Migration Guide for M95 to UG95

WCDMA/GSM Module Series

Rev. Migration_Guide_for_M95_to_UG95_V1.0

Date: 2014-12-13

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About the Document

History

Revision	Date	Author	Description
1.0	2014-12-13	Bonnie ZHAO	Initial

Contents

1 Introduction

This document provides the detailed differences between Quectel UMTS/HSPA UG95 module and GSM/GPRS M95 module, which will help you migrate to UG95 from M95 easily and conveniently.

2 Differences between UG95 and M95

2.1. Serial Interface

Function	M95	UG95
Physical Serial Port	Main UART Debug UART	Main UART Debug UART
Composite USB Device Enumerated	Not support	USB Modem Port, USB AT Port 1 and USB AT Port 2 Support AT commands, data transmission and PPP dialup
		USB Trace Port 1, get MA log USB Trace Port 2, get protocol log
		USB Reserved Port 1, Reserved port USB Reserved Port 2, Reserved port

2.2. Application Design Considerations

2.2.1. Carriage Return and Line Feed

Some AT commands will respond multi lines, and between the lines UG95 may include one or more <CR><LF> when compared with the same commands of M95. When you design the application, please ignore any additional <CR><LF>.

2.2.2. Timeout of SIM Ready When Module is Powered on

After the module is powered on, it will initialize internally, then initialize the SIM card and SMS&PHB in SIIM card, the SMS and PHB initialization will take a long time, some SIM card may take more than one minute. Meanwhile, before the SMS and PHB is ready, some command related to PHB or SMS will return error, such as AT+CSCA, AT+CPMS, AT+CMGW, AT+CMGS and so on. So when design the application, you need to set a timeout of at least 1.5 minutes for the SMS and PHB to be initialized completely.

2.2.3. Timeout of AT Command Response

There are many AT commands need to confirm the network first and then give the response, such as AT+CGACT, AT+COPS=?, AT+CMGS and so on. Before the command responds, the port will not respond any command input by customer. So when executing these commands, you need to set a suitable timeout to wait for the response, the detailed timeout value have been described in the *Quectel_UG95_AT_commands_Manual.*

2.2.4. Restart the Module

When design the application, you need to avoid frequently restarting the module, for this will reduce the lifespan of the SIM card. If there still has the same problem after the module restarts, you need to delay some time to restart the module. It is strongly recommended to restart the module after 10 minutes or longer if it still does not work after restarting three times.

For example, when the module cannot register to the network, first time you can restart directly. If the module still cannot register to network, you need to delay 3 minutes to restart the module. If you continue to restart for three times and still cannot register to the network, you need to delay 10 minutes before restarting the module.

2.2.5. Timeout of the Network Registration

When the module is powered on, it needs sometime to search and register to the network, it is suggested to set the timeout as 180 seconds to wait for the module to register to CS and PS network, otherwise the module may cannot register to network even after restarting several times.

2.2.6. URC Output

UG95: The URC is only reported from the configured port, please refer to Chapter 2.3 for details.
M95: The URC is reported from all ports.

2.2.7. Power Key

UG95: The Power Key only supports to power on the module, does not support to power off the module. You could use AT+QPOWD command to power off the module.

2.2.8. Audio

UG95 does not support to analog voice, but supports PCM digital audio. You need external codec to analog voice. While M95 supports analog voice.

2.2.9. UART Slow Clock

UG95:

- If the module has entered into sleep mode, frequently inputting AT commands cannot wake up slow clock; you must pull down DTR pin to wake it up.
- Following steps show how to enable and disable UART slow clock:
  1) Do not insert USB cable
  2) Execute AT+QCFG="sleep/ind",38
  3) Execute AT+QCFG="uart/power",0,0
  4) Execute AT+QCFG="uart/power",1,2
  5) Execute AT+QSCLK=1
  6) Set DTR to high level to enable slow clock.
  7) Set DTR to low level to disable slow clock.

M95:

- Frequently inputting AT commands can wake up slow clock.
- Execute AT+QSCLK=1, then set DTR to high level to enable slow clock. Set DTR to low level to disable slow clock.
- Execute AT+QSCLK=2, the module decides when it enters into sleep mode. When there is no data on serial port in 5 seconds, module will enter into sleep mode. Otherwise, it will exit from sleep mode.

2.2.10. Other Functions

Function	M95	UG95
UART	Support	Main UART does not support **AT+IFC** to set data bits, start bit and stop bits. Support later.
PPP	Support	ATH cannot hang up PPP connection. Support later.

Network	Not support	Fixed 2G and 3G cannot save in NV automatically. You must use **AT+QCFG="NWSACNMODE"** to set fix 2G or 3G after reporting URC "PB DOWN". Support auto save feature later.
	Support	Does not support **AT+QENG**, **AT+QLOCKF**. Support later.
eCall	Support	Support later.

2.3. URC Differences between UG95 and M95

Function	M95	UG95
Configure URC Output or not	**AT+QCFG="URC/Disable"[,<URCDisable>]**	Not Support
Buffer/Display URC for Async Commands	**AT+QCFG="URC/AsyncCmdBuffer"[,<AsyncCmdBuffer Mode>]**	Not Support
Enable/Disable URC Output on Channel	**AT+QCFG="URC/ChannelOutput"[,<ChannelOutputMode>]**	Not Support
Display All Port and Disable URC of Specified Port	Not Support	**AT+QCFG="urc/port"[,<enable>[,<port_name>]]** <enable> 0 Disable URC indication of the port 1 Enable URC indication of the port <port_name> A string to describe port name <port_type> 0 Current port 1 Available port

2.3.1. URC Message Commands

2.3.1.1. Power on/off

Compared with M95, UG95 gives more detailed information about power on URC, such as indication of USIM type, SMS initiation complete and PHB initiation complete. And after the module is powered off, it will respond POWERED DOWN, and after receiving the POWERED DOWN, 2 seconds later you can cut off the module's power.

Function	M95	UG95
Successful ME Initialization	**RDY**	**RDY**
Enable All Functions of ME	**+CFUN: 1**	**+CFUN: 1**
SIM Card Pin State	**+CPIN: <state>**	**+CPIN: <state>**
Use SIM Card	/	**+QUSIM: 0**
Use USIM Card	/	**+QUSIM: 1**
Finished SMS Initialization	/	**+QIND: SMS DONE**
Finished Phonebook Initialization	**Call Ready**	**+QIND: PB DONE**
Module Power Down	**NORMAL POWER DOWN** Condition: AT+QPOWD=1	**POWERED DOWN** Condition: AT+QPOWD

NOTE

There is no power on URC reported under the default auto-adaptive baud rate on the UART port.

2.3.1.2. Network

UG95 is 3G module, so the CREG and CGREG have an additional parameter <Act> which indicates radio access technology and PS server type.

Function	M95	UG95
Indication of Error Rate Change on Signal Strength and Channel Bit	**+CSQN: <rssi>,<ber>** Condition: AT+QEXTUNSOL="SQ",1	Not Support
Show Whether the Network Has Currently Indicated the Registration of ME. Location Area Code will be reported when Serving Cell is Changed	**+CREG: <n>,<stat>[,<lac>,<ci>]** Condition: AT+CREG=2	**+CREG: <n>,<stat>[,<lac>,<ci>[,<Act>]]** Condition: AT+CREG=2
Indicate Network Registration and Location Information of ME	**+CGREG: <n>,<stat>[,<lac>,<ci>]** Condition: AT+CGREG=2	**+CGREG: <n>,<stat>[,<lac>,<ci>[,<Act>]]** Condition: AT+CGREG=2

2.3.1.3. SMS

Function	M95	UG95
Indication of SMS Storage Full	**+TSMSINFO: 322** Condition: AT+QEXTUNSOL="SM",1	Not Support

2.3.1.4. Call

Function	M95	UG95
Show the +CSSI Intermediate Result Code Presentation Status to the TE	**+CSSI: <code1>[,<index>]** Condition: AT+CSSN=1	**+CSSI: <code1>** Condition: AT+CSSN=1
Indication of Change on Voice Call State	**+QGURC: <event>** Condition: AT+QEXTUNSOL="UR",1	**+QIND: "ccinfo",<idx>,<dir>,<stat>,<mode>,<mpty>[,<number>,<type>,[<alpha>]]** Condition: AT+QINDCFG="ccinfo",1

2.3.1.5. Hardware

Function	M95	UG95
Indicate the Lowest Voltage	**UNDER_VOLTAGE POWER DOWN** Condition: AT+QVBATT	Not Support
Indicate Low Voltage Warning	**UNDER_VOLTAGE WARNING** Condition: AT+QVBATT	
Indicate High Voltage Warning	**OVER_VOLTAGE POWER DOWN** Condition: AT+QVBATT	
Indicate the Highest Voltage	**OVER_VOLTAGE WARNING** Condition: AT+QVBATT	

2.4. AT Commands Differences between UG95 and M95

The UG95 supports 3G network and the platform is different from M95, so the parameters and response are different. The following part provides the main differences of AT commands between UG95 and M95.

2.4.1. Audio Commands

UG95 and M95 audio interface have many differences, M95 has two analog audio paths, and UG95 has no analog audio path, so you need to add a codec outside of the module if you need to use the analog audio.

Function	M95	UG95
Analog Sound	Support	Not Support
PCM Interface	Support	Support
Set Monitor Speaker Loudness	**ATL<value>** <value> 0 Low speaker volume 1 Low speaker volume 2 Medium speaker volume 3 High speaker volume	Not Support
Set Monitor Speaker Mode	**ATM<value>** <value> 0 Speaker is always off 1 Speaker is on until TA informs TE that carrier has been detected 2 Speaker is always on when TA is off-hook	Not Support
Tone Duration	**AT+VTD=<internalduration>[,<duration>]**	**AT+VTD=<duration>**
Digital Audio Configure	/	**AT+QDAC=<io>[,<mode>,<sample_rate>,<data_length>, <channel_mode>,<data_format>]** <io> 1 Digital PCM output (customer defined) 2 Analog output (for our default audio codec ALC5616)
Set Audio Path	**AT+QAUDCH=[<n>]**	Not Support
Set the Side Tone Gain	**AT+QSIDET=<gainlevel>** <gainlevel> range: 0-255	Not Support

Set Echo Suppression	**AT+QECHO=?** **+QECHO: control word (0-65535),nlp (0-65535), suppression value (0-65535),nr (0-65535), channel (0-2)** **OK**	Not Support
Change the Microphone Gain Level	**AT+QMIC=<channel>,<gainlevel>** <channel> 0 Normal microphone 1 Headset microphone 2 Loudspeaker microphone	Not Support
Generate Local DTMF Tones	**AT+QLDTMF=<n>[,<DTMF string>]**	**AT+QLDTMF=<n>,<DTMF_string>[,<y>]** <y>: The unit is 1/100 second when <y> is set to 1; or 1/10 second when <y> is not set
Enable Audio Loop Test	**AT+QAUDLOOP=<enable>[,<path>]** <enable> 0 Disable audio loop test 1 Enable audio loop test	**AT+QAUDLOOP=<enable>[,<path>]** <enable> 0 Disable audio loop test 1 Enable audio loop test <path> Compatible argument, no effect
Set DTMF Output Path	**AT+QTONEP=<outputpath>** <outputpath> Output path 0 Output DTMF or tone from Normal speaker 1 Output DTMF or tone from Headset speaker 2 Output DTMF or tone from Loud speaker	Not Support
Set Tone Detection Mode	**AT+QTDMOD=<operatefuntion>,<funtionstatus>**	Not Support
Detect DTMF	**AT+QTONEDET=<mode>[,<operate>][,<prefixpause>][,<lowthreshold>][,<highthreshold>]**	Not Support
Play DTMF Tone During the Call	**AT+QWDTMF=<ul_volume>,<dl_volume>,("<dtmfcode>,<continuancetime>,<mutetime>")[,<channel>][,<mode>]**	Not Support

2.4.2. HW Commands

Function	M95	UG95
Power Off	**AT+QPOWD[=<n>]** When <n>=0 **OK** When <n>=1 **NORMAL POWER DOWN** <n> 0 Urgent power off (Do not send URC "NORMAL POWER DOWN") 1 Normal power off (Send URC "NORMAL POWER DOWN")	**AT+QPOWD[=<n>]** **OK** **POWERED DOWN** <n> 0 Immediately power down 1 Normal power down
Battery Charge	**AT+CBC** **+CBC: <bcs>,<bcl>,<voltage>** **OK** <bcs> Charge status 0 ME is not charging 1 ME is charging 2 Charging has finished	**AT+CBC** **+CBC: <bcs>,<bcl>,<voltage>** **OK** <bcs> Charge status 0 ME is not charging 1 ME is charging 2 Charging has finished 3 Recognized power fault, calls inhibited
Read ADC	**AT+QADC?** Directly read ADC.	Not Support
Net LED Configuration	**AT+QLEDMODE=<ledmode>** <ledmode> 0 Network LED flashes rapidly when a call is ringing 1 No effect on the Network LED when a call	Not Support

	is ringing 2 No effect on the Network LED when a call is ringing. RI will not change until the ringing ends	
Configure Whether or not to Enter into Sleep Mode	**AT+QSCLK=<n>** <n> 0 Disable slow clock 1 Enable slow clock, it is controlled by DTR 2 The module decides when it enters into sleep mode. When there is no data on serial port in 5 seconds, module can enter into sleep mode. Otherwise, it will exit from sleep mode	**AT+QSCLK=<n>** <n> 0 Disable slow clock 1 Enable slow clock, it is controlled by DTR
Set Alarm	**AT+QALARM=<state>,<time>,<repeat>,<power>**	Not Support
Set the GPIO Pin as Sleep Indicator Pin	Not Support	**AT+QCFG="sleep/ind",<gpio>**
Turn on/off the UART Port	Not Support	**AT+QCFG="uart/power "[,<uart>,<mode>]** <uart> 0 UART1 1 UART3 <mode> 0 Auto turn on/off the UART port 1 Turn on the UART port 2 Turn off the UART port

2.4.3. Network Light Commands

Function	M95	UG95
Searching or No Network	Light-on: 64ms Light-off: 800ms	Light-on: 200ms Light-off: 1.8s
Packet Transferring	Light-on: 64ms Light-off: 200ms	Light-on: 1.8s Light-off: 200ms
Calling (Voice&CSD Call)	Light-on: 64ms Light-off: 200ms	Light-on
Idle Status	Light-on: 64ms Light-off: 200ms	Light-on: 1.8s Light-off: 200ms
Sleep Status	Light-on: 64ms Light-off: 800ms	Enter sleep when Searching or No network: Light-on: 200ms Light-off: 1.8s Enter sleep when in idle status: Light-on: 1.8s Light-off: 200ms

NOTE

The duration time of Light-on (high level) and Light-off (low level) mentioned above needs to be detected by oscilloscope.

2.4.4. SIM Commands

Function	M95	UG95
Facility Lock	**AT+CLCK=<fac>,<mode>,<passwd>[,<class>]**	**AT+CLCK=<fac>,<mode>,[<passwd>[,<class>]]** <fac> does not support "PS" Support PF/PN/PU/PP/PC lock, the initial password is 12341234.
Enter PIN	**AT+CPIN=<pin>[,<new pin>]**	**AT+CPIN=<pin>[,<newpin>]**
Change Password	**AT+CPWD=<fac>,<oldpwd>,<newpwd>**	**AT+CPWD=<fac>,<oldpwd>,<newpwd>** Support PS/PN/PU/PP/PC lock, the password can be changed for 16 numbers.
Generic SIM Access	**AT+CSIM=<operation>,<file_index>,<offset>,<record_id>,<length>,<data>**	**AT+CSIM=<length>,<command>**
Restricted SIM Access	**AT+CRSM=<Command>[,<fileId>[,<P1>,<P2>,<P3>[,<data>]]]**	**AT+CRSM=<command>[,<fileId>[,<P1>,<P2>,<P3>[,<data>][,<pathId>]]]**
Show ICCID	**AT+QCCID**	**AT+QCCID**
Query Status of SIM Card Initialization	**AT+QINISTAT** <state> 0 No initialization 1 Ready to execute AT command 2 Phonebook has finished initialization 3 SMS has finished initialization	Not Support
Query/Unlock SIM PIN2/PUK2	/	**AT+QPIN2=<pin>[,<newpin>]**
Display PIN Remainder Counter	**AT+QTRPIN** **+QTRPIN: <chv1>,<chv2>,<puk1>,<puk2>**	Not Support

	OK	
SIM Inserted Status Report	**AT+QSIMSTAT=<n>**	Not Support
Get Service Provider Name from SIM	**AT+QSPN?**	Not Support
Select SIM Card Operating Voltage by AT+QSIMVOL	**AT+QSIMVOL=<mode>**	Not Support
Get SIM Card Group Identifier by AT+QGID	**AT+QGID**	Not Support
Change PS Super Password by AT+QCSPWD	**AT+QCSPWD=<oldpwd>,<newpwd>**	Not Support

2.4.5. SMS Commands

Compared UG95 with M95, there are some mainly differences on SMS function:

1. For the text mode, when the AT+CSCS="GSM", conversation rule of some special characters is different.
2. For the text mode, M95 supports to send the long SMS (more than 140 characters in one message) while UG95 does not support now.
3. For the text mode, under the AT+CSDH=1 condition, the meaning of length parameter responded by AT+CMGR is different, UG95 means the number of output character which is related to the AT+CSCS command, while the M95 means the length of the SMS content.
4. Some uncommon commands are only supported by M95, not UG95, such as AT+QMGDA, AT+CRES, A+CSAS, AT+QCLASS0 and so on.

Function	**M95**	**UG95**
Select TE Character Set	**AT+CSCS=<chset>** Support: GSM, UCS2, HEX, IRA, PCCP437, 8859_1. When SMS is in text mode, in default settings (AT+CSCS="GSM" and AT+QSMSCODE=1), character '@'	**AT+CSCS=<chset>** Support: GSM, UCS2, IRA, HEX UG95 is different from M95 in the conversation of several special characters when AT+CSCS="GSM".

	is “0x40” in hex format outputting and character ‘_’ (underline) is “0x11” in hex format outputting.	For example: When SMS is in text mode, in default settings (AT+CSCS=“GSM”), character ‘@’ is “0x00” in hex format outputting and character ‘_’ (underline) is “0x5f” in hex format outputting. Please refer to *Quectel_UG95_AT_Commands_Manual* for details.
Select Message Service	**AT+CSMS=<service>** <service> supports 0 and 128.	**AT+CSMS=<service>** <service> supports 0 and 1.
Preferred Message Storage	**AT+CPMS=<mem1>[,<mem2>[,<mem3>]]** CPMS: ("SM", "ME", "MT"), ("SM", "ME", "MT"), ("SM", "ME", "MT")	**AT+CPMS=<mem1>[,<mem2>[,<mem3>]]** CPMS: ("BM","SM","SR"),("SM"),("BM","SM","SR")
Delete All SMS	**AT+QMGDA=<type>**	Not Support
List Messages	**AT+CMGL=<stat>[,<mode>]** When <mode> is 1, do not change the status of the specified SMS record.	**AT+CMGL=<stat>** Do not support <mode> parameters
Read Message	**AT+CMGR=<index>[,<mode>]** When <mode> is 1, do not change the status of the specified SMS record.	**AT+CMGR=<index>** Do not support <mode>.
More Messages to Send	/	**AT+CMMS=<n>**
Write Message to Memory	Text mode (AT+CMGF=1): **AT+CMGW[=<oa/da>[,<tooa/toda>[,<stat>]]]** PDU mode (AT+CMGF=0): **AT+CMGW=<length>[,<stat>]**	Text mode (AT+CMGF=1): **AT+CMGW=<oa/da>[,<tooa/toda>[,<stat>]]** PDU mode (AT+CMGF=0): **AT+CMGW=<length>[,<stat>]**
Send Message from Storage	**AT+CMSS=<index>[,<da>[,<toda>]]**	Not Support
Send SMS Command	Text mode (AT+CMGF=1): **AT+CMGC=<fo>[,<ct>,<pid>,<mn>,<da>,<toda>]**	Not Support

	PDU mode (AT+CMGF=0): **AT+CMGC=<length>**	
SMS Event Reporting Configuration	**AT+CNMI[=<mode>[,<mt>[,<bm>[,<ds>[,<bfr>]]]]]** <mode>: 0,1,2,3, <mt>: 0,1,2,3, <bm>: 0,2,3, <ds>: 0,1, <bfr>: 0,1	**AT+CNMI[=<mode>[,<mt>[,<bm>[,<ds>[,<bfr>]]]]]** <mode>: 0,1,2, <mt>: 0,1,2,3, <bm>: 0,2, <ds>: 0,1,2, <bfr>: 0,1
Restore SMS Settings	**AT+CRES=[<profile>]**	Not Support
Save SMS Settings	**AT+CSAS=[<profile>]**	Not Support
Show SMS Text Mode Parameters	**AT+CSDH=[<show>]**	**AT+CSDH=<show>**
Set SMS Text Mode Parameters	**AT+CSMP=[<fo>[<vp>[,pid>[,<dcs>]]]]**	**AT+CSMP=[<fo>[,<vp>[,<pid>[,<dcs>]]]]**
Send Concatenated Messages	If text mode (+CMGF=1): **AT+CMGS** Support to send long SMS	Not Support
Store Class 0 SMS to SIM When Receiving Class 0 SMS	**AT+QCLASS0=<mode>**	Not Support
Configure SMS Code Mode	**AT+QSMSCODE=<mode>**	Not Support
New Message Acknowledgement to UE/TE	**AT+CNMA=<n>**	Not Support
Display Alphanumeric Name in SMS	**AT+QCMT=<value>**	Not Support

2.4.6. Serial Port Commands

Function	M95	UG95
Hardware Flow Control	Support Default: No flow control	Support Default: No flow control
Software Flow Control	Support	Not support
Auto Baud Mode	Support	Support
Set TE-TA Fixed Local Rate	**AT+IPR=<rate>** <rate> (4800,9600,19200,38400,57600,115200),(0,75,150,300,60,1200,2400,4800,9600,14400,19200,28800,38400,57600,115200) The default configuration of AT+IPR is autobauding enabled (AT+IPR=0). The value of AT+IPR cannot be restored with AT&F and ATZ, but it is still storable with AT&W	**AT+IPR=<rate>** <rate> (4800,9600,19200,38400,57600,115200),(0,300,1200,2400,4800,9600,19200,38400,57600,115200,230400,460800,921600,3000000,6000000) The default configuration of AT+IPR is autobauding enabled (AT+IPR=0). The value of AT+IPR cannot be restored with AT&F and ATZ, but it is still storable with AT&W
Set TE-TA Control Character Framing	**AT+ICF=[<format>,[<parity>]]** <format> supports 1-6	Not support AT+ICF to set data bits, start bit and stop bits. Support later.
Set TE-TA Local Data Flow Control	**AT+IFC=<dce_by_dte>,<dte_by_dce>** <dce_by_dte> supports: 0 None 1 XON/XOFF 2 RTS flow control <dte_by_dce> supports: 0 None 1 XON/XOFF 2 CTS flow control	**AT+IFC=<dce_by_dte>,<dte_by_dce>** <dce_by_dte> supports: 0 None 2 RTS flow control <dte_by_dce> supports: 0 None 2 CTS flow control Not support the soft flow control

Set DTR Function Mode	**AT&D[<value>]** Default value: 0	**AT&D[<value>]** Default value: 1
Switch From Data Mode to Command Mode	To prevent the "+++" escape sequence from being misinterpreted as data, it should comply to the following sequence: 1. Do not input any characters during T1 time (0.5 seconds) before inputting "+++". 2. Input "+++", and no other characters can be inputted during this time. For CSD call or PPP online mode, the interval between two "+" should be less than 1 second and for a transparent TCPIP connection, the interval should be less than 20ms. 3. No characters entered during T1 time (0.5 seconds). 4. Switch to command mode, otherwise go to step 1.	To prevent the"+++" escape sequence from being misinterpreted as data, it should comply to following sequence: 1. Do not input any character within T1 time (1000ms) before inputting "+++". 2. Input "+++" within 1000ms, and no other characters can be inputted during this time. 3. Do not input any character within T1 time (1000ms) after "+++" has been inputted.

2.4.7. Call Commands

Function	M95	UG95
Mobile Equipment Activity Status	**AT+CPAS=?** **+CPAS: (0,2,3,4)** **OK**	**AT+CPAS=?** **+CPAS: (0,3,4)** **OK**
Select Pulse Dialing	**ATP**	Not support
Select Tone Dialing	**ATT**	Not support
Single Numbering Scheme	**AT+CSNS=[<mode>]** <mode>	Not support

	0 Voice 1 Alternating voice/FAX, voice first 2 FAX 3 Alternating voice/data, voice first 4 Data 5 Alternating voice/FAX, FAX first 6 Alternating voice/data, data first 7 Voice followed by data	
Configure Alternating Mode Calls	**AT+CMOD=[<mode>]** <mode> 0 Single mode 1 Alternating voice/FAX 2 Alternating voice/data 3 Voice followed by data	Not support
Preference Speech Coding/AMR Codec Configuration	**AT+QSFR=<mode>**	Not support
Speech Channel Type Report	**AT+QSPCH=<mode>**	Not support
Disconnect Existing Connection	**ATH**	**ATH** ATH cannot hang up package data call.
Disable ATH	**AT+QDISH=<disableath>** <disableath> Disable ATH 0 Enable ATH command 1 Disable ATH command	Not support
Voice Hang Up Control	Not support	**AT+CVHU=<mode>** <mode> 0 ATH is disconnected 1 ATH is ignored but "OK" response is returned

Hang Up Call	Not support	**AT+CHUP** AT+CHUP cancels all voice calls in the state of Active, Waiting and Held. For circuit data connections, use ATH.
Switch From Command Mode to Data Mode	**ATO**	**ATO**
Select Bearer Service Type	**AT+CBST=[<speed>[,<name>[,<ce>]]]** CBST: (0,4-7,12,14,68,70-71,75),(0,4),(0-3) <speed> Default value: 7	**AT+CBST=[<speed>[,<name>[,<ce>]]]** CBST: (0,4-7,12,14-17,39,43,47-51,68,70-71,75,79-84,115-116,120-121,130-134),(0,1,4,5),(0-3) <speed> Default value: 71
Select Type of Address	**AT+CSTA=<type>** <type>: 129,161,145	**AT+CSTA=<type>** <type>: 128-255
Select Radio Link Protocol Parameter	**AT+CRLP=[<iws>[,<mws>[,<T1>[,<N2>[,<ver>[,<T4>]]]]]]** <iws> 0-61 Interworking window size (IWF to MS). <mws> 0-61 Mobile window size (MS to IWF). <T1> 39-255 Acknowledgment timer T1 in a unit of 10ms. <N2> 1-255 Retransmission attempts N2. <verx> RLP version number in integer format. When version indication is not presented, it shall equal 0. <T4> 3-255 Re-sequencing period in integer format, in a unit of 10ms.	**AT+CRLP=[<iws>[,<mws>[,<T1>[,<N2>[,<ver>]]]]]** <iws> 0-61 Interworking window size (IWF to MS), 0-240-488. For <ver>=2 <mws> 0-61 Mobile window size (MS to IWF), 0-240-488. For <ver>=2 <T1> 38-48-255 Acknowledgment timer T1 in a unit of 10ms, 42-52-255. For <ver>=2 <N2> 1-6-255 Retransmission attempts N2. <ver> 0-2 RLP version number in integer format.
Configure Emergency Call Numbers	**AT+QECCNUM =<op>,<n>,<num>** <op> Operation type 0 Delete numbers 1 Add numbers 2 Save numbers	**AT+QECCNUM=<mode>,<type>[,<eccnum1>[,<eccnum2>,…[,<eccnumN>]]]** <mode> ECC number operation mode 0 Query ECC numbers 1 Add ECC numbers

	3 Replace same type of numbers before	2 Delete ECC numbers 3 Replace specified numbers The mode 0,1,2,3 is different from M95, please refer to *Quectel_UG95 AT command manual*.
Hang up Call with a Specific Release Cause	**ATH17** Only support cause 17 (User busy)	**AT+QHUP=<cause>[,<idx>]**

2.4.8. Identification Commands

Function	M95	UG95
Display Product Identification Information	**ATI** **Quectel_Ltd** **Quectel_M95** **Revision: M95AR02A03** **OK**	**ATI** **Quectel** **UG95** **Revision: UG95ENAR01A02E1G** **OK**
Request Manufacturer Identification	**AT+CGMI** **Quectel_Ltd** **Quectel_M95** **Revision: MTK 0828** **OK**	**AT+CGMI** **Quectel** **OK**
Request Manufacturer Identification	**AT+GMI** **Quectel_Ltd** **Quectel_M95** **Revision: MTK 0828**	**AT+GMI** **Quectel** **OK**

	OK	
Request TA Model Identification	**AT+GMM** **Quectel_M95** **OK**	**AT+GMM** **UG95** **OK**
Request TA Revision Identification of Software Release	**AT+GMR** **Revision: <revision>** **OK**	**AT+GMR** **<revision>** **OK**
Request Manufacturer Identification	**AT+CGMI** **Quectel_Ltd** **Quectel_M95** **Revision: MTK 0828** **OK**	**AT+CGMI** **Quectel** **OK**
Request Model Identification	**AT+CGMM** **Quectel_M95** **OK**	**AT+CGMM** **UG95** **OK**
Request TA Revision Identification of Software Release	**AT+CGMR** **Revision: <revision>** **OK**	**AT+CGMR** **<revision>** **OK**
Request International Mobile Equipment Identity (IMEI)	**AT+GSN**	**AT+GSN**
Request Product Serial Number Identification (Identical with +GSN)	**AT+CGSN**	**AT+CGSN**

2.4.9. Configuration Commands

Function	M95	UG95
Set all Current Parameters to Manufacturer Defaults	**AT&F [<value>]** TA sets all current parameters to the manufacturer defined profile. Refer to *Quectel_M95_AT_Commands_Manual.*	**AT&F [<value>]** TA sets all current parameters to the manufacturer defined profile. Refer to *Quectel_UG95_AT_Commands_Manual.*
Display Current Configuration	**AT&V** TA returns the current parameter setting. Refer to *Quectel_M95_AT_Commands_Manual.*	**AT&V** TA sets all current parameters to the manufacturer defined profile. Refer to *Quectel_UG95_AT_Commands_Manual.*
Store Current Parameters to User Defined Profile	**AT&W[<n>]** TA stores the current parameter settings in the user defined profile. Refer to *Quectel_M95_AT_Commands_Manual.*	**AT&W[<n>]** TA stores the current parameter settings in the user defined profile. Refer to *Quectel_UG95_AT_Commands_Manual.*
Set all Current Parameters to User Defined Profile	**ATZ[<value>]** TA sets all current parameters to the user defined profile. Refer to *Quectel_M95_AT_Commands_Manual.*	**ATZ[<value>]** TA sets all current parameters to the user defined profile. Refer to *Quectel_UG95_AT_Commands_Manual.*
Set Result Code Presentation Mode	**ATQ<n>**	**ATQ<n>**
TA Response Format	**ATV<value>**	**ATV<value>**
Set Command Echo Mode	**ATE<value>**	**ATE<value>**
Set Number of Rings before Automatically Answering Call	**ATS0=<n>**	**ATS0=<n>**
Set Command Line Termination Character	**ATS3=<n>**	**ATS3=<n>**
Set Response Formatting Character	**ATS4=<n>**	**ATS4=<n>**

Set Command Line Editing Character	**ATS5=<n>**	**ATS5=<n>**
Set Number of Seconds to Wait for Connection Completion	**ATS7=<n>** Default: 60 ATS7 is only applicable to data call.	**ATS7=<n>** Default: 0 Support AT command, but the function is invalid now.
Set CONNECT Result Code Format and Monitor Call Progress	**ATX<value>**	**ATX<value>**
Set Phone Functionality	**AT+CFUN=<fun>,[<rst>]**	**AT+CFUN=<fun>[,<rst>]**
Error Message Format	**AT+CMEE=<n>**	**AT+CMEE=<n>**
Select TE Character Set	**AT+CSCS=<chset>** <chset> "GSM" GSM default alphabet "HEX" Character strings consist only of hexadecimal numbers from 00 to FF "IRA" International reference alphabet "PCCP437" PC character set Code "UCS2" UCS2 alphabet "8859-1" ISO 8859 Latin 1 character set	**AT+CSCS=<chset>** <chset> "UCS2" UCS2 alphabet "IRA" International reference alphabet "HEX" UCS2 alphabet "GSM" GSM default alphabet
Request Complete TA Capabilities List	**AT+GCAP**	Not support
Extended Error Report	**AT+CEER** TA returns an extended report of the reason for the last call release. **+CEER: <locationID>,<cause>** **OK**	**AT+CEER** In case of CC and SM categories: **+CEER: <category>[,<cause>,<descriptions>]** In case of SS category network error cause: **+CEER: <category>,<cause>[,<tag>]**

		OK **ERROR**
Indicate RI When Using URC	**AT+QINDRI=<status>**	Not support
Show State of Mobile Originated Call	**AT+QMOSTAT=<mode>**	Not support
Enable or Disable Initial URC Presentation	**AT+QIURC=<mode>**	Not support
Enable/Disable Proprietary Unsolicited Indications	**AT+QEXTUNSOL=<exunsol>,<mode>**	Not support
Query State of Initialization	**AT+QINISTAT**	Not support
Query GSM Network Status	**AT+QNSTATUS**	Not support

2.4.10. Network Commands

As there are many differences between 2G and 3G network, some commands relate to 3G network will have additional parameter such as CREG and COPS. And some features limited by the network cannot be supported on UG95, for example the QLOCKF and QSCANF function.

Function	**M95**	**UG95**
Operator Selection	**AT+COPS=<mode>[,<format>[,<oper>]]**	**AT+COPS=<mode>[,<format>[,<oper>[,<Act>]]]** **+COPS: <mode>[,<format>[,<oper>][,<Act>]]** <Act> Access technology selected 0 GSM 2 UTRAN 3 GSM W/EGPRS 4 UTRAN W/HSDPA 5 UTRAN W/HSUPA

		6 UTRAN W/HSDPA and HSUPA
Network Registration	**AT+CREG?** **+CREG: <n>,<stat>[,<lac>,<ci>]** **OK**	**AT+CREG?** **+CREG: <n>,<stat>[,<lac>,<ci>[,<Act>]]** **OK** <Act> Access technology selected, 0: GSM, 2: UTRAN
Signal Quality Report	**AT+CSQ**	**AT+CSQ**
Preferred Operator List	**AT+CPOL=<index>[,<format>[,<oper>]]**	**AT+CPOL=<index>[,<format>[,<oper>[<GSM>,<GSM_compact>,<UTRAN>]]]**
Read Operator Names	**AT+COPN**	**AT+COPN**
Automatic Time Zone Update	**AT+CTZU=<mode>** <mode> 0 Disable automatic update RTC time via NITZ 1 Update network synchronized time to RTC and save time zone into NVRAM 2 Update GMT time with time zone to RTC, save time zone into NVRAM, ignore daylight saving time 3 Update localized time and time zone to RTC, and save time zone into NVRAM 4 Same with <mode>=2	**AT+CTZU=<onoff>** <onoff> 0 Disable automatic time zone update via NITZ 1 Enable automatic time zone update via NITZ
Time Zone Reporting	**AT+CTZR=<mode>**	**AT+CTZR=<reporting>**
Obtain the Latest Network Time Synchronization	**AT+QLTS** **+QLTS: <time>,<ds>** **OK**	**AT+QLTS=<mode>** <mode> Query network time mode 0 Query latest time that network synchronized 1 Query current GMT time calculated from the latest time that network synchronized

		2 Query current LOCAL time calculated from the latest time network synchronized
Report Cell Description in Engineering Mode	**AT+QENG**	Not support
Scan Power of GSM Frequency	**AT+QSCANF=<band>,<freq>**	Not support
Lock GSM Frequency	**AT+QLOCKF=<mode>,<band1900>,<freq>**	Not support
Network Time Synchronization	**AT+QNITZ=<enable>**	Not support
Get Module Operation Band	**AT+QGBAND** **+QGBAND: <op_band>** **OK**	Not support
Band Configuration	**AT+QBAND=<op_band>**	Not support
GPRS Multislot Class Configuration	**AT+QGPCLASS=<class>** GPRS multislot class Range: 1-12 Default value: 12	Not support

2.4.11. PHB Commands

Function	M95	UG95
Subscriber Number	**AT+CNUM** **+CNUM: [<alpha1>],<number1>,<type1>[,<speed>,<service>[,<itc>]]**	**AT+CNUM** **[+CNUM: [<alpha>],<number>,<type>]** **[+CNUM: [<alpha>],<number>,<type>]**

	+CNUM: **[<alpha2>],<number2>,<type2>[,<speed>,<service>** **[,<itc>]]** **[...]]** **OK**	**OK**
Find Phonebook Entries	**AT+CPBF=[<findtext>]**	**AT+CPBF=<findtext>**
Read Phonebook Entries	**AT+CPBR=<index1>[,<index2>]**	**AT+CPBR=<index1>[,<index2>]**
Select Phonebook Memory Storage	**AT+CPBS=<storage>** **AT+CPBS=?** **+CPBS:** **("MC","RC","DC","LA","ME","BN","SD","VM","FD","LD"** **,"ON","SM")** **OK**	**AT+CPBS=<storage>** **AT+CPBS=?** **+CPBS: ("SM","FD","LD","ON","BL")** **OK**
Write Phonebook Entry	**AT+CPBW=<index>[,<number>,[<type>,[<text>]]]**	**AT+CPBW=[<index>][,<number>[,<type>[,<text>]]]**

2.4.12. PS Commands

Function	**M95**	**UG95**
Define PDP Context	**AT+CGDCONT=<cid>[,<PDP_type>[,<APN>[,<PDP_addr** **>[,<d_comp>[,<h_comp>]]]]]** <cid>: 1-3 3 PDP contexts can be defined, 2 can be activated simultaneously	**AT+CGDCONT=<cid>[,<PDP_type>[,<APN>[,<PDP_addr** **>[,<data_comp>[,<head_comp>]]]]]** <cid>: 1-20 20 PDP contexts can be defined, 3 can be activated simultaneously.

Quality of Service Profile (Requested)	**AT+CGQREQ=<cid>[,<precedence>[,<delay>[,<reliability>[,<peak>[,<mean>]]]]]**	**AT+CGQREQ=<cid>[,<precedence>[,<delay>[,<reliability>[,<peak>[,<mean>]]]]]**
Quality of Service Profile (Minimum Acceptable)	**AT+CGQMIN=<cid>[,<precedence>[,<delay>[,<reliability>[,<peak>[,<mean>]]]]]**	**AT+CGQMIN=<cid>[,<precedence>[,<delay>[,<reliability>[,<peak>[,<mean>]]]]]**
3G Quality of Service Profile (Requested)	Not support	**AT+CGEQREQ=[<cid>[,<Traffic class>[,<Maximum bitrate UL>** **[,<Maximum bitrate DL>** **[,<Guaranteed bitrate UL>** **[,<Guaranteed bitrate DL>** **[,<Delivery order>** **[,<Maximum SDU size>** **[,<SDU error ratio>** **[,<Residual bit error ratio>** **[,<Delivery of erroneous SDUs>** **[,<Transfer delay>** **[,<Traffic handling priority>** **[,<Source statistics descriptor>** **[,<Signaling indication>]]]]]]]]]]]]]]**
3G Quality of Service Profile (Minimum Acceptable)	Not support	**AT+CGEQMIN=[<cid>[,<Traffic class>** **[,<Maximum bitrate UL>** **[,<Maximum bitrate DL>** **[,<Guaranteed bitrate UL>** **[,<Guaranteed bitrate DL>** **[,<Delivery order>** **[,<Maximum SDU size>** **[,<SDU error ratio>** **[,<Residual bit error ratio>** **[,<Delivery of erroneous SDUs>**

		[,<Transfer delay> **[,<Traffic handling priority>** **[,<Source statistics descriptor>** **[,<Signalling indication>]]]]]]]]]]]]]]**
Activate or Deactivate PDP Context	**AT+CGACT=<STATE>,<CID>** <cid>: 1-3 3 PDP contexts can be defined , 2 can be activated simultaneously	**AT+CGDATA=<L2P>[,<cid>[,<cid>[,…]]]** <cid>: 1-20 20 PDP contexts can be defined, 3 can be activated simultaneously.
Attach and Detach PS Network	**AT+CGATT=<mode>** It will respond after the network is attached or detached completely.	**AT+CGATT=<mode>** It will respond first, then attach or detach the PS network
Enter Data State	**AT+CGDATA=<L2P>[,<CID>[,<CID>[,…]]]** <CID>: 1-3	**AT+CGDATA=<L2P>[,<cid>[,<cid>[,…]]]** <cid>: 1-20
Show PDP Address	**AT+CGPADDR[=<cid>[,<cid>[,…]]]**	**AT+CGPADDR[=<cid>[,<cid>[,…]]]**
GPRS Mobile Station Class	**AT+CGCLASS=<class>** <class> A string parameter indicates the GPRS mobile class (Functionality in descending order) "B" Class B "CG" Class C in GPRS only mode "CC" Class C in circuit switched only mode	**AT+CGCLASS=<class>** <class> A string parameter which indicates the GPRS mobile class (Functionality in descending order) "A" Class A "B" Class B "CG" Class C in GPRS only mode "CC" Class C in circuit switched only mode
Select Service for MO SMS Messages	**AT+CGSMS=[<service>]** <service> range: 0-3 Default: 3	**AT+CGSMS=[<service>]** <service> range: 0-3 Default: 1
Control Unsolicited GPRS Event Reporting	**AT+CGEREP=<mode>** <mode> 0 Buffer unsolicited result codes in the MT; if MT result code buffer is full, the oldest one can be discarded. No	**AT+CGEREP=mode[,<bfr>]** <mode> 0 Buffer unsolicited result codes in the MT; if MT result code buffer is full, the oldest one can be discarded.

	codes are forwarded to the TE 1 Discard unsolicited result codes when MT-TE link is reserved (e.g. in on-line data mode); otherwise forward them directly to the TE	No codes are forwarded to the TE. 1 Discard unsolicited result codes when MT TE link is reserved (e.g. in on line data mode); otherwise forward them directly to the TE. 2 Buffer unsolicited result codes in the MT when MT TE link is reserved (e.g. in on line data mode) and flush them to the TE when MT TE link becomes available; otherwise forward them directly to the TE. <bfr> 0 MT buffer of unsolicited result codes defined within this command is cleared when <mode> 1 or 2 is enabled. 1 MT buffer of unsolicited result codes defined within this command is flushed to the TE when <mode> 1 or 2 is enabled (OK response shall be given before flushing the codes)

2.4.13. SS Commands

Function	M95	UG95
Call Forwarding Number and Conditions Control	**AT+CCFC=<reads>,<mode>[,<number>[,<type>[,<class>[,<subaddr>[,<satype>[,time]]]]]]**	**AT+CCFC=<reads>,<mode>[,<number>[,<type>[,<class>[,<subaddr>[,<satype>[,time]]]]]]**
Call Waiting Control	**AT+CCWA=[<n>[,<mode>[,<class>]]]**	**AT+CCWA[=<n>][,<mode>[,<class>]]**
Call Related Supplementary Services	**AT+CHLD[=<n>]**	**AT+CHLD[=<n>]**
Calling Line Identification Presentation	**AT+CLIP[=<n>]**	**AT+CLIP[=<n>]**

Calling Line Identification Restriction	**AT+CLIR[=<n>]**	**AT+CLIR[=<n>]**
Connected Line Identification Presentation	**AT+COLP[=<n>]**	**AT+COLP[=<n>]**
Supplementary Service Notifications	**AT+CSSN=<n>[,<m>]**	**AT+CSSN=<n>[,<m>]**
Unstructured Supplementary Service Data	**AT+CUSD=[<n>[,<str>[,<dcs>]]**	**AT+CUSD=<mode>[,<reqstr>[,<dcs>]]**
Display the +CLIP Number Name	**AT+QCLIP[=<n>]**	Not Support
Display the +COLP Number Name	**AT+QCOLP=<n>**	Not Support

2.4.14. STK Commands

There are many differences on STK function between UG95 and M95. For M95, we use PDU mode which customer needs to package the USSD information themselves, it's much difficult for developing. While we use the text mode in UG95, customer just fills the response content with the response code, then module will package the information internally, for more details, please refer to the document *UG95_STK_AT_Commands_Manual*.

Function	**M95**	**UG95**
Enable STK Functionality	**AT+QSTK=<n>** <n> Turn on/off STK Function +STKPCI…URC report contains all STK proactive information after rebooting module	**AT+QSTK=<mode>[,<alphabet>]** STK will take effect after rebooting module. AT+QSTK <alphabet> will affect the coding of input and output text
Download STK Profile	**AT+QSTKPD**	**AT+QSTKPD**
Query STK State	Not Support	**AT+QSTKSTATE?**

Get Proactive Command Information	Not Support	**AT+QSTKGI=<cmdtype>**
STK Response	Not Support	**AT+QSTKRSP=253,<result>,<itemID>** **AT+QSTKRSP=254** **AT+QSTKRSP=<cmdtype>,<result>[…]**
STK Envelope command	**AT+STKENV=<sat_command>**	Not Support
STK Terminal Response	**AT+STKTR=<termnal_response>**	Not Support
Set up Call	**AT+STKSS=<n>**	**AT+QSTKGI=17** **AT+QSTKRSP=17,<result>[,<additional_info>]**
Send USSD	**AT+STKUSSD=<n>**	**AT+QSTKGI=18** **AT+QSTKRSP=18,<result>[,<additional_info>]**
Send SMS	**AT+STKSMS=<n>**	**AT+QSTKGI=19** **AT+QSTKRSP=19,<result>[,<additional_info>]**
Send DTMF	**AT+STKDTMF=<n>**	**AT+QSTKGI=20** **AT+QSTKRSP=20,<result>[,<additional_info>]**
Play Tone	Not Support	**AT+QSTKGI=32** **AT+QSTKRSP=33,<result>[,<additional_info>]**
Display Text	Not Support	**AT+QSTKGI=33** **AT+QSTKRSP=33,<result>[,<additional_info>]**
Get Inkey	Not Support	**AT+QSTKGI=34** **AT+QSTKRSP=34,<result>,<input_string>[,<additional_info>]**
Get Input	Not Support	**AT+QSTKGI=35** **AT+QSTKRSP=35,<result>,<input_string>[,<additional_info>]**
Select Item	Not Support	**AT+QSTKGI=36** **AT+QSTKRSP=36,<result>,<itemID> [,<additional_info>]**

Set up Menu	Not Support	**AT+QSTKGI=37** **AT+QSTKRSP=37,<result>[,<additional_info>]**
Set up Idle Mode Text	Not Support	**AT+QSTKGI=40** **AT+QSTKRSP=40,<result>[,<additional_info>]**
Language Notification	Not Support	**AT+QSTKGI=53** **AT+QSTKRSP=53,<result>[,<additional_info>]**

2.4.15. TCP Commands

In order to easily migrate M95 to UG95, UG95 designed two types of TCPIP command. You can use AT+QICFG="tcpipcmdset" to switch between the two kinds of TCPIP modes.

2.4.15.1. GSM TCP Commands

Execute AT+QICFG="tcpipcmdset",0 to set “tcpipcmdset” value as 0 (Reboot to take effect). UG95 TCPIP can be compatible with the M95 TCPIP. About details please refer to *Quectel_M95_AT_Commands_Manual* and *GSM_TCPIP_Application_Note*. There are still some differences shown as below.

NOTE

Because AT+QICSGP, AT+QIACT and AT+QIDEACT commands are used in GSM TCP mode and advanced HTTP, FTP, MMS and SMTP functions, if you use HTTP, FTP, MMS and SMTP functions, please set <ContexID> to 4 or 5 to avoid use conflicts in GSM TCP mode.

GSM TCP mode feature comparison between M95 and UG95:

Function		M95	UG95
Client	Non transparent mode single TCP	Support	Support (AT+QINDI=2 not support)
	Non transparent mode multiple TCP	Support	Support
	Transparent mode	Support	Support
Server	/	Support	Not Support

GSM TCP mode AT Commands comparison between M95 and UG95:

Function	M95	UG95
Start up TCP or UDP Connection	**AT+QIOPEN**	**AT+QIOPEN**
Send Data through TCP or UDP Connection	**AT+QISEND**	**AT+QISEND**
Close TCP or UDP Connection	**AT+QICLOSE**	**AT+QICLOSE**
Deactivate GPRS/CSD PDP Context	**AT+QIDEACT**	**AT+QIDEACT**
Start TCPIP Task and Set APN, User Name and Password	**AT+QIREGAPP**	**AT+QIREGAPP**
Activate GPRS/CSD Context	**AT+QIACT**	**AT+QIACT**
Get Local IP Address	**AT+QILOCIP**	**AT+QILOCIP**
Query Current Connection Status	**AT+QISTAT**	**AT+QISTAT**

Query Connection Status of the Current Access	**AT+QISTATE**	**AT+QISTATE**
Configure Domain Name Server	**AT+QIDNSCFG**	**AT+QIDNSCFG**
Query the IP Address of Given Domain Name	**AT+QIDNSGIP**	**AT+QIDNSGIP**
Connect with IP Address or Domain Name Server	**AT+QIDNSIP**	**AT+QIDNSIP**
Add an IP Header When Receiving Data	**AT+QIHEAD**	**AT+QIHEAD**
Set Auto Sending Timer	**AT+QIAUTOS**	**AT+QIAUTOS**
Set Prompt of '>' When Sending Data	**AT+QIPROMPT**	**AT+QIPROMPT**
Select CSD or GPRS as the Bearer	**AT+QICSGP**	**AT+QICSGP**
Set Whether or Not to Display the Address of Sender	**AT+QISHOWRA**	**AT+QISHOWRA**
Save TCPIP Application Context	**AT+QISCON**	**AT+QISCON**
Select TCPIP Transfer Mode	**AT+QIMODE**	**AT+QIMODE**
Configure Transparent Transfer Mode	**AT+QITCFG**	**AT+QITCFG**
Control Whether to Show the Protocol Type	**AT+QISHOWPT**	**AT+QISHOWPT**
Select a Context as Foreground Context	**AT+QIFGCNT**	**AT+QIFGCNT**
Control Whether to Display Local IP Address	**AT+QISHOWLA**	**AT+QISHOWLA**
Control Whether to Enable Multiple TCPIP Session	**AT+QIMUX**	**AT+QIMUX**
Query the Data Information for Sending	**AT+QISACK**	**AT+QISACK**

Set the Method to Handle Received TCP/IP Data	**AT+QINDI**	**AT+QINDI** (AT+QINDI=2 not support)
Retrieve the Received TCP/IP Data	**AT+QIRD**	**AT+QIRD**
Control Whether to Allow Echo Data for QISEND	**AT+QISDE**	**AT+QISDE**
Configured as Server	**AT+QISERVER**	Not Support
Query the Current Server Status	**AT+QISSTAT**	Not Support
Set Local Port	**AT+QILPORT**	Not Support
Choose Connection	**AT+QISRVC**	Not Support
Ping a Remote Server	**AT+QPING**	**AT+QPING**
Synchronize the Local Time via NTP	**AT+QNTP**	**AT+QNTP**

2.4.15.2. Advanced TCP Commands

The default value of AT+QICFG="tcpipcmdset" is 1. It is TCPIP advanced mode and cannot be compatible with the M95 TCPIP.

Compared with M95 TCPIP command, UG95 has made many optimizations to make the function more easily for using and developing, so some commands cannot be compatible with M95.

UG95 uses the command AT+QIOPEN to configure the socket service type (server or client), access mode (transparent or nontransparent mode) and the socket ID, so there is no need to execute a series commands AT+QISERVER, AT+QIMUX and AT+QIMODE to configure the socket's property. And it cannot be compatible with M95.

For the URCs of the TCP, UG95 is more standard than M95, all of the URCs begin with character '+' and give much more detailed information than M95. Please refer to the document *Quectel_UG95_TCPIP_AT_Commands_Manual*. So the URCs cannot be compatible with M95.

With respect to the compatibility, we follow the rules listed as below:

1. When executing UG95 TCPIP AT commands, we will ensure that the operation procedure of UG95 is consistent with 2G modules as far as possible.
2. For some functions, we added many TCPIP AT commands into our 2G module, including AT+QIREGAPP, AT+QIFGCNT, AT+QIMODE, AT+QISERVER, AT+QIMUX, AT+QISRVC, AT+QIHEAD, AT+QISHOWRA, AT+QISHOWPT, AT+QISHOWLA and AT+QIND. Meanwhile, switch between TCP server and client and multi-connection management are complicated on 2G platform. Therefore, we simplified UG95's command syntax, which can avoid customer's confusion, thus improving the efficiency of customer development and reducing the complexity of support.

Function	M95	UG95
Select a Context as Foreground Context	**AT+QIFGCNT=<id>** M95 can be configured to 2 scenarios: 0, 1	**AT+QICSGP=<contextid>,<contexttype>[,<apn>[,<username>,<password>[,<authentication>]]]** UG95 can be configured to 20 scenarios: 1-20, but only supports at most 3 scenarios activated at the same time.
Select GPRS as the Bearer	**AT+QICSGP=<mode>,[<apn>,<username>,<password>]**	**AT+QICSGP=<contextid>,<contexttype>[,<apn>[,<username>,<password>[,<authentication>]]]**
Select CSD as the Bearer	**AT+QICSGP=<mode>,[<dialnumber>,<username>,<password>,<rate>]**	/
Start TCPIP Task and Set APN, User Name and Password	**AT+QIREGAPP=<apn>,<username>,<password>[,<rate>]**	**AT+QICSGP=<contextid>,<contexttype>[,<apn>[,<username>,<password>[,<authentication>]]]**
Control Whether to Enable Multiple TCPIP Session	**AT+QIMUX=<mode>** M95 could activate 2 scenarios, and support up to 6 sockets for the multiple connection.	/ UG95 supports the parameter <connectid> in AT+QIOPEN to configure multiple connections. It can also activate 3 scenarios and support up to 12 sockets.

Select TCPIP Transfer Mode	**AT+QIMODE=<mode>** <mode> 0 Non transparent access mode 1 Transparent access mode AT+QINDI=<m> can be used to configure buffer access mode or direct push mode	**AT+QIOPEN=<contextid>,<connectid>,<servicetype>,<ipaddress>/<domainname>,<remoteport>[,<localport>[,<accessmode>]]** <accessmode> 0 Buffer access mode 1 Direct push mode 2 Transparent access mode You can configure the parameter <accessmode> to set transfer mode.
Activate GPRS/CSD Context	**AT+QIACT**	**AT+QIACT=<contextid>** <contextid> supports 1-20 and can activate 3 scenarios
Get Local IP Address	**AT+QILOCIP**	**AT+QIACT?**
Deactivate GPRS/CSD PDP Context	**AT+QIDEACT**	**AT+QIDEACT=<contextid>**
Connect with IP Address or Domain Name Server	**AT+QIDNSIP=<mode>**	Not Support
Set Local Port	**AT+QILPORT=<mode>,<port>**	Not Support
Configure as TCP Server	**AT+QISERVER**	**AT+QIOPEN=<contextid>,<connectid>,<servicetype>,<ipaddress>/<domainname>,<remoteport>[,<localport>[,<accessmode>]]**
Configure as TCP/UDP Server	**AT+QISERVER=<type>[,<max>]**	
Single Start up TCP or UDP Connection	**AT+QIOPEN=<mode>,<IP address>/<domain name>,<port>**	
Multiple Start up TCP or UDP Connection	**AT+QIOPEN=<index>,<mode>,<IP address>/<domain name>,<port>**	
Choose Connection	**AT+QISRVC=<connection>**	

Switch Data Access Mode	Not Support	**AT+QISWTMD=<connectid>,<accessmode>**
Single/Multiple Query Current Connection Status	**AT+QISTAT**	**AT+QISTATE=<querytype>,<contextid>**
Multiple Close TCP or UDP Connection	**AT+QICLOSE=<index>**	**AT+QICLOSE=<connectid>[,<timeout>]**
Single Close TCP or UDP Connection	**AT+QICLOSE**	
Single Send Data through TCP or UDP Connection	**AT+QISEND** **AT+QISEND=<length>**	If <servicetype> is “TCP”, “UDP” or “TCP INCOMING”, send data with changeable length: **AT+QISEND=<connectid>** If<servicetype> is “TCP”, “UDP” or “TCP INCOMING”, send data with fixed length: **AT+QISEND=<connectid>,<sendlength>** If <servicetype> is “UDP SERVICE”: **AT+QISEND=<connectid>,<sendlength>,<remoteip>,<remoteport>**
Multiple Send Data through TCP or UDP Connection	**AT+QISEND=<index>,<length>**	
Query the Data Information for Sending	**AT+QISACK=<n>**	**AT+QISEND=<connectid>,0**
Set Auto Sending Timer	**AT+QIAUTOS=<mode>[,<time>]**	Not Support
Set Prompt of ">" When Sending Data	**AT+QIPROMPT=<sendprompt>** 0 No prompt ">" and show "SEND OK" when sending is successful. 1 Echo prompt ">" and show "SEND OK" when sending is successful. 2 No prompt and not show "SEND OK" when sending is	Not implemented, the default echo prompt ">" and show "SEND OK”

	successful.	
Control Whether or not to Echo the Data for QISEND	**AT+QISDE=<m>** 0 Not echo 1 Echo	**AT+QISDE=<m>** 0 Not echo 1 Echo
Set the Method to Handle Received TCP/IP Data in Buffer Access Mode or Direct Push Mode	**AT+QINDI=<m>**	The <accessmode> parameter of **AT+QIOPEN** can set the buffer mode or direct push mode
Retrieve the Received TCP/IP Data in Buffer Access Mode	**AT+QIRD=<id>,<sc>,<sid>,<len>**	**AT+QIRD=<connectid>[,<readlength>]**
Query Retrieved Data	Not Support	**AT+QIRD=<connectid>,0**
URC Connect Closed	**CLOSED**	**+QIURC: "closed",<connectid>**
URC Receive Data in Buffer Access Mode	**+QIRDI: <id>,<sc>,<sid>**	**+QIURC: "recv",<connectid>**
URC Single Receive Data in Direct Push Mode	Client receives data **<data>** or incoming receives data **<data>** You can use AT+QIHEAD, AT+QISHOWRA, AT+QISHOWPT to set the head of data.	**+QIURC: "recv",<connectid>,<currentrecvlength><CR><LF><data>** **+QIURC: "recv",<connectid>,<currentrecvlength>,<remoteip>,<remoteport><CR><LF><data>**
URC Multiple Receive Data in Direct Push Mode	**+RECEIVE: <index>,<length>** **<data>** You can use AT+QIHEAD, AT+QISHOWRA, AT+QISHOWPT to set the head of data.	
URC of Incoming Connection Full	/	**+QIURC: "incoming full"**

URC Single Accept a Remote Client Connection	**REMOTE IP: IP Address**	**+QIURC: "incoming",<connectid>,<serverid>,<remoteip>,<remoteport>**
URC Multiple Accept a Remote Client Connection	**<index>, REMOTE IP: IP Address**	
URC PDP Deactivation	**+PDP DEACT**	**+QIURC: "pdpdeact",<contextid>**
Set Whether to Display the Address of Sender	**AT+QISHOWRA=<mode>**	Not Support
Control Whether to Show the Protocol Type	**AT+QISHOWPT=<mode>**	Not Support
Control Whether to Display Local IP Address	**AT+QISHOWLA=<mode>**	Not Support
Add an IP Header When Receiving Data	**AT+QIHEAD=<mode>**	Not Support
Save TCPIP Application Context	**AT+QISCON**	Not Support
Ping a Remote Server	**AT+QPING="<host>"[,[<timeout>][,<pingnum>]]**	**AT+QPING=<contextid>,<host>[,<timeout>[,<pingnum>]]**
Synchronize the Local Time via NTP	**AT+QNTP="<server>"[,<port>]**	**AT+QNTP=<contextID>,<server>[,<port>][,<autosettime>]** <autosettime> Indicates whether to auto set synchronized time to local time 0 Not set 1 Set
Ping a Remote Server	**AT+QPING="<host>"[,[<timeout>][,<pingnum>]]**	**AT+QPING=<contextID>,<host>[,<timeout>[,<pingnum>]]**
Configure Domain Name Server	**AT+QIDNSCFG=<pri_dns>[,<sec_dns>]**	**AT+QIDNSCFG=<contextid>,<pridnsaddr>[,<secdnsaddr>]**

Query the IP Address of Given Domain Name	**AT+QIDNSGIP=<domain name>**	**AT+QIDNSGIP=<contextid>,<hostname>**
Configure Transparent Transfer Mode	**AT+QITCFG=<NmRetry>,<WaitTm>,<SendSz>,<esc>**	**AT+QICFG="transpktsize"[,<transpktsize>]** **AT+QICFG="transwaittm"[,<transwaittm>]**
Query the Last Error Code	Not Support	**AT+QIGETERROR**

2.4.16. HTTP(S) Commands

Function	M95	UG95
Configure Parameters for HTTP(S) Server	Not Support	**AT+QHTTPCFG**
Set HTTP(S) Server URL	**AT+QHTTPURL=<url_len>,<input_time>**	**AT+QHTTPURL=<URL length>[,<timeout>]**
Send GET Request to HTTP(S) Server	**AT+QHTTPGET=<to_read_time>**	<request header> equals to 0 **AT+QHTTPGET[=<rsptime>]** <request header> equals to 1 **AT+QHTTPGET=<rsptime>,<datalength>[,<input time>]**
Send POST Request to HTTP(S) Server	**AT+QHTTPPOST=<body_size>,<input_time>,<to_read_time>**	<request header> equals to 0 **AT+QHTTPPOST=<datalength>[,<input time>,<rsptime>]** <request header> equals to 1 **AT+QHTTPPOST=<datalength>[,<input time>,<rsptime>]**
Send POST Request to HTTP(S) Server by File	Not Support	**AT+QHTTPPOSTFILE=<file name>[,<rsptime>]**
Read Response from HTTP(S)	**AT+QHTTPREAD=<wait_time>**	**AT+QHTTPREAD[=<wait time>]**

Server		
Read Response from HTTP(S) Server by File	Not Support	**AT+QHTTPREADFILE=<filename>[,<wait time>][,<overwrite>]**

2.4.17. MMS Commands

Function	M95	UG95
Set the URL of the MMSC	**AT+QMMURL=<mmsc url>**	**AT+QMMSCFG="mmsc"[,<URL>]**
Set the MMS Proxy	**AT+QMMPROXY =<type>,<gateway>[,<port>]**	**AT+QMMSCFG="proxy"[,<gateway>,<port>]**
Set the Parameters for Sending MMS Message	**AT+QMMCFG=<valid>[,<pri>][,<sendrep>][,<readrep>][,<visible>][,<class>]**	**AT+QMMSCFG="sendparam"[,<valid>,<pri>,<sendrep>,<readrep>,<visible>,<class>]**
Set Character Sets and Input Mode	**AT+QMMSCS =<charset>[,<input mode>]**	**AT+QMMSCFG="character"[,<charset>]**
Write MMS Message	**AT+QMMSW**	**AT+QMMSEDIT**
Send MMS Message	**AT+QMMSEND=<operate>**	**AT+QMMSEND=<timeout>**

2.4.18. SMTP(S) Commands

Function	M95	UG95
SMTP Configuration	**AT+QSMTPCFG=<type>[,<value>]**	**AT+QSMTPCFG=?** **+QSMTPCFG: "account",<username>,<password>** **+QSMTPCFG: "sender",<sendername>,<senderemail>** **+QSMTPCFG: "smtpserver",<srvaddr>,<srvport>** **+QSMTPCFG: "contextid",(1-16)** **+QSMTPCFG: "sslctxid",(0-5)** **+QSMTPCFG: "ssltype",(0-2)** **OK**
Set the User Name for Authentication	Set the user name for authentication **AT+QSMTPUSER="<user>"** Set the password for authentication **AT+QSMTPPWD="<pwd>"**	**AT+QSMTPCFG="account"[,<username>,<password>]**
Set the Email Address of the Sender	Set the email address of the sender **AT+QSMTPADDR="<addr>"** Set the sender's name **AT+QSMTPNAME="<name>"**	**AT+QSMTPCFG="sender"[,<sendername>,<senderemail>]**
Set the Address and Port of SMTP Server	**AT+QSMTPSRV="<srvAddr>",<port>**	**AT+QSMTPCFG="smtpserver"[,<srvaddr>,<srvport>]**
Choose a Context ID for SMTP	Not Support	**AT+QSMTPCFG="contextid"[,<contextid>]**
Choose a SSL Context ID for SMTP	Not Support	**AT+QSMTPCFG="sslctxid"[,<sslctxid>]**
Choose a SSL Type for SMTP	Not Support	**AT+QSMTPCFG="ssltype"[,<ssltype>]**
Add or Delete Recipients	**AT+QSMTPDST=<mode>[,<type>[,"<e-addr>"]]**	**AT+QSMTPDST=<mode>[,<type>[,<emailaddr>]]**

Edit the Subject of the Email	**AT+QSMTPSUB=<charset>,"<title>"**	**AT+QSMTPSUB=<charset>,<subject>**
Edit the Body of the Email	**AT+QSMTPBODY=<charset>[,<timeout>]**	**AT+QSMTPBODY=<charset>,<bodylength>[,<timeout>]**
Edit the Attachments of the Email	**AT+QSMTPATT="<fileName>"[,<fileSz>,<timeout>]**	**AT+QSMTPATT=<mode>[,<fileindex>,<filename>]** <mode> Integer type, indicates to add or delete an attachment. 0 Delete 1 Add
Delete an Attachment	**AT+QSMTPDATT=<fileIndex>**	
Clear the Content of Email	**AT+QSMTPCLR**	**AT+QSMTPCLR**
Send Email	**AT+QSMTPPUT=<timeout>**	**AT+QSMTPPUT=<timeout>**

2.4.19. FTP Commands

Function	M95	UG95
Configure Username& Password	**AT+QFTPUSER="<userName>"** **AT+QFTPPASS="<password>"**	**AT+QFTPCFG="account"[,<user name>,<password>]**
Configure Context ID	**AT+QIFGCNT=<id>**	**AT+QFTPCFG="contextid"[,<contextID>]**
Configure Active/Passive Mode	**AT+QFTPCFG=<type>[,<value>]** <value> If (<type>==1) 0 Active mode 1 Passive mode	**AT+QFTPCFG="transmode"[,<transmode>]**
Configure Transfer Type (TYPE A/TYPE B)	**AT+QFTPCFG=<type>[,<value>]** <value> If (<type>==2) 0 Set the transfer type as binary 1 Set the transfer type as ASCII	**AT+QFTPCFG="filetype"[,<file type>]**

Configure Timeout	Not support	**AT+QFTPCFG="rsptimeout"[,<timeout>]**
Configure Breakpoints	**AT+QFTPCFG=<type>[,<value>]** <value> If (<type>==3), it is the resuming point to resume file transfer.	**AT+QFTPPUT=<file_name>,"COM:"[,<startpos>[,<uploadlen>,<beof>]]** **AT+QFTPGET=<file_name>,"COM:"[,<startpos >[,<downloadlen>]]** **AT+QFTPPUT=<file_name>,<local_name> [,<startpos>]** **AT+QFTPGET=<file_name>,<local_name> [,<startpos >]** <local_name> is not "COM:". <startpos> is used to configure breakpoints.
Configure Local File Path	**AT+QFTPCFG=<type>[,<value>]** <value> If (<type>==4), it is a string to indicate the local position of the file to transfer.	**AT+QFTPPUT=<file_name>,<local_name> [,<startpos>]** **AT+QFTPGET=<file_name>,<local_name> [,<startpos >]** <local_name> is not "COM:" Configure local file path for UFS or RAM.
Login to FTP Server	**AT+QFTPOPEN="<hostName>", <port>**	**AT+QFTPOPEN="<host_name>", <port>**
Set the Current Directory on FTP Server	**AT+QFTPCWD=1,< path_name>"**	**AT+QFTPCWD=< path_name>**
Get the Current Directory on FTP Server	**AT+QFTPCWD=0**	**AT+QFTPPWD**
Set the Path in the FTP Server to Upload or Download File	**AT+QFTPPATH="<pathName>"**	Not support
Get the Path in the FTP Server to Upload or Download File	**AT+QFTPPATH?**	Not support
Upload a File to FTP Server	**AT+QFTPPUT="<fileName>",<fileSz>[,<time>]**	**AT+QFTPPUT=<file_name>,"COM:"[,<startpos>[,<uploadlen>,<beof>]]**

		AT+QFTPPUT=<file_name>,<local_name>[,<startpos>] <local_name> is “RAM:”.
Download a File from FTP Server	**AT+QFTPGET="<fileName>"[,fileSz]**	**AT+QFTPGET=<file_name>,“COM:”[,<startpos >[,<downloadlen>]]** **AT+QFTPGET=<file_name>,<local_name>[,<startpos>]** <local_name> is “RAM:”.
List Contents of Directory on FTP Server	**AT+QFTPLIST["<name>"]**	**AT+QFTPLIST=<dirname>[,“COM:”]** **AT+QFTPLIST=<dirname>,<local_name>** The <local_name> is “RAM:”.
List File Names of Directory on FTP Server	**AT+QFTPNLST["<dirName>"]**	**AT+QFTPNLST=<dirname>[,“COM:”]** **AT+QFTPNLST=<dirname>,<local_name>** <local_name> is “RAM:”.
List Standardized File and Directory Information	Not support	**AT+QFTPMLSD=<dirname>[,“COM:”]** <local_name> is “COM:”. **AT+QFTPMLSD=<dirname>,<local_name>** <local_name> is “RAM:”.
Get the File Modification Time on FTP Server	Not support	**AT+QFTPMDTM=<file_name>**
Get the File Size on FTP Server	**AT+QFTPSIZE=<file name>**	**AT+QFTPSIZE=< file_name>**
Delete the File on FTP Server	**AT+QFTPDELETE="<file name>"**	**AT+QFTPDEL =< file_name>**
Make a Folder on FTP Server	**AT+QFTPMKDIR="<path name>"**	**AT+QFTPMKDIR=< folder_name>** UG95 <folder_name> is same as M95 <path name>.

Delete a Folder on FTP Server	**AT+QFTPRMDIR="<path name>"**	**AT+QFTPRMDIR=< folder_name>**
Get the Status of FTP Service	**AT+QFTPSTAT** **+QFTPSTAT: <state>** **OK**	**AT+QFTPSTAT** **OK** **+QFTPSTAT: 0,<ftpstat>**
Get the Transferred Data Length on FTP Server	**AT+QFTPLEN** **+QFTPLEN: <len>** **OK**	**AT+QFTPLEN** **OK** **+QFTPLEN: 0,<transferlen>**
Logout from FTP Server	**AT+QFTPCLOSE** **OK** **+QFTPCLOSE:<err>**	**AT+QFTPCLOSE** **OK** **+QFTPCLOSE: <err>,<protocol error>**
FTP Command Error Code	**+QFTPXX:<err>**	**+QFTPXX: <error code>,<protocol error>**

3 Appendix A Reference

Table 1: Related Documents

SN	Document Name	Remark
[1]	Quectel_UG95_AT_Commands_Manual	UG95 AT commands Manual
[2]	Quectel_UG95_FTP_AT_Commands_Manual	UG95 FTP AT commands Manual
[3]	Quectel_UG95_MMS_AT_Commands_Manual	UG95 MMS AT commands Manual
[4]	Quectel_UG95_HTTP_AT_Commands_Manual	UG95 HTTP AT commands Manual
[5]	Quectel_UG95_SMTP_AT_Commands_Manual	UG95 SMTP AT commands Manual
[6]	Quectel_UG95_STK_AT_Commands_Manual	UG95 STK AT commands Manual
[7]	Quectel_M95_AT_Commands_Manual	M95 AT commands Manual