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WISMOQuik
WIRELESS IN THE WINK OF AN EYE

WISMO Quik Q2338 series
User's Guide
Reference: WM_PRJ_WM2C_UG_001
Level: 001B
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- Pre-production Draft -

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About This Manual

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Document Number

When ordering or referring to this publication, use the following number: Publication/PN **WM_PRJ_WM2C_UG_001**

WARNING! Read this information before using your phone

FCC & Industry Canada Regulatory Compliance

The Wismo Quik 2338 Series is approved for use with CDMA networks. This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Your mobile device is a low power radio transmitter and receiver. When it is ON, it receives and also sends out radio frequency (RF) signals. In August 1996, the Federal Communications Commission (FCC) adopted RF exposure guidelines with safety levels for mobile device. Those guidelines are consistent with safety standards previously set by both U.S. and international standards bodies: American National Standard Institute (ANSI), National Council of Radiation Protection and Measurements (NCRP), and International Commission on Non-Ionizing Radiation Protection (ICNRP). Those standards were based on comprehensive and periodic evaluations of the relevant scientific literature. The design of your Module complies with the FCC guidelines and applicable standards.

WARNING: Unauthorized antennas, modifications, or attachments could impair call quality, damage the Module, or result in violation of FCC regulations. Do not use the Module with a damaged antenna. Please contact your local authorized dealer for antenna replacement.

Do not use antenna with gains exceeding 3 dBi.

FCC RF EXPOSURE INFORMATION

In August 1996 the Federal Communications Commission (FCC) of the United States with its action in Report and Order FCC 96-326 adopted an updated safety standard for human exposure to radio frequency electromagnetic energy emitted by FCC regulated transmitters. Those guidelines are consistent with the safety standard previously set by both U.S. and international standards bodies. The design of this phone complies with the FCC guidelines and these international standards.

Operating Requirements

The antennas used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antennas or transmitters. Please maintain 20 cm separation distance from the antenna to meet FCC RF exposure compliance requirements.

For more information about RF exposure, please visit the FCC website at **www.fcc.gov**

NOTE: Read the "Safety" section prior to using your WISMO Quik Q2338 Series Module.

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Preface

Your WISMO Quik Q2338 Series Module

Congratulations! Your new WISMO Quik Q2338 Series Module is going to change the way you communicate.
The WISMO QUIK Q2338 is a compact, lightweight, personal communications system with added features for the person on the go. More than just a mobile phone, the WISMO QUIK Q2338 allows you to:

- Access your voice mail, and text messages
- Review a list of your latest outgoing and incoming calls for reference or call back
- Organize names and numbers
- Go on-line through the Browser (service features depend upon your carrier service) to surf the web, get e-mails, stock quotes, etc.
- Send and receive text messages via the Short Message Service (carrier service provider dependent)
- Use your WISMO QUIK Q2338 as a wireless modem to send or receive faxes with your laptop computer.

The WISMO QUIK Q2338 is a compact, simple, and affordable solution for your active life style.

This Document is intended to provide the user complete instructions on the capabilities and use of the Wavecom Starter Kit. The Wavecom Starter Kit is designed to allow the customer to interface to the Wavecom Q2300 and Q2400 CDMA and GSM/GPRS Module families. Control of the Module is done via AT Commands issued from an external PC running a terminal emulator, such as HyperTerminal. The User should refer to the Wavecom *CDMA AT Commands Interface Specification* for more information on supported commands.

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About CDMA...

The WISMO QUIK Q2338 is a digital CDMA wireless Module; compatible with digital (CDMA) networks operating at 800 and 1900 MHz. Code division multiple access (CDMA) is the type of digital wireless transmission that the WISMO Quik Q2338 Series Module employs. The following sections provide information on CDMA performance and advantages. These sections are designed to help you understand how to better use your Wavecom Module.

Signal Strength and Module Performance

Like other mobile devices or phones, the surrounding environment of the user affects signal strength. Buildings, parking garages, elevators, and basements are some examples of structures that reduce signal strength. Problems initializing a call, muting of the audio during a call, or a call drop are signs of low signal strength. Moving toward a window (if indoors) or open space (if outside) and extending the antenna fully are ways to optimize signal strength. Traveling in a vehicle through varying terrain, tunnels, or near tall buildings may also cause rapid changes in signal strength.

CDMA Advantages

Security:	Each conversation is digitized and encoded with a separate assigned key to help prevent eavesdropping.
Voice Clarity:	Uses digital voice coding techniques to enhance quality and reduce background noise.
Lower Average:	Using sophisticated power control, the Module transmits
Transmit Power:	The minimum power required to communicate with the base station and actually idles in between spoken words. This results in much lower average power radiating from the antenna than other technologies.
Increased System:	Provides 3-10 times the capacity compared to other **Capacity** technologies. This results in fewer dropped calls and system busy signals for the user.
Digital Services:	Allows user new services including caller ID, data and fax, text messaging, and simultaneous voice and data.

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Safety

Aircraft Safety Information

Power down your Module prior to boarding an aircraft. Sending and receiving calls on your Module on an aircraft is prohibited by law and aviation regulations. Using a wireless Module in an aircraft may interfere with aircraft radio communication or navigation equipment, and disrupt the wireless Module network. When boarding an aircraft, turn your Module OFF.

Hospital & Medical Safety Information

Power down your Module prior to entering hospitals, health care facilities, or when near medical equipment.
Operating any radio transmitting equipment, including digital wireless Modules, may interfere with RF-sensitive medical devices. Follow all posted regulations while in hospitals and health care facilities regarding the use of your Module.

Blasting and Refueling Safety Information

Do not use your Module near a blasting site. Power down your Module when in any area with a potentially explosive
Atmosphere. Radio transmissions in such areas could cause an explosion or fire, resulting in bodily injury or even death. Obey all posted signs and instructions regarding the use of wireless Module usage. Observe restrictions on the use of radio equipment in fuel depots (fuel storage and distribution areas), chemical plants or where blasting operations are in progress.

Interference Safety Information

All mobile Modules are subject to radio frequency interference that may affect the performance of your
Module. Your digital wireless Module is a low power radio transmitter and receiver. The design of your Module complies with the FCC guidelines and applicable standards. Never rely solely on your Module for essential communications (e.g., medical emergencies). You must be in a service area with adequate signal strength to use the Module. Emergency calls may not be possible on all wireless Module networks or when certain network services and/or Module features are in use. Check with your local service provider(s).

Service Safety Information

Only qualified service personnel are authorized to repair your digital wireless Module and equipment. Use only approved accessories. Contact you sales representative authorized service centers.

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Chapter 1: Features

Features

The WISMO Quik Q2338 Series Module is a single mode, dual-band CDMA digital Module with several powerful and useful features not typically available in a Module as compact and affordable as the WISMO Quik.

Standard Features

- One-touch Voice Mail Access
- Multiple Ringer Settings
- Any-key Call Answering
- Call History
- Key Guard/Module Lock
- Call timer

Advanced Features

- Wireless Modem
- Fax Transmit and Receive
- Text Message Receive
- Multiple Language Support

Carrier Service Provider Dependent Features

- Internet Mini-browser
- Two-way Short Message Service (SMS)
- E-mail Capability
- Call Waiting
- Three-Way Calling
- Call Forwarding
- Caller ID

Temperature Range

- Operating conditions: From -30˚C to +60˚C
- Storage conditions: From -40˚C to +70˚C

Functions

Standard	900 MHz Class 4 (2W) - 1800 / 1900 MHz Class 1 (1W) GSM Phase 2
Interface	Serial interface RS232 V.24/V.28 Autobauding function AT command set based on V.25ter and GSM 07.05 & 07.07
SMS	Mobile Originated (MO) and Mobile Terminated (MT). Mode Text & PDU point to point. Cell broadcast. In accordance with GSM 07.05.
Data	Asynchronous 2400, 4800, 9600 bits/s. Transparent and Non Transparent mode . In Non Transparent Mode only: 300, 1200, 1200/75 bauds. Mode 3.1 KHz (PSTN) and V110 (ISDN).
Fax	2400/4800/7200/9600 bits/s GSM teleservice 62 in Transparent Mode. Class 1. Groupe 3 compatible.
Audio	FR + EFR - Accessories: 1 : Head set (future options) 2 : Car kit (future options)

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Physical Description

The WISMO QUIK Q2338 is 58 mm long, 32 mm wide and has a thickness of less than 5.9 mm. It weighs only XXX grams.
The physical features of the WISMO QUIK Q2338 are identified in the following picture:

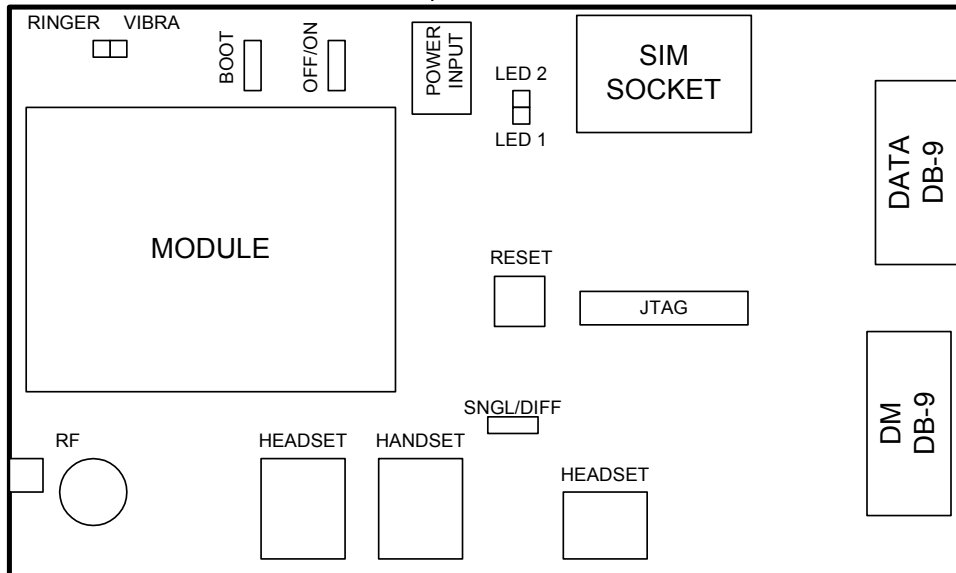| Dimensions	58 x 32 x 5.9 mm
Weight	< 80 grams
Volume	
Housing	Aluminum Profiled

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Wismo Module

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Development Board

The board diagram shows the relative position of all switches, ~~connectors~~ ctors and jumpers that are discussed below.

Power Supply

A standard DC Power Jack is provided on the Interface Board. The included Power Adapter can be used to supply the Module and Interface Board via this jack. Alternatively a lab power supply capable of supplying at least 3.8Vdc at 2.0Amps can be used. The advantage of the lab power supply is in allowing the user to monitor the current drain of the Module to help determine its operating state. The Power Jack has a center positive connection, if a lab supply or other external source is used. A cable for this purpose is available.

The Power Adapter supplies 4.0 Volts DC and a maximum of 2.0 Amps. It can be plugged into a 110 Volt or 220 Volt Mains input. If a lab power supply is used instead, it should be set for 3.8 Volts DC with a minimum current limit of 2.0 Amps.

Switches and Jumper

RESET   There is a master push button reset switch, SW100, located in the middle of the Interface Board that when depressed will pull the RESET/ line of the Module to Ground, causing a full Module microprocessor reset.

PWR – ON   There is a slide switch, SW101, located on the back edge of the Interface Board. This switch interfaces directly to the ON/OFF control line of the Module, via pin 6 of the board-to-board connector. Sliding the switch in the "OFF" direction will pull the line low, causing the Module to shut off. Sliding the switch in the "ON" direction will pull the line high, turning on the Module and keeping it in the ON state.

Boot   A second slide switch, SW102, is located on the back edge of the Interface Board, beside the ON/OFF switch. The function of this switch depends on if a CDMA Module or GSM/GPRS Module is being used. For normal operation of the GSM Module, this switch must be in the HI position upon power up or reset. This switch when in the LO position will put the GSM Module into its BOOT Mode. This allows software upgrades to the embedded code within the Module, via the serial interface of the Interface Board and an application such as the Wavecom DWLWin program. Note that the switch must be in the LO state upon power up or reset. Once the embedded code is executing, the status of the BOOT input is no longer monitored

                                For the CDMA Modules, there is no need for this BOOT functionality. Thus this switch is for test purposes only and is connected to GPIO 42 of the Module. The input can be pulled LO or HI and monitored via AT Command Queries if needed

SNGL/DIFF Jumper   A four-pin jumper, J303, is located near the Audio connectors. This is used to configure the Headset Audio for either a single ended or differential speaker drive circuit. Silkscreen on the Interface Board indicates the jumper positions required for either case. For Differential, one jumper should be placed across pins 2 and 3. For Single Ended, two jumpers should be placed; one across pins 1 and 2, and the other across pins 3 and 4. Refer to ***Error! Reference source not found.*** for more details on the functionality of this jumper block.
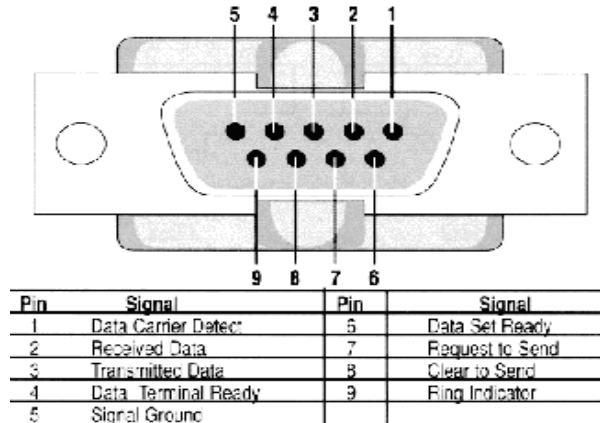
Connectors

Power Input   The Power Connector provides input voltage to the board from the Power Cube provided in the Kit.
Data DB-9   The Data Connector provides for connection to the Host PC.
DM DB-9   This Connector is not available to the customer.

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Serial Interface

Data

The DATA Interface provides a full 8 wire RS-232 interface with the PC. This interface supports the AT Commands; the Diagnostic (DM) information; and high speed data.

Light Emitting Diodes (LEDs) for this port are included on the Interface Board on the RX, TX, DTR, DSR, RTS, CTS and DCD lines to indicate the state of the line. The red LED indicates a negative voltage on the RS-232 (Logic 1) and the green LED indicates a positive voltage on the RS-232 (Logic 0).

Pin	Signal	Pin	Signal
1	Data Carrier Detect	6	Data Set Ready
2	Received Data	7	Request to Send
3	Transmitted Data	8	Clear to Send
4	Data Terminal Ready	9	Ring Indicator
5	Signal Ground		

DM

The DM Interface provides a 2 wire RS-232 interface for Diagnostic information only. The typical customer application should not require this interface as all functionality of the DM Interface is now supported through the DATA Interface as well.

Light Emitting Diodes (LEDs) for this port are included on the Interface Board on both the RX and TX lines to indicate the state of the line. The red LED indicates a negative voltage on the RS-232 (Logic 1) and the green LED indicates a positive voltage on the RS-232 (Logic 0).

Audio

There are two unique audio paths provided for on the Interface Board, and supported by the Module.

Receiver

Handest-1   The Receiver Jack (J300) supports fully differential microphone and speaker signals. The microphone is also biased and filtered on the Interface Board. The Receiver included in the Starter Kit can be used with this port. This Receiver audio path is considered Path 1 in the AT Command Set.

Headset

Headset-1   The connector provides the user a single-ended MIC and Speaker RJ11 connection point.
Headset-2   The connector provides the user a single-ended MIC and Speaker standard 2.5mm Headset connection point.

The Headset Jack (J301) supports a biased differential microphone however the speaker path is either single or differential for GSM/GPRS or single ended only for CDMA. This difference is due to limitations of the CDMA design, allowing for only one fully differential speaker path. Jumpers on J303 configure the path for single (SNGL) or differential (DIFF) audio. The Receiver included in the Starter Kit can be used with this port.

There is an additional audio jack included on the Interface Board that supports the use of a standard 2.5mm three-wire cell phone headset (not included). This jack (J302) supports only single ended microphone and speaker signals, and is wired in parallel with the Headset Jack, J301. Only J301 or J302 can be used at once, and the jumpers on J303 must be set for single ended operation to use J302. Note the single ended audio does result in an increased noise floor, especially when the Starter Kit is used with a GSM or GPRS Module. Careful filtering and attention to layout is required in a customer application to minimize this noise.

These Headset audio paths are considered Path 0 in the AT Command Set.

Vibrator

The Interface Board includes vibrator driver circuitry that will allow the customer to plug in an optional external vibration motor for testing. The connection is made via test points TP500. A standard 1.6V to 3.0V cell phone vibration motor can be used.

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Alternatively, for test purposes a red LED has been added to indicate the state of the line, and is located near the "VIBRA" label on the board.

Buzzer/Ringer

The Interface Board includes ringer driver circuitry that will allow the customer to plug in an optional external buzzer/ringer for testing. The connection is made via test points TP501. A standard 2.0V to 3.0V cell phone ringer can be used.

Alternatively, for test purposes a green LED has been added to indicate the state of the line, and is located near the "RINGER" label on the board.

LED Function

There are two general status indicators, LED1 and LED2, on the Interface Board. The drive circuits for these are controlled directly from the Module, via the 60 pin board-to-board connector. Both LEDs are located near the Power Jack on the Interface Board.

Additional indicators are included for the Vibrator and Ringer driver circuits, and for the DM and DATA Interface ports. Refer to these headings for more details of their function.

LED1

This LED is red when illuminated, and provides the user with an indication of the Module status according to the following table:

LED1 Status	Module Status
OFF	In download mode or OFF
ON: Permanent	ON but not registered on a network
ON: Slow Flash - 200mS ON, 2S OFF	ON and registered on a network
ON: Quick Flash - 200mS ON, 600mS OFF	ON, registered on a network and communication in progress

LED2

This LED is green when illuminated. The functionality of this LED can be defined to provide a method of test and debug by the user via AT Commands. It is connected via pin 54 of the board-to-board connector and is driven by GPIO 8 on the CDMA Modules, and GPIO 4 on the GSM/GPRS Modules.

SIM Socket

SIM socket is provided for use with the RUIM (CDMA) or SIM (GSM/GPRS) card. The Interface Board supports the low voltage cards, having a supply of 2.8Vdc from the Module. The RUIM card is not yet required for North American CDMA modules.

Keypad

For testing purposes, an optional keypad can be installed on the Interface Board that will provide the customer a 5x4 matrix of keys for test and debug. The keypad should be a Grayhill 88JB2 and can be purchased in North America through Digikey with a GH5020-ND part number. The Module itself can support a bigger matrix, however the keypad chosen was the largest standard keypad that could be found.

Note that for the CDMA Module, the JTAG and Keypad share the same Module interface pins thus cannot be used at the same time. Additionally, the CDMA Module itself requires a different hardware population to implement each path. The default population configuration for the CDMA module enables the Keypad, not the JTAG Interface.

JTAG

Included on the Interface Board for debugging purposes is a JTAG Header (J202). The connector, when needed, should be soldered to the bottom side of the Interface Board. This connector will not be required in a customer application, and is therefore not normally populated on the board.

Note that only the CDMA Module supports a JTAG interface. The JTAG and Keypad Interfaces share the same Module interface pins thus cannot be used at the same time. Additionally, the CDMA Module itself requires a different hardware population to implement each path. The default population configuration for the CDMA module enables the Keypad, not the JTAG Interface.

GPIO

Included in the design are Test Points to allow the customer to access all unused General Purpose Input/Outputs (GPIOs) provided by the Module. These are direct from the Module, with no circuitry added. They are located next to the Reset switch in the middle of the Interface Board, and are labeled according to the CDMA Module schematic pin name. Two of these lines are Analog to Digital inputs to the Module microprocessor, if required for testing.

Note that for the GSM Module design, the test point names do not apply and the user will have to refer to the GSM schematic to determine the correct test point location for a given line.

RF

There are two RF connection points on the Interface Board, both used to provide an RF path from the Module to the Interface Board mounted RF jack.

The Module will be supplied with an RF "pigtail" cable assembly. This pigtail is soldered to the module and terminates in a bulkhead style RF SMA connector. This can be mounted on the Interface Board through the ground ring labeled "RF", and the supplied Antenna screwed onto this connector. This is the preferred method of connecting the RF Antenna.

Alternatively, under the Module there are pads where an optional surface mount connector can be soldered that will mate with similar pads on the Module. A connector such as the Radiall R107.064.000 is suggested (see Note below). The RF signal would then be passed to J500, which supports a connector such as the AMP/TYCO 221790-1 Right Angle PCB Mount SMA Connector (not included). The Antenna included in the Starter Kit can attach to this jack.

Note: The Radiall connector has not been fully tested or characterized for either CDMA or GSM/GPRS. It is not recommended for customer testing or customer use in a final design. Some versions of the Module may not support the use of a surface mount RF connector.

Expected antenna gain for the Low band 3dB and for High Band 0 dB

To connect the antenna to the starter kit simply attached the SMA connector to the provide SMA pigtail connector. For the final application or if the connector has changed refer to the connecting instructions provided by the connector vendor and user's guide of the finished product.

Unpacking the Module

Your WISMO QUIK Q2338 package includes the following:
- WISMO Quik Q2338 Series Module
- WISMO Quik Development Board
- AC/DC Power connector
- (2) Serial Cables
- Dual band Antenna
- Antenna connector
- CD-ROM: Which contains the User's Guide (this manual), H/W and S/W specifications, and the AT Command document

If you are missing any of these items, please return this package to your point of purchase and request a complete kit.

The following gives a description of the connections and configurations required to bring up the Module. Be sure to consider these recommendations before applying power to the Interface Board and Module.

Connecting the StarterKits

To connect the StarterKits:
1. Connect the data port of the StarterKits to COM 2 of your PC or laptop using the DB9 serial cable.
2. Connect the dm port of the StarterKits to COM 1 of your PC or laptop using the DB9 serial cable.
3. Connect the AC/DC converter to an open wall socket at one end and the StarterKits at the other.

Installing the WISMO Quik Module

To install the WISMO:
1. Install the WISMO to the development board. Check the alignment of the board-to-board connector and the ground pins of the Module.
2. When the alignment is correct, firmly press on the WISMO until you hear a soft snap.
3. Insert the barrel jack connector of the power adapter plug into the power port on the development board.
4. Move the power switch to the on position.
5. Solder the four ground posts to the through holes in the PCB of the development board (Optional)

When power is applied, the Module will illuminate and transition to a blinking LED

For mounting the modem, bind to the body the holding bridles according to the schema below :

Note:
- To be attached to a plain surface
- Screw head max. height: 2mm

Holding bridles

Figure 2
Modem mounting
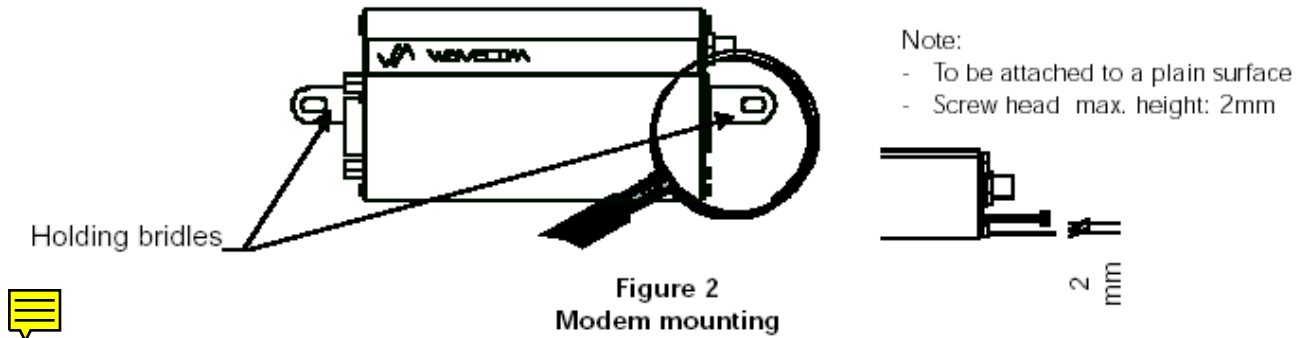
[b5]

Configuring the PC serial port

To configure the serial port:
1. Set the bits per second to: 115200 bps
2. Set the data bits to: 8 bits
3. Set the stop bit to: 1 bit
4. Set the flow control to: None

Removing the WISMO Quik Module

To remove the WISMO:
1. Move the power switch to the off position.
2. Disconnect the cabling from the StarterKits.
3. Unsolder the (4) ground posts (Depends if step 5 was completed above)
4. Gently pull the top of the Module up and away from the development board

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This chapter contains basic instructions on how to use specific functions of your Module. For more detailed instructions please refer to the AT Command specification.

Basic Operations

Basic operations are the fundamental operating functions that you must know to successfully begin using the WISMO QUIK Q2338.

Power On/Off
- To turn the power ON, slide the ON/OFF switch to the ON position and watch for the LED power light go on.
- To turn the power OFF, slide the ON/OFF switch to the OFF position and watch for the LED power light go off.

Setting the Time

There is no need to set the time on your WISMO Quik Q2338 Series Module. The Module receives a time signal from your service provider. Please note that your clock will go blank when you leave your service area, but will again display the correct time when you re-enter your service area.
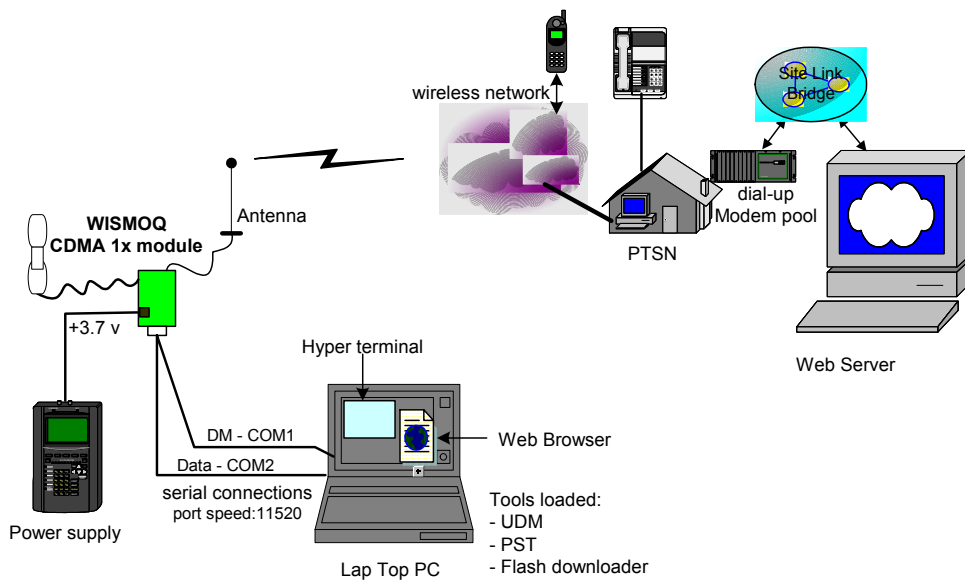
Call setup diagram

Fig. 1.   Call set up with WISMOQ CDMA 2000 1x module

Voice Call procedure

Note:

- *The following procedures can work on both cellular band and PCS band, just use different phone or roaming to the other system.*
- *The calling phone # is just an example.*
- *For local dialing, the area code is not necessary.*

Prepare to call

After the above set up is done and the module has a valid phone number and a good roaming list,

- Make sure the switch 1 close to the "reset" button is in "on" position and the other is in "OFF" position on the testing board
- Power up the testing board
- Launch UDM to see that the module is active and in "Idle" state.

Voice call on cellular band:

- Open a preset hyper terminal
- Enter "AT", it should respond "OK"
- Enter "ATD 18583620101;   // The ";" is necessary for voice call
- Pick up the Receiver, start conversation
- When finished the conversion, enter "ATH" to hang up.

To answer a voice call:

- From the hyper terminal, when see "RING" and "+CLIP:'8583620101'"
- Enter "ATA" to answer the call
- When finished conversation, enter "ATH" or wait for other party hang up.

Data call procedure

Note:

- *The computer must have been installed an IE internet browser and two serial ports*
- *The active phone number should have data service,*
- *Before the procedure, user needs to set a dial-up network terminal to an active ISP. It is better to ask an IT person to set it up for you.*

Make a data call

- Make sure the data port (COM2) is free (close hyper terminal)
- Launch the dial-up network to the ISP
- After the connection is established, launch IE
- In IE, enter an valid web page address and to browse the internet
- When finished, disconnect the dial-up connection

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Short Message Service (SMS)

Note:

- *Currently, the SMS functions are limited in our CDMA1x module, but later we will add more functions*
- *For module generated SMS, the fixed test string will be used. So only the phone number can be dialed.*

Module receives the SMS

- Open the hyper terminal (e.g. Call Terminal)
- Go to another computer with the internet connection
- Use internet browser and go to web site:
- For Sprint phone number: http://www.messaging.sprintpcs.com/smswmgr/BMG/index.jsp
- For Verizon phone number: http://www.vtext.com/
- Enter the module phone number and text message, then send
- When the "+CMTI: 1" pomp up, enter "AT+CMGR=1" to read the message.
- Then enter "AT+CMGD=1" to delete the message.

Module generates the SMS message

Note:

- *Currently, only Verizon phone can support the mobile generated SMS.*
- *The Verizon mobile number "8583956021" is an example.*
- *Currently, no user text can be entered. It is a fixed string for test only.*

  - With the Verizon phone number module, in the hyper terminal, enter: AT+CMGS="18583956021"   // the " "
    is necessary in the command
  - The module should response in sequence: +WORG; +WMOS: 1; +WMOS: 0;
  - The receiving mobile should beep after a few seconds.
  - In the receiving mobile, it will display the fixed message "This is a test of MO SMS".

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Chapter 4: Advanced Features

Using the WISMO QUIK Q2338 as a Wireless Modem

The procedures in this section will help you set up and use your WISMO QUIK Q2338 Module as a wireless modem. To perform the procedures in this chapter, you must connect your Wavecom Module to your PC or Laptop using your data cable. There are three general functions discussed in this section:

- Dial-up Networking
- Faxing
- Data Transfer

Although the procedures are similar for each function, they differ slightly depending on what you are using the Module/modem for. Read each section thoroughly before beginning the procedures.

Prerequisites

Operating System Windows 95 or newer required. Windows 2000 or XP is recommended for best performance.
Modem Program The following programs have been tested and found compatible for use with the WISMO QUIK Q2338:

- The Modem program contained in the Windows OS
- Procomm Plus Version 4.7
- WinFAX Pro Version 9.0

You may find that other programs will work when using the WISMO QUIK Q2338 as a modem. You use these programs at your own risk.

NOTE: If your Module has already been configured for use as a wireless modem, skip to the next section. If your Module has *not* been setup for use as a wireless modem, perform the following procedure:

1. From your PC, click on the Windows **START** button.
2. Select **SETTINGS**.
3. Open **CONTROL PANEL**.
4. Open **MODEMS**.
5. Click on **ADD...** from Modems Properties window.
6. Select **"Don't detect my modem; I will select it from a list."**
7. Click on **NEXT**.
8. Select **Standard Modem Types for Manufacturers** and **Standard 19200 bps Modem for Models**.
9. Click on **NEXT**.
10. Select the correct COM port and Click on **NEXT**.
11. Click on **FINISH**. Close all applications and restart your PC.
12. Once your PC restarts, open **CONTROL PANEL** again.
13. Open **MODEMS**.
14. Click on **PROPERTIES**.
15. Verify the following settings are entered:
    > **General Tab**
    > > - Maximum speed = **19,200**
    > **Connection Tab**
    > > - Data bits = **8**
    > > - Parity = **None**
    > > - Stop bits = **1**
16. Click on **ADVANCED...** and ensure that Flow Control = **Hardware (RTS/CTS)**
17. Click **OK**.
18. Click on **CLOSE** to exit the program.

NOTE: For Windows 95 users, the next step requires you to specify the modem type; select "Other" (not PCMCIA card).

Your Module is now ready to function as a wireless modem.

wavecom

Using Your Module with Dial-up Networking

Your Module can be used with Dial-Up Networking to access network resources for sending and receiving e-mails or connecting to the Internet. Before you use Dial-Up Networking, be sure that your Module is correctly installed as a standard 19200 modem (See "Setting Up Your Module as a Modem" that Dial-Up Networking is installed and that your network protocols have been properly configured. Consult your Internet Service Provider if you need assistance. The procedures for using Dial-Up Networking may differ; depending on the version of Windows you are running. Follow the instructions for your operating system.

Under Windows 95/98

If you have previously used Dial-Up Networking with another modem under Windows 95 or 98:
1. Launch the Dial-Up Networking application.
2. Select the existing Dial-Up Networking configuration.
3. Right click your mouse and select **Properties**.
4. Select the Standard 19200 Modem and click on **OK**.
5. If you have never used Dial-Up Networking previously with another modem, you need to create a new connection in Windows 95/98.
6. Click **Start**, and then select **Programs**, **Accessories** and **Dial-Up Networking**.
7. Double click on **Make a New Connection**.
8. Enter the connection name.
9. Choose **Standard 19200 Modem** from the **Select a Modem** list (**Select a Device** in Windows 98).
10. Click **Next**.
11. Enter the area code, Module number and country code for the number you wish to dial.
12. Click **Next**.
13. Click **Finish** to complete the connection.

Under Windows NT and 2000

If you have previously used Dial-Up Networking with another modem under Windows NT, you need to select the Wavecom modem.
1. Run Dial-Up Networking.
2. Click **more** on the Dial-Up Networking menu and select **Edit Entry and Modem Properties**.
3. Select the Standard 19200 Modem from the listings and click **OK**.

If you have not previously used Dial-Up Networking with another modem, you will need to create a Module book Entry in Windows NT.
1. Click **Start**, and then select **Programs**, **Accessories**, and **Dial-Up Networking**.
2. Click **New** and follow the instructions provided by the Module book Entry Wizard.
3. Enter the name for the new Module book Entry and click **next**.
4. On the Server Dialog screen, check *only* those items required by your dial-up server, then click **next**.
5. Select the Standard 19200 Modem from the listings and click **next**.
6. Enter the Module number you need to dial to reach your server. If the server has more than one number, click **Alternates** to enter all of them, then click **next**.
7. When you've finished setting up your Module book Entry with the wizard, click **Finish**.
8. Click **more** and select **Edit Module book Entry**.
9. Click the **Server** tab and select the proper type (PPP, Windows NT, Windows 95, Internet, etc.) for your dial-up server. If you are unsure, contact your ISP for more information.
10. Check the box beside the network protocol (such as TCP/IP) used by your dial-up server. If you are unsure, contact your ISP for more information.
11. If you selected TCP/IP as a protocol in Step 10, click on **TCP/IP Settings** and enter the proper specifications. If you are unsure, contact your ISP for more information. Click **OK** when you are finished.
12. If your server requires you to run a login script, click the **Script** tab to enter the required information. If you are unsure, contact your ISP for more information.
13. Click the **Security** tab to specify security information if it is required by your dial-up server.
14. Click **OK** to exit **Edit Module book Entry**.
15. Click **Location** on Dial-Up Networking if you need to change the location from which you are dialing.

You are now ready to use Dial-Up networking to access remote servers with your Module.

wismo

Using Your Module for Faxing

The following section provides information *required* for setting up your fax program and using your Module as a modem to send/receive a fax. Refer to your fax program documentation for specific setup instructions. Note that the Module is defined as a class 2.0 modem.
Verify the following modem properties when setting up your fax program:
1. Baud Rate: **19200 bps** *(default)*
2. Data Bits: **8**
3. Stop Bits: **1**
4. Parity: **None**
5. Flow Control: **Hardware (RTS/CTS)**

Receiving a Fax

Ensure that the WISMO QUIK Q2338 is connected to your PC and is powered **ON**.
In your PC's fax program, you need to setup the **Answer** mode. Click on **RECEIVE** and select one of the following:
- **Automatic Receive** (recommended)
- Manual Receive

Your Module is now ready to receive an incoming fax.

Sending a Fax

To send a fax, refer to your fax program documentation for specific faxing instructions.

Using Your Module for Data File Transfers

The following section provides information *required* for setting up your data transfer program and use your Module as a modem to send/receive a data file. Refer to your data transfer program documentation for specific setup and data transfer instructions.

Sending a Data File

On Your Module:
1. Ensure that the WISMO QUIK Q2338 is connected to your PC and is powered **ON**.
2. Press **[Preferences]** (Soft Key 1).
3. Scroll to **Features** and press **OK**.
4. Scroll to **Data/FAX** and press **OK**.
5. Scroll through the choices using the **Soft Keys** until **Data until Off** is displayed with a check mark.

Refer to your data transfer program documentation for specific instructions on receiving a data file.

On Your PC/Laptop:
1. Start Procomm Plus™ in Data Terminal mode. Refer to the Procomm Plus documentation for specific instructions on how to use their software.
2. Select the COM port matching the serial port that your Module's data cable is connected to.
3. Under **Options> System Options> Modem Connection**, click on the
4. Modem Connection Properties button and verify the settings as noted below:
5. Baud Rate: **19200 bps** *(default)*
   - Data Bits: **8**
   - Stop Bits: **1**
   - Parity: **None**
   - Flow Control: **Hardware (RTS/CTS)**
6. Dial the number you wish to send a file to.
7. After a connection is established, select **Data> Send File**.
8. In the window that appears, locate and select the file you want to send.
9. Click on **OK**. The file transfer will begin.
10. After the file transfer is complete, select **Data> Disconnect**. The call will terminate.

Receiving a Data File

On Your Module:
1. Ensure that the WISMO QUIK Q2338 is connected to your PC and is powered **ON**.
2. .[b6]

On Your PC/Laptop:
1. Start Procomm Plus in Data Terminal mode. Refer to the Procomm Plus documentation for specific instructions on how to use their software.
2. Select the COM port matching the serial port that your Module's data cable is connected to.
   - Under **Options> System Options> Modem Connection**, click on the Modem Connection Properties button and verify the settings as noted below:
   - Baud Rate: **19200 bps** *(default)*
   - Data Bits: **8**
   - Stop Bits: **1**
   - Parity: **None**
   - Flow Control: **Hardware (RTS/CTS)**
3. Dial the number or accept the incoming call from the number from which you will be receiving the file.
4. Select **Data> Receive File**. The file transfer will begin.
5. After the file transfer is complete, select **Data> Disconnect**. The call will terminate.

AT Commands

Transferring data files may require you to use AT commands. The following tables list some of the more common AT Commands, S-Registers, and Basic Action Commands. For more AT commands, refer to your data transfer program documentation[b7].

Description	AT commands	Module	Comments
Module synchro checking	AT+CREG ?	CREG=<mode>, 1	Modem synchronized on the network
		CREG=<mode>, 2	Synchronization lost, re-synchronization attempt
		CREG=<mode>, 0	Network synchronization attempt
Receiving an incoming call		RING	
	ATA		Answer the call
		OK	
Initiate a call	ATD1234;		Don't forget the « ; » at the end for « voice » call
		OK	Communication established
		CME ERROR : 11	PIN code not entered (with +CMEE : 1 mode)
		CME ERROR : 3	AOC credit exceeded or a communication is already established
Initiate an emergency call	ATD112;		Don't forget the « ; » at the end for « voice » call
		OK	
Communication loss		NO CARRIER	
Hang up	ATH		
		OK	
Enter PIN Code	AT+CPIN=1234		
		OK	PIN Code accepted
		+CME ERROR : 16	Incorrect PIN Code
		+CME ERROR : 3	PIN already entered (with +CMEE : 1 mode)
Store the parameters in E2P	AT&W		
		OK	The configuration settings are stored in E2P

[b8][b9]

Caring for Your Module

- Keep your Module clean.
- Keep your Module dry. Humidity and liquids may cause your Module to fail and will corrode the internal circuits.
- Protect your Module from temperature extremes. High temperatures may damage the batteries, shorten the life of electronic components, and warp or melt certain plastics.
- Do not attempt to open or access the internal components of your Module. If your Module is not functioning properly, take it to the point of purchase.
- Do not drop, shake, or handle your Module in a rough manner - it can damage the Module

Cleaning Instructions

1. Turn the power off on your Module prior to cleaning.

NOTE: Do not apply cleaning liquids directly to your Module. Avoid using harsh chemicals, strong detergents, and petroleum-based solvents to clean your Module. Some household cleaners contain chemicals that may damage your Module.

2. Apply the cleaning liquid to a soft cloth or towelette and gently wipe the external surfaces of your Module until it is clean.
3. Let the surfaces dry.
4. Turn the power on.
5. The Module is now ready to use.

Basic Troubleshooting Techniques

The following table describes possible problems and their resolution:

The modem does not answer through the serial link

1. Is the modem correctly powered on?
   - If not, the correct power supply is 4V.
2. Is the serial cable suitable and adjusted in the modem and PC sockets?
   - A suitable cable must follow pin assignment described on figure 6. [b10]Check in particular, that Rx & Tx are properly connected.
3. Check that your communication program is properly configured:
   - Modem factory setting for the character framing are:
   - Data Bits: 8
   - Parity: None
   - Stop Bits: 1
   - The factory setting for baud rate is auto-bauding mode.
4. Does any other program interfere with your communication program (conflict on communication port access)?
   - If yes, close any application likely to interfere (e.g. mouse or printer driver).
5. Issue AT+CMEE=1 to have extended error cause and retry

Cause value	Diagnostic	Hint
0	Phone failure	Call your technical support
3	Operation not allowed	
4	Operation not supported	
10	SIM not inserted	→ Insert the SIM card in the SIM holder of the modem, → If SIM card is inserted, insure that it is properly inserted.
11	SIM PIN required	Enter PIN code
12	SIM PUK required	Enter PUK code (call your network provider if you don't know this code)
13	SIM Failure	Check validity of your SIM card. If SIM damaged, call your network provider
16	Incorrect password	Check the code you entered
17	SIM PIN2 required	Enter PIN2 code
18	SIM PUK2 required	Enter PUK2 code (call your network provider if you don't know this code)
26	Dial string too long	Check your phone number (max 20 digits)
30	No network service	

❑ Is the received signal strong enough?
  ↪ With the AT-Command AT+CSQ check that the received signal (1ˢᵗ parameter of the response) is strong enough to be able to establish a call.

AT+CSQ response (RSSI)		Signal quality
11 to 31	→	Should be sufficient*
0 to 10 and +99	→	Could be insufficient*

* based on general observations.

Service   :   The AT commands manual is avalable on Wavecom web site: http://www.wavecom.com

[b11]

No RF signal

- Verify the Antenna is correctly connected to the Module. Verify the position of the Antenna is in a strong signal location.

The Module does not answer through the serial link

- No or incorrect power is being supplied to the Module. Verify the Power Supply and ON/OFF Switch position.
- The Module is not adequately assembled onto the Interface Board. Verify that proper grounding (ideally solder) is provided.
- The wrong DB-9 connector is being used. Verify that the DATA Port is connected to the controlling PC.
- The terminal emulator application, HyperTerminal for example, is not correctly configured for the Module. Verify the Baud rate. It is possible that the Module has been configured for a different default Baud rate, so it may be necessary to try different rates in HyperTerminal.

No audio

- The wrong Audio Path has been selected. Try the other Audio Jack, or issue the AT Command to verify/select the correct path.
- The SNGL/DIFF Jumper is not correctly installed. This only affects the Headset Audio Path.