

## **WAVECOM FAQs**

### **What communication software can I use to test the module/modem ?**

You can use any terminal emulation software such as " MS Hyper Terminal " under Windows (menu Accessories).

The configuration to set on the communication software is :

- 8 bits / No Parity / 1 Stop bit
- 9600 bps depends of the GSM engine configuration (9600bps by default on Wismo2C)
- hardware flow control

Don't forget to select the COM port on which you have connected the module/modem to.

How can I see the actual configuration of the Wismo modem?

Use AT&V command.

### **What is the default configuration of the module/modem ?**

Default configuration of the main services:

- serial speed : autobauding or 9600 bps (autobauding for a Mono band product : WISMO1 and 9600 for a Dual band product: WISMO2C)
- data transmission speed : autobauding
- SMS mode: text

(this default configuration might change from a product to another one and it is likely to change without prior notice from Wavecom, see AT commands manual for more details)

### **What is the init string for the module/modem?**

There is no specific INIT STRING needed for the Wavecom module/modem

### **Why do I get faulty characters under my communication software (under HyperTerminal for ex.)?**

Check if the default settings (the serial speed in particular) of the terminal program match with the serial configuration of the module/modem.

### **When I type AT+I3 , I receive an "ERROR" message.**

The proper command you probably want to do is AT+I3. (That's the letter "I" not the number 1.) It is used to have the Module/modem report the EEPROM version. AT+I3 is not a proper command for a module / modem. (Please refer to the AT Command interface document). Since the firmware release V320, the (AT) IO, I3, I4, I5, I6 and I7 commands are available. You can also use the AT+CGMR command : AT+I3 and AT+CGMR are equivalents.

### **How can I find out which version of firmware is installed on my module/modem?**

Use the AT+CGMR command.

### **Can the module/modem work with Windows 3.x, Windows 95, Windows 98 or Windows NT?**

The module/modem can work with any operating system but no drivers are provided by Wavecom. Nevertheless, you can try the " Standard 9600 bps modem " driver (available under Windows).

### **How do I install the module/modem in Windows 3.1?**

No driver is available for Wavecom module / modem under Windows 3.1

However some applications (tools) using our product, provide a proprietary driver

### **Use of the DTR**

The DTR signal can be used to drop a call and / or issue a call (see the AT%D and AT&D commands). In AT&D1 configuration, a drop in DTR can be used to switch the module from Online mode to Command mode during a data communication.

**Use of RI**

There are 2 modes available on the Wismo dualband platform for the RI output:

- 1- Pulse in incoming calls
- 2- Pulse in every unsolicited message from the network

In the first mode, that can be used to save power (microprocessor and display in sleep mode until a pulse on RI is detected

**What are the RS232 signal required to drive the Wavecom module/modem ?**

All the RS232 signals are required to properly operate the Wavecom module / modem : Rx, Tx, RTS, CTS, DTR, DSR, DCD, RI, GND.

**What if I don't use the hardware flow control (RTS/CTS) ?**

You might lose data, in particular if you are using a serial rate higher than the data transmission rate.

**What is the procedure to set my module/modem connection speed ?**

For the serial speed, use AT+IPR=<b>

where <b> is the baud rate (from 2400 to 115200 bps) - see the AT commands manual for further details

For the DATA transmission speed (over the GSM air interface), use AT+CBST=<B>

where <B> is the baud rate (from 2400 to 9600 bps) - see the AT commands manual for further details

To store your new settings, use AT&W

**What is a Bearer Service ?**

A Bearer Service is a telecommunication service providing the capability of transmission of signals between access points (called user-network interfaces in ISDN).

**When typing AT commands I've got strange characters displayed under Hyper Terminal.**

This is probably due to a mismatch between the Hyper Terminal serial speed settings and the module/modem serial speed. Check the module/modem serial speed with AT+IPR? Then, check your Hyper Terminal serial configuration.

If the module/modem is in AUTOBAUDING mode (AT+IPR ? answers " 0 "), you should type AT commands in UPPER CASES ( only with Firmware release inferior to 4.10 software version ).

Note: When the modem is in "download mode" after keying AT+WDWL , just after you will see appear the dummy characters: \$\$\$\$

**Is the Wavecom modem/module able to drive any type of SIM cards ?**

It depends on the products.

The latest generations of Wavecom (dualband version) devices are compatible with 3V SIMs only (in terms of electrical interface). Nevertheless, it is possible to add an external level shifter driven by the modem/module to operate 5V SIMs. An Application Note is already available for implementation of a 5V level shifter

**What is the rate of 5V SIM cards on the market ?**

This is difficult to estimate. As an indication, the main SIM cards suppliers have been producing 3V SIM cards for more than 3 years now (last update : 27/03/00

**AT+CPIN? answers with ERROR.**

Activate the extended error report (with AT+CMEE=1) to get the error code and check the error cause in your AT commands manual. Possible causes: SIM or SIM holder not properly inserted, SIM failure, defective SIM card reader, SIM not recognised (5V SIM with a modem/module compatible with 3V SIMs only. You can also activate the +WIND unsolicited by keying AT+WIND=1 for example. This command in this case of use gives the indications of a physical change on the SIM presence pin from connector meaning SIM inserted , SIM removed. Check the error code returned in the AT commands manual.

**Can I lock my terminal on a specific SIM card?**

Yes, you can use the SIM Lock facility using the AT+CLCK command. Since the 4.20 Firmware

version , you have a specific Wavecom command which allows to personalize a ME on a specific operator. (check your AT commands manual for more details).

### **Why can't I access the SIM entries straight after powering up the Wavecom unit ?**

Just after the power up, one of the first thing a GSM unit does it to read the SIM entries and to store them in the GSM unit memory to accelerate further future accesses to SIM informations. This initialisation is not a specific behaviour of Wavecom's units, it is general. All GSM units proceed the same way. You can for example on your own GSM phone try to access an entry in the phonebook straight after having switched ON your mobile phone, it will tell you either "wait" or "try later" or "not yet available". The time to wait for is completely SIM dependent. It lasts longer with SIMs with higher storage capacities. Some "state of the art" SIM card are coming on the market with 32KB capacity. Without "rapid initialisation" process it can lasts up to more than 1 minute before SIM informations are accessible.

### **I'm not able to make a call with my Wavecom module/modem.**

Check if the LED is flashing (the LED is only available on the modem)

Check that you are synchronised on the network with AT+CREG?

If yes, the answer should be +CREG : x,1 or +CREG : x,5

If not :

- check you have properly inserted a SIM card and that you have entered the correct PIN code (for this AT+CPIN? Should answer +CPIN : READY)
- check the signal level with AT+CSQ? (should answer +CSQ : , with RxLev preferably > 10). In case of weak signal level, check your antenna (connection and band) and your network coverage.
- check the status of the "visible" networks with AT+COPS?
- Check the status of the locks (SIM lock, network lock,...) with the AT+CLCK? Command.
- check your power supply (see questions on power supply requirements)

If you are synchronised on the network :

- check you have the appropriate subscription with your network provider (for example, DATA calls require to subscribe to a specific DATA service)
- for a VOICE call, check that you have issued ATD ; (don't forget the " ; ")
- check the status of the Call Barring facility with the AT+CLCK (outgoing call might be barred)
- use AT+CEER to get the error cause and check the meaning (network busy, etc) in the AT commands manual

### **How can I know if I am registered ?**

As an user, you can see the LED way of blinking. If it is blinking slowly, it means the GSM unit is registered. As an application, you must send the command AT+CREG?, the GSM unit answers with +CREG: x, . Where x is either 0 or 1 and have no meaning about the registration status and gives the status of registration. Please compulse the AT-Command documentation for detailed information regarding this command.

### **How can I know on which Network the GSM unit is registered on ?**

Using the command AT+COPS? the modem answers with the code of the operator on which it is currently synchronised (not necessarily registered, because it could be synchronised on that Network in the emergency mode). Also, using the command +WOPN, there is a possibility to compute the name of the Operator (in alphanumeric format) based on the code answered by the command +COPS . Please compulse the AT-Command documentation for detailed information regarding these command.

### **How do I get the caller ID ?**

To activate the Caller ID presentation enter AT+CLIP=1.

Assuming that the Caller ID service has been activated both by the network provider and on the module/modem, the ID will be passed through the module/modem interface.

You could use also +CLCC (List Current Calls) command to list all IDs.

### **How can I know if the remote has answered the call?**

Software solution :

After sending the ATD command, the module/modem returns " OK " (or " CONNECT ") only when the remote party has answered. You can also use the AT+CPAS or AT+WIND commands. For their

use, please refer to the AT Command manual.

+CLCC command allows to know the state of a call (dialling, alerting, active ...).

Hardware solution :

If you issue a data call, you can use the DCD signal.

### **How can I make a VOICE call ?**

Check that you are properly registered on the network with AT+CREG?

Then, issue ATD ; (don't forget the " ; "). If the GSM engine is configured in automatic dialling (AT%D1;), a drop of the DTR signal will create a voice call. The number called is in the first location of ADN (SIM phonebook).

### **How Can I hang up a call?**

Use of ATH and DTR in AT&D2 mode.

### **How can I make a DATA call ?**

Check that you are properly registered on the network with AT+CREG?

Set your desired DATA rate and modulation using AT+CBST= (see AT commands manual for further details).

Then, issue ATD .

If the GSM engine is configured in automatic dialling (AT%D1;), a drop of the DTR signal will create a data call. The number called is in the first location of ADN (SIM phonebook).

### **What are the Transparent and Non-Transparent modes ?**

With the Transparent (T) mode, the module/modem transmits DATA over the GSM air interface with no guarantee that the data frames are properly received.

With the Non Transparent mode (NT) the module/modem uses the RLP (Radio Link Protocol) to secure the transmission. The RLP will detect any data corruption and manage any necessary repetition of the data. For this reason, the NT transmission might be slower than in T mode under poor radio conditions.

### **Why can't my module/modem connect to the desired speed (set with AT+CBST) ?**

The connect speed is negotiated between both the calling and the remote modem. This is done through the network IWF (Interworking Function).

It might be that the remote modem or the network does not support the configuration you have set (e.g. some networks do not support 1200 bps). For the settings of the AT+CBST command, please refer to the AT command manual.

### **How can I send/receive a fax with the Wavecom module/modem ?**

The Wavecom module/modem has been qualified with the following FAX applications only:

Delrina Win Fax, MS Win Fax, but it should also work with other FAX applications as well.

To configure these applications, please check the Wavecom AT commands manual (FAX section).

### **How do I switch off my module/modem properly?**

To properly switch off your module/modem, you have to use the AT+CPOF command (or AT+CFUN=0) prior to any hardware power off. This command will deregister the module/modem from the network and properly stop the firmware.

Please note that without following this procedure you might expose your device to degradation (possible corruption of critical parameters).

### **I cannot hear or talk to the distant party once the call is established.**

Insure your headset/handset is properly plugged in.

Check the audio setting of the module/modem (AT+VGT/VGR, SIDET, SPEAKER, CMUT).

In particular for the Wavecom modem, use AT+SPEAKER=1 to select the appropriate audio interface.

### **Is the Wavecom module/modem capable of Echo Cancellation ?**

It depends on the products. On the latest generation of modules/modems, an Echo Cancellation AND Noise Reduction has been implemented is available through the AT+ECHO command (see the AT

commands manual).

### **How can I adjust the audio gains ?**

You can adjust the transmit (microphone) gain with the AT+VGT command and the receive (speaker) gain with the AT+VGR command. Moreover, in order to tune the microphone in the optimum configuration, a command (AT+WSVG) has been developed to select a Controller Gain in order to select different gain values. The AT+VGR command can be used during the outgoing call procedure. So in case of unplug announcements, volume can be increased.

### **What is the interest of the PDU mode?**

In PDU mode, a complete SMS message including all header information is passed as a binary string (in hexadecimal format, so only this set of characters is allowed : "0","1",..., "A","B",..., "F"). PDU mode allows to send special data formats (such as smart messaging) that TEXT mode could not. In PDU, all SMS parameters are managed by the user, so you could send all types of short message.

### **I receive the +CMS ERROR : 512 when sending Short Messages from my modem to another modem.**

The GSM TS 04.08 specifies that if an incoming SMS arrives when trying to send an SMS, the outgoing SMS could be rejected.

### **How to manage the SMS status report ?**

The aim of the status report is to convert a report from the Service Center to the mobile.

AT+CNMI=0,1,1,1,0

OK

This to allow +CDS indications.

AT+CSMP=33,167,0,0

OK

This to set SRR to 1 (check AT commands specifications for more details). Also the SMS status report depends on networks. Some networks don't support this feature.

### **How to send an SMS in text mode ?**

Select the text mode by AT+CMGF=1 you can obtain more result codes informations with the command AT+CSDH=1.

Check that your service center address is correct, by using the command AT+CSCA?

You have just to use the command :

AT+CMGS = " 0674856332"

> write your message type simultaneously : CTRL Z

+CMGS:44

OK

A short message is sent at destination address 0674856332 with the text "write your message" .

### **I can't send a SMS in PDU mode.**

Check if you are in PDU mode with the AT+CMGF command.

If not, run AT+CMGF=0

If you experience some problems to write the message in PDU mode, please follow this procedure to have an example :

- Run the AT+CGMF=1 command (text mode)
- Write your SMS in text mode using the AT+CMGW command (see AT command manual)
- Run the AT+CGMF=0 command (PDU mode)
- Read the SMS with the AT+CGMR command. (see AT command manual)

For more details do not hesitate to contact your supplier.

### **What are the character set tables supported ?**

The character set tables supported are UCS2 , PCCP 437 , Hexadecimal mode, Custom

### **In which circumstances do I get +CMS ERROR : 513 ?**

There are 3 possible causes for getting a +CMS ERROR : 513

- the MS loses the radio link (or the network requests an RR disconnect)

- the MS does not receive the acknowledge from the network (CP\_ACK) about 28s after the transmission of the Short Message data (CP\_DATA)
- the MS does not receive the acknowledge from the network (CP\_DATA(RP\_ACK)) about 42s after the channel establishment request

### **In which circumstances do I get +CMS ERROR : 514 ?**

This error is sent by the network when the Service Center Address is wrong, or when the Destinary address is wrong. This error means that the SMS has been actually sent by the module (well formatted) but it has been refused by the network (the remote number is not a GSM one, the Service Center is wrong, the service is not available, DCS not supported ...)

-> the customer should then check the information send in the SMS.

### **What is the " Message Reference " ?**

The Message Reference is a number used to identify a Short Message. The value is coded on one byte (then with values from 0 up to 255). When the value 255 is reached, the next MR is automatically set to 0 (cyclic numbering). Further details are available in the GSM TS 07.05.

### **How many SMS per minute is the Wavecom GSM unit able to send ?**

It is Network and environment dependant.

You can find hereafter an indicative value valid for the following Network and environment conditions:

- RSSI (Network signal) is at least 23 (first value of the answer to the command +CSQ);
  - Network is not overlsted;
  - Network SMS storage capacity allows at least 40 SMS for the subscription being used;
  - No Status Report requested;
  - the MS (Mobile Station) is not executing a handover (changing to an other cell)
- 12 SMS per minute.

Of course this value changes with the change of any of the above mentionned conditions

### **How many SMS per minute is the Wavecom GSM unit able to receive ?**

It is Network and environment dependant but it also depends on the way the modem is configured for the SMS reception and on the storage class the SMS are sent with.

You can find hereafter an indicative value valid for the following Network and environment conditions:

- RSSI (Network signal) is at least 21 (first value of the answer to the command +CSQ);
- Network is not overlsted;
- Network SMS storage capacity allows at least 10 SMS for the subscription being used;
- No Status Report requested;
- the MS (Mobile Station) is not executing a handover (changing to an other cell);
- the storage class is not 2 (SIM specific);
- +CSMS is set to 0 (zero);
- TE (Terminal Equipment) SMS storage capacity allows at least 40 SMS;
- +CNMI is set as follows: +CNMI= 2, 3, 0, 0, 1 or in an equivalent way

14 SMS per minute.

Of course this value changes with the change of any of the above mentionned conditions.

### **Where can I get a complete list of the Wavecom AT commands ?**

To get the complete Wavecom AT commands manual, you can get it from the Wavecom web site, Customer Support section (reserved to Wavecom direct customers only) or you can get it from your usual supplier.

### **How to enable unsolicited AT commands ?**

We can consider 6 types of unsolicited messages: - USSD : AT+CUSD=1 allows USSD network notifications : example: +CUSD: 2

- Incoming calls : AT+CLIP=1 allows more informations about incoming calls. Number indication depends on network : example: +CLIP: "28240785",129

AT+CRC=1 enables a more detailed ring indication , for example +CRING: VOICE

- Signal strength : AT+CCED=1,8 is used to get Automatic RxLev indication: example: +CSQ: 22, 99 : the signal strength of the serving cell shall be read every 5 seconds in idle, and every 500 ms in

dedicated mode (in communication). The response will be a +CSQ answer and not a +CCED answer. During 5 seconds when entering dedicated mode, Wavecom's software will answer 99.

- Network registration: AT+CREG=1 sets automatic network registration indication, for example :  
+CREG: 2 : the module is not registered
- Call waiting: AT+CCWA=1 allows more informations about call waiting numbers. Number indication depends on network.
- Outgoing data calls: AT+CR=1 enables the reporting service control  
AT+DR=1 enables the V42 bis data compression report.

### **Some AT commands answer with ERROR. How can I get more details on the problem?**

Activate the extended error report with the AT+CMEE=1 command and retry the faulty command. Once you get the error code, check the cause in your AT commands manual.

### **Is there any interrupt command ?**

The AT+WAC command is designed to interrupt any AT command.

If you are in a data communication, you have to wait 1s after the last character sent, then you run +++ and then you can send all the AT commands you want. Or using configuration AT&D1, a drop of DTR will switch the GSM engine from Online mode to Command mode.

### **What are the power-supply-requirements for the Wismo module ?**

VBatt nominal is 3.6V with 50mVpp for  $f < 200\text{kHz}$  and with 2mVpp for  $f > 200\text{kHz}$ . For more informations have a look at the "WISMO2C Hardware Specifications" document

### **What are the power-supply-requirements for Wavecom's modems ?**

All WAVECOM external modems can be supplied with a range from 5V to 32V 1 A DC, except the integrated modem WMOi3. The WMOi3 must be powered at 5V +/- 5% , 1 A DC. Voice modems require more power than data only modems. The design specifications for a Voice modem power supply unit is 12V 1A DC. Data only modems need 800mA at 9V DC. However, a power supply designed for such Voice only modems (e.g. 10V 1A DC) should work with both types of modems. All Wavecom's modems are Voice, Data, Fax and SMS capable, thus it is preferable to use a 12V 1A DC power supply.

### **How can I reset my modem ?**

For a software reset you can use the AT+CFUN=0 command (or AT+CPOF) to properly stop the firmware and then use the AT+CFUN=1 command to restart.

For a hardware reset, connect the RESET pin to GND for at least 300ms. When not used, this pin has to be left open.

### **What is the BOOT signal used for ?**

The BOOT signal is used to activate the Non-nominal download mode (to perform a software upgrade with the Backup procedure).

This signal has to be asserted to GND, followed by a hardware reset to switch the device into download mode.

### **Is it possible to upgrade the firmware of my module/modem ?**

The Wavecom module/modem use flash memory technology to store the firmware. It can then be easily upgraded.

For this, you can find all available information about the latest firmware versions and upgrade procedures on the Wavecom web site, Customer Support section (reserved to Wavecom direct customers only) or at your local supplier.

### **Where can I get more info on GSM ?**

The reference book for GSM is :

" The GSM System for Mobile Communications "  
C&SYS - Michel MOULY / Marie-Bernadette PAUTET  
4, rue Elisée Reclus, F-91120 PALAISEAU - France  
fax : +33 1 69 31 03 38

ISBN : 2-9507190-0-7 Visit our Customer Support web site , and you will find a link (GSM information) on the GSM Association site (GSM world)

### **Where can I find updates on the wavecom products ?**

You can get the latest information available from the Wavecom web site. For technical information, check in particular the Customer Support section (reserved to Wavecom direct customers only) or you can contact your local supplier.

### **What is the IMEI number?**

The IMEI number is the International Mobile Equipment Identify of the GSM module . Each MS shall have a unique identity and shall transmit this on request from the PLMN. For details see GSM 02.16 and 03.03

### **Have you antenna references validated with the Wismo module?**

Have a look at these web sites :

ALLGON (<http://www.allgon.com> )

MOTECO (<http://www.moteco.com> )

AMPHENOL (<http://www.amphenol.com> )

GALTRONICS (<http://www.galtronics.com> )

RADIALL / LARSEN (<http://www.larsenantennas.com> )

RANGESTAR (<http://www.rangestar.com> )

### **What is " SIM Tool Kit " ?**

SIM Tool Kit (STK) is a Phase2+ (class 3) feature that allows an application (applet) embedded into a (STK compatible) SIM card to drive\* a mobile terminal. The Wismo dualband supported SIM Tool Kit Class 3.

\* a complete set of primitives is defined to drive the Man Machine Interface or activate services on the terminal. For example, AT+STSF allows to activate, deactivate or configure the SIM Toolkit facilities. AT+STGI allows to Get an item and AT + STGR to read a menu. These AT commands are specifics Wavecom commands.

### **What is " WAP " ?**

WAP stands for Wireless Application Protocol. It is a specific internet protocol that allows mobile terminals to get information from dedicated sites. These WAP sites offer information or services that could easily be handled by small screens mobile terminals. WAP uses SMS or circuit switched technology to transmit data.

### **What is " GPRS " ?**

GPRS stands for General Packet Radio Service. This technology allows charging on the basis of the amount of data sent or received rather than connection time.

### **How is GPRS possible with Wavecom's units ?**

There is a specific command set to handle GPRS communications.

### **What is " UMTS " ?**

UMTS stands for Universal Mobile Telecommunications System. UMTS is a standard for 3rd generation broadband cellular technology. In terms of radio access technology, this standard uses WCDMA.

Because it will support data rates up to 2 Mbps, UMTS will allow a range of mobile multimedia services (web surfing, e-mail, video, etc).

### **My modem is damaged. What can I do ?**

Please contact your usual supplier.

Customer needs to make a failure report.

It is important to know, if:

- a) the modem was defective from the very start ?
- b) does another wavecom modem work fine in the same place ?
- c) did the modem fail at your customer or his end customer ?



- d) how was the failure found ?
- e) system conditions before failure ?
- f) serial number of the modem ?

Wavecom modems are seen as components, not instruments.  
They can't be repaired economically.  
If the part fails at customers incoming test, we can replace the defective part with a new one, if wavecom is satisfied with the information (a-f) and believes that customer has not misused the part (overvoltage, temperature, mechanical...)

### **In which countries is the module/modem certification valid?**

The Wavecom modem has been Full Type Approved. This certification is valid worldwide. Nevertheless, in some countries the local telecom authority or the network operators might require an additional approval to list the product.

### **Acronyms**

See attached document [Acronyms.pdf](#) . For further details, see GSM TS 01.04

### **What are the different phonebooks supported ?**

The available phonebooks are:  
ADN (SIM phonebooks)  
FDN (SIM fix dialling , restricted phonebook)  
MSISDN (SIM awn numbers)  
EN (SIM emergency number)  
LND (combined ME and SIM last dialling phonebook)  
MSD (ME missed calls list)  
ME (ME phonebook)  
MT (combined ME and SIM phonebook)  
LIC (ME received calls list)  
SDN (services dialling phonebook)