do not ignore the RTC time 1 Ignore the RTC time
<httpsenable>	Enable/disable the HTTPS function 0 Disable HTTPS 1 Enable HTTPS
<httpsctxindex>	Configure the SSL context for HTTPS Httpsctxindex is the index of SSL context. If the host does not configure the httpsctxindex, the value of httpsctxindex will be -1. 0-5
<smtpstyle>	Configure the type of SMTP/SMTPS 0 No SSL 1 SSL 2 SSL with STARTTLS
<smtpsctxindex>	Configure the SSL context for SMTPS smtpsctxindex is the index of SSL context. If the host does not configure the smtpsctxindex, the value of smtpsctxindex will be -1. 0-5

3 Example about the Usage of SMTP/ SMTPS Function

3.1. Send Email without SSL

```
//Step 1: Configure and activate the PDP context.
AT+ QIFGCNT=0                          //Set context 0 as foreground context.
OK
AT+ QICSGP=1,“CMNET”                   //Set bearer type as GPRS and the APN is “CMNET”
                                         and no user name and password for the APN.
OK
AT+QIREGAPP                            //Register to the TCP/IP stack.
OK
AT+QIACT                               //Activate GPRS PDP context.
OK
AT+QILOCIP                             //Query the local IP address.
10.1.83.188
//Step 2: Configure SMTP server without SSL.
AT+QSSLCFG=“smtpstyle”,0               //The type is No SSL mode.
OK
//Step 3: Configure user account and recipients.
AT+QSMTPUSER="quectel_test@aol.com"     //Set the user name for authentication.
OK
AT+QSMTPPWD="aol123456***"             //Set the password for authentication.
OK
AT+QSMTPNAME="quectel_company"         //Set the name of the sender.
OK
AT+QSMTPADDR="quectel_test@aol.com "    //Set the email address of the sender.
OK
AT+QSMTPSRV="smtp.aol.com",25          //Set the SMTP server and port.
OK
AT+QSMTPDST=1,1,“quectel_xxx@gmail.com” //Add a recipient and the recipient type is 1 which
                                         means recipients.
```

```
OK

+QSMTPDST: 0
AT+QSMTPDST=1,2,“quectel_xxx@hotmail.com”  //Add a recipient and the recipient type is 2 which means CC recipients.
OK

+QSMTPDST: 0
AT+QSMTPDST=1,3,“quectel_xxx@aol.com”  //Add a recipient and the recipient type is 3 which means BCC recipients.
OK

+QSMTPDST: 0

//Step 4: Edit the email content.

AT+QSMTPSUB=0,"about smtp e-mail"
OK
AT+QSMTPBODY=1,60
OK

CONNECT
                                       //For example, input 14 bytes: Hello, welcome!
+QSMTPBODY: 14
AT+QFUPL=“RAM:pic.jpg”,30000           //Upload a file to RAM, the file will be saved as “file_test.txt” and the maximum of the size is 30000 bytes. (If you want to know more information about AT command “AT+QFUPL, AT+QFDEL”, please refer to documents GSM_FILE_ATC_XXX.pdf).
CONNECT

<Input the data of the picture, the size is 26977 bytes, and input “+++” to finish inputting data>

+QFUPL: 26977,cea0

OK
AT+QFUPL=“RAM: file_test.txt”,100

CONNECT

<Input the data of the file_test.txt, the size is 100 bytes>

+QFUPL: 100,7159

OK
AT+QSMTPATT=“RAM:pic.jpg”              //Add an attachment for the email, pic.jpg is in RAM.
OK
```

```
+QSMTPATT: 26977
AT+QSMTPATT="RAM:file_test.txt"          //Add an attachment for the email, file_test.txt is in RAM.
OK

+QSMTPATT: 100
AT+QSMTPATT?
+QSMTPATT: 1, "RAM:pic.jpg",26977
+QSMTPATT: 2, "RAM:file_test.txt",100

OK
```

//Step 5: Send email.

```
AT+QSMTPPUT=800                          //Send email and the maximum time is 800 seconds.
OK
```

//It may take a few minutes.

```
+QSMTPPUT: 0                             //Send mail successfully.
```

//If the host sends mail unsuccessfully, it is no need to do any configuration settings, the host can execute "AT+QSMTPPUT=800" directly to send mail again.

//Step 6: Clear all of email configuration; delete attachment and deactivate PDP context.

```
AT+QSMTPCLR                              //Clear the configuration from step 3 to step 4.
OK
AT+QFDEL="RAM:pic.jpg"                   //Delete the pic.jpg from RAM.
OK
AT+QFDEL="RAM:file_test.txt"             //Delete the file_test.txt from RAM.
OK
```

//If the host wants to send a new email, repeat from step 3 to step 6.

```
AT+QIDEACT                               //Deactivate GPRS PDP context.
DEACT OK
```

3.2. Send Email by SSL

//Step 1: Configure and activate the PDP context.

```
AT+ QIFGCNT=0                            //Set context 0 as foreground context.
OK
AT+ QICSGP=1,"CMNET"                     //Set bearer type as GPRS and the APN is "CMNET" and no user name and password for the APN.

OK
```

```
AT+QIREGAPP                                  //Register to the TCP/IP stack.
OK
AT+QIACT                                     //Activate GPRS PDP context.
OK
AT+QILOCIP                                   //Query the local IP address.
10.1.83.188

//Step 2: Configure SSL for SMTPS

AT+QSSLCFG="sslversion",0,1                  //Configure SslVersion.
OK
AT+QSSLCFG="seclevel",0,0                    //Configure no authentication mode.
OK
AT+QSSLCFG="ciphersuite",0,"0XFFFF"          //Configure SSL CipherSuite type as 0XFFFF which
                                               means support all CipherSuite.
OK
AT+QSSLCFG="smtpstyle",1                     //The type is SSL mode.
OK
AT+QSSLCFG="smtpsctxi",0                     //Select SSL context 0 for SMTPS.
OK
AT+QSSLCFG="smtpstyle"                       //Query the SMTP type.
+QSSLCFG: "smtpstyle",1

OK
AT+QSSLCFG="smtpsctxi"                       //Query the index of SSL context.
+QSSLCFG: "smtpsctxi",0

OK

//Step 3: Configure SMTP server, user account and recipients

AT+QSMTPUSER="quecteltestmail@gmail.com"     //Set the user name for authentication.
OK
AT+QSMTPPWD="yy1234***"                      //Set the password for authentication.
OK

AT+QSMTPNAME="quectel_company"               //Set the name of the sender.
OK
AT+QSMTPADDR="quecteltestmail@gmail.com"     //Set the email address of the sender.
OK
AT+QSMTPSRV="smtp.gmail.com",465             //Set the SMTPS server and port.
OK
AT+QSMTPDST=1,1,"quectel_xxx@gmail.com"      //Add a recipient and the recipient type is 1 which
OK                                             means recipients.
```

+QSMTPDST: 0

AT+QSMTPDST=1,2,“quectel_xxx@hotmail.com” //Add a recipient and the recipient type is 2 which means CC recipients.

OK

+QSMTPDST: 0

AT+QSMTPDST=1,3,“quectel_xxx@aol.com” //Add a recipient and the recipient type is 3 which means BCC recipients.

OK

+QSMTPDST: 0

//Step 4: Edit the email content.

AT+QSMTPSUB=0,"about smtps e-mail"
OK
AT+QSMTPBODY=1,60
OK

CONNECT

//For example, input 14 bytes: Hello, welcome!

+QSMTPBODY: 14

AT+QFUPL=“RAM:pic.jpg”,30000 //Upload a file to RAM, the file will be saved as “file_test.txt” and the maximum of the size is 30000 bytes.(If you want to know more information about AT command “AT+QFUPL, AT+QFDEL”, please refer to documents *GSM_FILE_ATC_XXX.pdf*).

CONNECT

<Input the data of the picture, the size is 26977 bytes, and input “+++” to finish inputting data>

+QFUPL: 26977,cea0

OK
AT+QFUPL=“RAM: file_test.txt”,100

CONNECT

<Input the data of the file_test.txt, the size is 100 bytes>

+QFUPL: 100,7159

OK
AT+QSMTPATT=“RAM:pic.jpg” //Add an attachment for the email, pic.jpg is in RAM.

OK

```
+QSMTPATT: 26977

AT+QSMTPATT="RAM:file_test.txt"          //Add an attachment for the email, file_test.txt is in RAM.
OK

+QSMTPATT: 100
AT+QSMTPATT?
+QSMTPATT: 1,"RAM:pic.jpg",26977
+QSMTPATT: 2,"RAM:file_test.txt",100

OK

//Step 5: Send email.

AT+QSMTPPUT=800                          //Send email and the maximum time is 800 seconds.
OK

//It may take a few minutes.

+QSMTPPUT: 0                             //Send mail successfully.

//If the host sends mail unsuccessfully, it is no need to do any configuration settings. The host can execute "AT+QSMTPPUT=800" directly to send mail again.

//Step 6: Clear all of email configuration; delete attachment and deactivate PDP context.

AT+QSMTPCLR                              //Clear the configuration from step 3 to step 4.
OK
AT+QFDEL="RAM:pic.jpg"                   //Delete the pic.jpg from RAM.
OK
AT+QFDEL="RAM:file_test.txt"             //Delete the file_test.txt from RAM.
OK

//If the host wants to send a new email, repeat from step 3 to step 6.

AT+QIDEACT                               //Deactivate GPRS PDP context.
DEACT OK
```

3.3. Send Email by STARTTLS

```
//Step 1: Configure and activate the PDP context.

AT+ QIFGCNT=0                            //Set context 0 as foreground context.
OK
AT+ QICSGP=1, "CMNET"                    //Set bearer type as GPRS and the APN is "CMNET" and no user name and password for the APN.
```

```
OK
AT+QIREGAPP                                  //Register the TCP/IP stack.
OK

AT+QIACT                                     //Activate GPRS PDP context.
OK
AT+QILOCIP                                   //Query the local IP address.
10.1.83.188

//Step 2: Configure SSL for SMTPS

AT+QSSLCFG="sslversion",0,1                  //Configure SSL Version.
OK
AT+QSSLCFG="seclevel",0,0                    //Configure no authentication mode.
OK
AT+QSSLCFG="ciphersuite",0,"0XFFFF"          //Configure SSL CipherSuite type as 0XFFFF which
OK                                             means support all CipherSuite.
AT+QSSLCFG="smtpstyle",2                     //The type is STARTTLS mode.
OK
AT+QSSLCFG="smtpsctxi",0                     //Select SSL context 0 for SMTPS.
OK
AT+QSSLCFG="smtpstyle"                       //Query the SMTP type.
+QSSLCFG: "smtpstyle",2

OK
AT+QSSLCFG="smtpsctxi"                       //Query the index of SSL context.
+QSSLCFG: "smtpsctxi",0

OK

//Step 3: Configure SMTP server, user account and recipients.

AT+QSMTPUSER="quectel_test@hotmail.com"      //Set the user name for authentication.
OK
AT+QSMTPPWD="abc1234***"                     //Set the password for authentication.
OK
AT+QSMTPNAME="quectel_company"               //Set the name of the sender.
OK
AT+QSMTPADDR="quectel_test@hotmail.com"      //Set the email address of the sender
OK
AT+QSMTPSRV="smtp.live.com",25               //Set the SMTPS server and mail port.
OK
AT+QSMTPDST=1,1,"quectel_xxx@hotmail.com"    //Add a recipient and the recipient type is 1 which
OK                                             means recipients.

+QSMTPDST: 0
```

AT+QSMTPDST=1,2,“quectel_xxx@hotmail.com” //Add a recipient and the recipient type is 2 which means CC recipients.

OK

+QSMTPDST: 0

AT+QSMTPDST=1,3,“quectel_xxx@aol.com” //Add a recipient and the recipient type is 3 which means BCC recipients.

OK

+QSMTPDST: 0

//Step 4: Edit the email content.

AT+QSMTPSUB=0,"about smtps starttls e-mail"
OK
AT+QSMTPBODY=1,60
OK

CONNECT

//For example, input 14 bytes
+QSMTPBODY: 14 Hello, welcome!

AT+QFUPL=“RAM:pic.jpg”,30000 //Upload a file to RAM,the file will be saved as “file_test.txt” and the maximum of the size is 30000 bytes.(If you want to know more information about AT command “AT+QFUPL, AT+QFDEL”, please refer to documents *GSM_FILE_ATC_XXX.pdf*).

CONNECT

<Input the data of the picture, the size is 26977 bytes, and input “+++” to finish inputting data >

+QFUPL: 26977,cea0

OK
AT+QFUPL=“RAM: file_test.txt”,100

CONNECT

<Input the data of the file_test.txt, the size is 100 bytes>

+QFUPL: 100,7159

OK
AT+QSMTPATT=“RAM:pic.jpg” //Add an attachment for the email, pic.jpg is in RAM.
OK

+QSMTPATT: 26977

```
AT+QSMTPATT="RAM:file_test.txt"          //Add an attachment for the email, file_test.txt is in RAM.
OK

+QSMTPATT: 100
AT+QSMTPATT?
+QSMTPATT: 1,"RAM:pic.jpg",26977
+QSMTPATT: 2,"RAM:file_test.txt",100

OK
```

//Step 5: Send email.

```
AT+QSMTPPUT=800                          //Send email and the maximum time is 800 seconds.
OK
```

//It may take a few minutes.

```
+QSMTPPUT: 0                             //Send mail successfully.
```

//If the host sends mail unsuccessfully, it is no need to do any configuration settings, the host can execute "AT+QSMTPPUT=800" directly to send mail again.

//Step 6: Clear all of email configuration; delete attachment and deactivate PDP context.

```
AT+QSMTPCLR                              //Clear the configuration from step 3 to step 4.
OK
AT+QFDEL="RAM:pic.jpg"                   //Delete the pic.jpg from RAM.
OK
AT+QFDEL="RAM:file_test.txt"             //Delete the file_test.txt from RAM.
OK
```

//If the host wants to send a new email, repeat from step 3 to step 6.

```
AT+QIDEACT                               //Deactivate GPRS PDP context.
DEACT OK
```

4 Summary of Error Code

The error code <errorcode> indicates an error related to mobile equipment or network. The detail about <errorcode> is described in the following table.

Table 3: Summary of Error Codes

errorcode	Meaning
-1	Unknown error
-3	The SMTP service is busy. Such as, downloading body or attachment, sending email
-4	Failed to get IP address according to domain name
-5	Network error. Such as, failed to activate GPRS/CSD context, failed to establish the TCP connection with the SMTP server or failed to send email to the SMTP server, etc.
-6	Unsupported authentication type
-7	The connection for the SMTP service is closed by peer
-8	GPRS/CSD context is deactivated
-9	Timeout
-10	No recipient for the SMTP service
-11	Failed to send email
-12	Failed to open file for attachment
-13	No enough memory for the attachment
-14	Failed to save the attachment
-15	The input parameter is wrong
-421	Service not available, closing transmission channel
-450	Requested mail action not taken: mailbox unavailable
-451	Requested action aborted: local error in processing

-452	Requested action not taken: insufficient system storage
-500	Syntax error, command unrecognized
-501	Syntax error in parameters or arguments
-502	Command not implemented
-503	Bad sequence of commands
-504	Command parameter not implemented
-521	<domain> does not accept mail (see rfc1846)
-530	Access denied
-535	Authentication failed
-550	Requested action not taken: mailbox unavailable
-551	User not local; please try <forward-path>
-552	Requested mail action aborted: exceeded storage allocation
-553	Requested action not taken: mailbox name not allowed
-554	Transaction failed

5 Appendix A Reference

Table 4: Related Documents

SN	Document name	Remark
[1]	GSM 07.07	Digital cellular telecommunications (Phase 2+); AT command set for GSM Mobile Equipment (ME)
[2]	GSM 07.10	Support GSM 07.10 multiplexing protocol
[3]	GSM_SMTP_ATC_Vx.x	SMTP document
[4]	GSM_FILE_ATC_Vx.x	FILE document

Table 5: Terms and Abbreviations

Abbreviation	Description
ME	Mobile Equipment
TA	Terminal Adapter
MS	Mobile Station