

# AT COMMAND SPECIFICATION - WLAN EPA

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## 2 AT command syntax

### 2.1 Command Line Format

Each command line sent from the DTE to the DCE is made up of a prefix, body and terminator. As prefix for the RWEPA AT commands, only "AT" (ASCII 65, 84) and "at" (ASCII 97, 116) can be used. There is no distinction between upper and lower case characters. The body is a string of characters in the range ASCII 032-255. Control characters other than <CR> (carriage return; ASCII 13) and <BS> (back space; ASCII 8) in a command line are ignored.

The terminator is <CR>. Commands denoted with a "\*" character are extended AT commands, i.e. EPA specific AT commands. Multiple commands in the same command line are not supported. Each command has to be terminated by a <CR> before a new command can be sent. A command must not be longer than 300 characters.

A command can either be:

- Read commands without parameters: AT<command>?<CR>
- Write commands without parameters: AT<command><CR>
- Read and write commands with parameters: AT<command>=<parameter1>, <parameter2>, ...<parameterN><CR>

Responses are sent back to the host and can be any of the following:

- Successful final message: <CR><LF>OK<CR><LF>
- A read command will precede the OK response with the read parameters. The form is <CR><LF><command>:<param1>,<param2>,...,<paramN><CR><LF> String results will have "" around them.
- Successful intermediate/final message with parameters follows an OK message in some commands. In these cases the OK message works as a confirm message only. <CR><LF><result\_response>:<parameter1>, parameter2>, ...<parameterN>
- Error message: <CR><LF>ERROR<CR><LF>

### 2.2 Limitations

When a AT command is issued with the store parameter set to 1, all previous values will be stored as well, regardless of whether the previous commands were issued with the store parameter set to 1 or not.

### 2.3 Data Types

The definition of each command specifies the data types used for values associated with the command. There are four different data types:

- String
- Octet String
- Integer
- IP\_Addr
- MAC\_Addr / Bd\_Addr

These are described below:

#### String

A string shall consist of a sequence of displayable characters from the ISO 8859-1 (8-bit ASCII) character set, except for characters "\", "" and characters below 32 (space). A string constant shall be delimited by two double-quote (""") characters, e.g. "Donald Duck". The "\" character is used as an escape character to insert raw bytes in a string. If the double-quote character (""") is to be used within a string, e.g. "My friend "Bono" is a singer", they have to be represented as "\"22". If the back-slash character ("\") is to be used within a string constant, it has to be represented as "\"5C". An empty string is represented by two adjacent delimiters, "".

#### Octet String

An octet string shall consist of an even number of hexadecimal values. Valid values are 0-9, 'a' and 'A'.

#### Integer

An integer value consists of a sequence of characters all in the range {0..9}. An integer can also be represented by as hexadecimal string, e.g. 15 can be written as "0x0000000F", excluding the double-quote characters.

#### IP\_Addr

A valid IP address consists of four integer values separated by dots. Valid range of each integer value is {0..255}. An example IP address is "192.168.0.1", excluding the double-quote characters.

**MAC\_Addr / Bd\_Addr**

A MAC or Bd address consists of a sequence of six values, expressed in two-digit hexadecimal, in sequence. The hexadecimal values are grouped together without delimiters. An example MAC address is "00A0F7101C08", excluding the double-quote characters. The MAC address is an Octet String with a fixed length of 12.

## 3 Standard AT Commands

### 3.1 AT Attention Command

Syntax	Description
AT<CR>	Attention command determining the presence of a DCE, i.e. the Ethernet Port Adapter.

Responses	Description
<CR><LF>OK<CR><LF>	Successful response.
<CR><LF>ERROR<CR><LF>	Error response.

### 3.2 AT\* List Available Commands

Syntax	Description
AT*<CR>	Lists the supported AT commands.

Responses	Description
<CR><LF><cmd1><CR><LF><cmd2><CR><LF>... <CR><LF>OK<CR><LF>	This response is sent to the host for every supported command.
<CR><LF>OK<CR><LF>	Successful response.
<CR><LF>ERROR<CR><LF>	Error response.

### 3.3 AT&F Restore to Factory Settings

Syntax	Description
AT&F<CR>	This command instructs the unit to set all parameters to their defaults as specified by the manufacturer.

Responses	Description
<CR><LF>OK<CR><LF>	Successful response.
<CR><LF>ERROR<CR><LF>	Error response.

### 3.4 AT&F0 Restore to Factory Settings

Syntax	Description
AT&F0<CR>	See description of the AT&F Restore to Factory Settings command.

Responses	Description
<CR><LF>OK<CR><LF>	Successful response.
<CR><LF>ERROR<CR><LF>	Error response.

### 3.5 ATE Echo Off

Syntax	Description
ATE<CR>	Set whether or not the Ethernet Port Adapter shall echo incoming characters.

Responses	Description
<CR><LF>OK<CR><LF>	Successful response.
<CR><LF>ERROR<CR><LF>	Error response.

### 3.6 ATE Echo On/Off

Syntax	Description
ATE<echo_on><CR>	Set whether or not the Ethernet Port Adapter shall echo incoming characters.
ATE?	Read current echo setting.

Parameters	Type	Description
echo_on	integer	0 = Unit does not echo characters during command state and online command state. 1 = Unit echoes characters during command state and online command state.

Responses	Description
<CR><LF>echo_on<CR><LF>OK<CR><LF>	Successful read response
<CR><LF>OK<CR><LF>	Successful response.
<CR><LF>ERROR<CR><LF>	Error response.

### 3.7 ATQ Result Codes On/Off

Syntax	Description
ATQ<result_off><CR>	The setting of this parameter determines whether or not the unit transmits result codes to the DTE. When result codes are being suppressed, no portion of any intermediate, final, or unsolicited result code - header, result text, line terminator, or trailer - is transmitted. Information text transmitted in response to commands is not affected by the setting of this parameter.
ATQ?	Read current result code setting.

Parameters	Type	Description
result_off	integer	0 = Unit transmits result codes. 1 = Result codes are suppressed and not transmitted

Responses	Description
<CR><LF>result_off<CR><LF>OK<CR><LF>	Successful read response
<CR><LF>OK<CR><LF>	Successful response.
<CR><LF>ERROR<CR><LF>	Error response.

### 3.8 ATS2 Escape Character

Syntax	Description
ATS2=<esc_char><CR>	Changes the escape character to esc_char.
ATS2?	Read escape character

Parameters	Type	Description
esc_char	integer	esc_char is the ASCII value of the new escape character. E.g. 47 equals '/'. The default value is '/'.  Note that the escape sequence will be "///". Hence, the character is used three times.

Responses	Description
<CR><LF>esc_char<CR><LF>OK<CR><LF>	Successful read response
<CR><LF>OK<CR><LF>	Successful response.
<CR><LF>ERROR<CR><LF>	Error response.

### 3.9 ATS3 Command Line Termination Character

Syntax	Description
ATS3=<line_term><CR>	Write command line termination character.  This setting changes the decimal value of the character recognized by the DCE from the DTE to terminate an incoming command line. It is also generated by the DCE as part of the header, trailer, and terminator for result codes and information text along with the S4 parameter  The previous value of S3 is used to determine the command line termination character for entry of the command line containing the S3 setting command. However, the result code issued shall use the value of S3 as set during the processing of the command line. For example, if S3 was previously set to 13 and the command line "ATS3=30" is issued, the command line shall be terminated with a CR, character (13), but the result code issued will use the character with the ordinal value 30 in place of the CR.
ATS3?	Read command line termination character.

Parameters	Type	Description
line_term	integer	0...127 (13, CR is default)

Responses	Description
<CR><LF>line_term<CR><LF>OK<CR><LF>	Successful read response
<line_term><LF>OK<line_term><LF>	Successful response.
<CR><LF>ERROR<CR><LF>	Error response.

### 3.10 ATS4 Response Formatting Character

Syntax	Description
ATS4=<term><CR>	Write response formatting character.  This setting changes the decimal value of the character generated by the DCE as part of the header, trailer, and terminator for result codes and information text, along with the S3 parameter.  If the value of S4 is changed in a command line, the result code issued in response to that command line will use the new value of S4.
ATS4?	Read response formatting character.

Parameters	Type	Description
term	integer	0...127 (10, LF is default)

Responses	Description
<CR><LF>term<CR><LF>OK<CR><LF>	Successful read response
<CR><term>OK<CR><term>	Successful response.
<CR><LF>ERROR<CR><LF>	Error response.

### 3.11 ATS5 Response Formatting Character

Syntax	Description
ATS5=<backspace><CR>	Write backspace character.  This setting changes the decimal value of the character recognized by the DCE as a request to delete from the command line the immediately preceding character.
ATS5?	Read backspace character.

Parameters	Type	Description
backspace	integer	0...127 (8, BS is default)

Responses	Description
<CR><LF>backspace<CR><LF>OK<CR><LF>	Successful read response
<CR><LF>OK<CR><LF>	Successful response.
<CR><LF>ERROR<CR><LF>	Error response.

### 3.12 ATS General Settings S Register Manipulation

Syntax	Description
ATS<register>=<value><CR>	Write to a general settings S register.
ATS<register>?	Read from a general settings S register.

Parameters	Type	Description
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register	integer	Any of the registers described below.
value	integer	-2147483648...2147483647 or 0x00000000...0xFFFFFFFF. Valid values for each register is listed below.

Responses	Description
<CR><LF>value<CR><LF>OK<CR><LF>	Successful read response
<CR><LF>OK<CR><LF>	Successful response.
<CR><LF>ERROR<CR><LF>	Error response.

Register	Description
<b>Roaming registers</b>	
1100	RSSI thresholds. This is used by the smart LEDs deciding how to indicate the current RSSI. Default value is 0xD8C9BAA6, giving the following limits: >90 dBm -> 1 LED >70 dBm -> 2 LEDs >55 dBm -> 3 LEDs >40 dBm -> 4 LEDs
1101	Reserved
1102	Reserved
1103	Reserved
1104	Roaming trigger event scheme This is a bitmask telling the device when to initiate roaming. Bit 0: Signal transition from low to high on the digital input Bit 1: Pressing the SMART button Bit 2-31: Reserved
1105	Roaming scheme 0: Connect to name, see connect to name scheme (default) 1: Connect to next. This will simply connect to the next device configured with AT*ADWRL Write Roaming List 2-31: Reserved
1106	Reserved
1107	Maximum connect to name range threshold If this is set, the RSSI value must be higher than this configured value a certain number times before the connection is made. This will decrease the roaming performance, but you can ensure that the client connects to the right remote peer. Possible values: 127...-128
1108	Reserved
1109	Max Inquiry output power
1110	Reserved
<b>Miscellaneous</b>	
1200	Time in seconds before the LEDs is turned off. 0 will disable the feature.
1201	Reserved
1202	Reserved
1203	Disable Link configuration if broadcast
1204	Reserved 0: Use FIFO/DMA 1: Write one byte at a time. This will decrease performance significantly, but could solve rekeying related issues(WPA/WPA2).
1205	Reserved
1206	Reserved

1207	Event Subscriber Protocol Value deciding how events should be sent. 0: disable (default) 1: Messages sent by AT over TCP 2: Messages sent by AT over Layer-2 (mac_address must be specified, using AT*AMESS) 3: Syslog 4 - 255: reserved
1208	Event Subscriber Port / Ethernet type
1209	Wireless Interface Disable 0 = Enable Wireless Interface (default) 1 = Disable
1210	Bridge Cache Timeout Time in seconds before mac address cache table in the bridge throws away an entry.
1211	Bit mask representing SMART LED Mode when smart mode is finished Bit 0: RSSI Bit 1-31: RESERVED
1212	Smart LED Update timeout in seconds
1213	Use User Management 0: disable 1: enable
1214	Smart mode button push functionality 0: Disconnect/connect 1: Toggle ALL LEDs 2: Reset
1215	Smart mode button hold functionality 0: Disconnect/connect 1: Toggle ALL LEDs 2: Reset
1216	External trigger push functionality 0: Disconnect/connect 1: Toggle ALL LEDs 2: Reset
1217	External trigger hold functionality 0: Disconnect/connect 1: Toggle ALL LEDs 2: Reset
<b>Profinet</b>	
1900	Reserved
1901	Reserved
1902	Profinet prioritization: 0: Disable (default) 1: Enable
1903	Reserved
1904	Ethernet type to prioritize, default 0x8892
<b>WLAN</b>	
3000	WLAN preamble. 0 = Long preamble 1 = Short preamble (default)
3001	WLAN beacon listen interval in units of beacon interval. 0...16 (default 0, listen on all beacons)
3002	WLAN minimum scan time in milliseconds on each channel. 0...65535 (default 50)
3003	WLAN maximum scan time in milliseconds on each channel. 0...65535 (default 200)
3004	WLAN scan type. 0 = Active scan (default) 1 = Passive scan

3005	WLAN lower RSSI trigger value to trigger a disconnect. -90...-15 (default --90)
3006	Averaging depth for the RSSI trigger 0...16 (default 16, 0 means no depth)
3007	WLAN lower lost beacon value to trigger a rescan. The maximum number of lost beacons before a rescan happens. 1...32 (default 30)
3008	Averaging depth for the lost beacon trigger 1...32 (default 32)
3009	Number of milliseconds to wait before WLAN chipset is put into sleep mode after a valid sleep mode condition is detected. Lowering this value will minimize power consumption but affect the system responsiveness in a negative way. 0...2147483647 (default 100)
3010	Ad-hoc timeout. Time before a single unit in an ad-hoc network tries a rescan to find an existing network. Value in milliseconds. 0 = disabled 0...2147483647 (default 5000)
3011	Beacon Period of the BSS Descriptor of the ESS to Join or Start a network in IBSS. Value in milliseconds. 100 (default 100)
3012	The time limit, in units of beacon intervals, after which the Join procedure will be terminated. 1...100 (default 10)
3013	Reserved
3014	Max power (use AT*AMMP)
3015	Max association Power
3016	Data Rate (use AT*AGRTE)
3017	Link Adaption (use AT*AGRTE) 0: Disable 1: Enable
3018	Power save 0: Disable 1: Enable
3019	Regulatory domain 1: World Domain (default) (1...11) 2: FCC (1...11) 3: ETSI (1...13) 4: TELECOM (1...14) <b>Note:</b> After changing the regulatory domain, make sure the channel list is updated according to your preferences as well (AT*AGCL)
3020	DTIM Enable 0: Disable 1: Enable (default)
3021	QoS Enable 0: Disable 1: Enable (default)
3022	Reserved
3023	Reserved
3024	Reserved
4000	Reserved, do not modify
4001	Reserved, do not modify.
4002	Reserved, do not modify.
4003	WPA key input mode. Controls how the inputted WPA key is parsed and interpreted. 0 = Auto (default) 1 = ASCII 2 = Hexadecimal Auto mode will try to determine if it the input is an ASCII key or a HEX key by looking at the contents.

4004	LED scheme. Can be used to disable the status LED output pins. 0 = LED status always on (default) 1 = LED status disabled when module is in stop mode. 2 = LED status always off
4005	Reserved
4006	Reserved
4007	Reserved, do not modify
4008	Ad-hoc timeout. Time before a single unit in an ad-hoc network tries a rescan to find an existing network. Value in milliseconds. 0 = disabled 0...2147483647 (default 6000)
4009	Delayed association. Time to wait before an association attempt is initiated. Value in milliseconds. 0 = no delay 0...2147483647 (default 0)
4010	LLDP send interval. The module will per default send information in LLDP frames with its current setup and peers. This can also be used to stay alive on access points that do not properly wake the module before a disassociation. Value in seconds. 0 = Do not send. 0...2147483647 (default 60)
4011	Reserved
4012	Trigger Scan RSSI Defines at what RSSI level a background scan should be initiated to find a better connection.
5000	Turn on/off TCP keep-alive packets. It is important to understand that sending frequent keep-alive packets usually isn't a good solution to detect dropped connections. Detecting dead links should be done on a higher level, i.e. in the user application protocol. There is a lot of information available on the subject on the web. 0 = TCP keep-alive packets turned off (default) 1 = TCP keealive packets turned on
5001	Time in milliseconds for a TCP connection to be idle before a keep-alive packet is sent. 0...2147483647 (default 7200000 = 2 hours)
5002	Time in milliseconds between keep-alive packets after a keep-alive packet has been lost. 0...2147483647 (default 75000 = 75 seconds)
5003	Number of lost keep-alive packets to wait before a TCP connection is reset. 1...255 (default 9)

## 4 Link Layer Commands

### 4.1 AT\*AGAM Authentication Mode

Syntax	Description
AT*AGAM=<amode>, <store_in_startup_database><CR>	Write authentication mode.
AT*AGAM?	Read authentication mode.

Parameters	Type	Value
Amode	Integer	0 = Open (default) 1 = Shared secret 2 = WPA/WPA2 PSK 3 = LEAP 4 = PEAP 5 = MSCHAPv2
store_in_startup_database	Integer	0: The setting will only be valid for the current power cycle. 1: The Ethernet Port Adapter will remember the setting between power cycles. The settings database in the Ethernet Port Adapter will be updated.

Responses	Description
<CR><LF>*AGAM:<emode> <CR><LF>OK<CR><LF>	Successful read response.
<CR><LF>OK<CR><LF>	Successful response.
<CR><LF>ERROR<CR><LF>	Error response

## 4.2 AT\*AGEM Encryption Mode

Syntax	Description
AT*AGEM=<emode>,<store_in_startup_database><CR>	Write encryption mode
AT*AGEM?	Read encryption mode

Parameters	Type	Value
emode	Integer	0 = None (default) 1 = WEP64 2 = WEP128 3 = TKIP 4 = AES/CCMP
store_in_startup_database	Integer	0: The setting will only be valid for the current power cycle. 1: The Ethernet Port Adapter will remember the setting between power cycles. The settings database in the Ethernet Port Adapter will be updated.

Responses	Description
<CR><LF>*AGEM:<emode> <CR><LF>OK<CR><LF>	Successful read response
<CR><LF>OK<CR><LF>	Successful response
<CR><LF>ERROR<CR><LF>	Error response

## 4.3 AT\*AGSM Security Mode

Syntax	Description
AT*AGSM=<smode>,<store_in_startup_database><CR>	Write security mode. Security mode is a shortcut for setting a combination of the authentication and encryption modes. Sending a "AT*AGSM=3" command is therefore the equivalent of sending the commands: "AT*AGAM=2" and "AT*AGEM=3". If a "AT*AGSM?" command is sent the DCE will return 255 if the current settings does not match any of the predefined values.
AT*AGSM?	Read security mode

Parameters	Type	Value
smode	Integer	0 = No security (default) (AM=0,EM=0) 1 = Shared-WEP64 (AM=1,EM=1) 2 = Shared-WEP128 (AM=1,EM=2) 3 = WPA-PSK-TKIP (AM=2,EM=3) 4 = WPA2-PSK-AES/CCMP (AM=2,EM=4) 5 = LEAP-WPA2 (AM=3,EM=4) 6 = LEAP-WEP128 (AM=3,EM=2)
store_in_startup_database	Integer	0: The setting will only be valid for the current power cycle. 1: The Ethernet Port Adapter will remember the setting between power cycles. The settings database in the Ethernet Port Adapter will be updated.

Responses	Description
<CR><LF>*AGSM:<smode> <CR><LF>OK<CR><LF>	Successful read response
<CR><LF>OK<CR><LF>	Successful response
<CR><LF>ERROR<CR><LF>	Error response

#### 4.4 AT\*AGOM Operational Mode

Syntax	Description
AT*AGOM=<omode>, <store_in_startup_database><CR>	Write operational mode, i.e. if the device is operating in an ad-hoc environment or a predetermined infrastructure with access points.
AT*AGOM?	Read operational mode.

Parameters	Type	Value
omode	Integer	1 = Managed (infrastructure) (default) 2 = Ad-Hoc
store_in_startup_database	Integer	0: The setting will only be valid for the current power cycle. 1: The Ethernet Port Adapter will remember the setting between power cycles. The settings database in the Ethernet Port Adapter will be updated.

Responses	Description
<CR><LF>*AGOM:<omode> <CR><LF>OK<CR><LF>	Successful read response
<CR><LF>OK<CR><LF>	Successful response
<CR><LF>ERROR<CR><LF>	Error response

#### 4.5 AT\*AGFP Encryption/Authentication Key

Syntax	Description
AT*AGFP=<key>,<store_in_startup_database><CR>	Write encryption/authentication key at index 1. This command is a shortcut for AT*AGFPWI=1,<key>,<store_in_startup_database>.

Parameters	Type	Value
key	String	Any string value
store_in_startup_database	Integer	0: The setting will only be valid for the current power cycle. 1: The Ethernet Port Adapter will remember the setting between power cycles. The settings database in the Ethernet Port Adapter will be updated.

Responses	Description
<CR><LF>OK<CR><LF>	Successful response
<CR><LF>ERROR<CR><LF>	Error response

#### 4.6 AT\*AGFPWI Write Encryption/Authentication Key (with Index)

Syntax	Description
AT*AGFPWI=<keyindex>,<key>,<store_in_startup_database><CR>	Write encryption/authentication key.

Parameters	Type	Value
keyindex	Integer	1...4
key	String	Any string value
store_in_startup_database	Integer	0: The setting will only be valid for the current power cycle. 1: The Ethernet Port Adapter will remember the setting between power cycles. The settings database in the Ethernet Port Adapter will be updated.

Responses	Description
<CR><LF>OK<CR><LF>	Successful response
<CR><LF>ERROR<CR><LF>	Error response

#### 4.7 AT\*AGAFP Active Encryption/Authentication Key

Syntax	Description
AT*AGAFP=<keyindex>,<store_in_startup_database><CR>	Write active encryption/authentication key.
AT*AGAFP?	Read active encryption/authentication key.

Parameters	Type	Value
keyindex	Integer	1...4 (1 default)
store_in_startup_database	Integer	0: The setting will only be valid for the current power cycle. 1: The Ethernet Port Adapter will remember the setting between power cycles. The settings database in the Ethernet Port Adapter will be updated.

Responses	Description
<CR><LF>*AGAFP:<keyindex><CR><LF>OK<CR><LF>	Successful read response
<CR><LF>OK<CR><LF>	Successful response
<CR><LF>ERROR<CR><LF>	Error response

#### 4.8 AT\*AGUN Username

Syntax	Description
AT*AGUN=<username>,<store_in_startup_database><CR>	Write the username.
AT*AGUN?	Read the username.

Parameters	Type	Value
username	String	The username to use with authentication servers. See AT*AGAM Authentication Mode.
store_in_startup_database	Integer	0: The setting will only be valid for the current power cycle. 1: The Ethernet Port Adapter will remember the setting between power cycles. The settings database in the Ethernet Port Adapter will be updated.

Responses	Description
<CR><LF>*AGUN:<username> <CR><LF>OK<CR><LF>	Successful read response
<CR><LF>OK<CR><LF>	Successful response
<CR><LF>ERROR<CR><LF>	Error response

#### 4.9 AT\*AGDN Domain name

Syntax	Description
AT*AGDN=<domain>, <store_in_startup_database><CR>	Write the domain name.
AT*AGDN?	Read the domain name.

Parameters	Type	Value
domain	String	The domain to use with authentication servers. See AT*AGAM Authentication Mode.
store_in_startup_database	Integer	0: The setting will only be valid for the current power cycle. 1: The Ethernet Port Adapter will remember the setting between power cycles. The settings database in the Ethernet Port Adapter will be updated.

Responses	Description
<CR><LF>*AGDN:<domain> <CR><LF>OK<CR><LF>	Successful read response
<CR><LF>OK<CR><LF>	Successful response
<CR><LF>ERROR<CR><LF>	Error response

#### 4.10 AT\*AGCFP Certificate Fingerprint

Syntax	Description
AT*AGCFP=<fingerprint>, <store_in_startup_database><CR>	Write the Certificate Fingerprint.
AT*AGCFP?	Read the Certificate Fingerprint.

Parameters	Type	Value
fingerprint	Octet String	20 bytes octet string representing the fingerprint. (quotes (")) shall not be used)
store_in_startup_database	Integer	0: The setting will only be valid for the current power cycle. 1: The Ethernet Port Adapter will remember the setting between power cycles. The settings database in the Ethernet Port Adapter will be updated.

Responses	Description
<CR><LF>*AGCFP:<fingerprint> <CR><LF>OK<CR><LF>	Successful read response
<CR><LF>OK<CR><LF>	Successful response
<CR><LF>ERROR<CR><LF>	Error response

#### 4.11 AT\*AGSSID SSID

Syntax	Description
AT*AGSSID=<ssid>,<store_in_startup_database><CR>	Write SSID of the access point.
AT*AGSSID?	Read SSID of the access point.

Parameters	Type	Value
ssid	String	Any string value (max length 32 bytes)
store_in_startup_database	Integer	0: The setting will only be valid for the current power cycle. 1: The Ethernet Port Adapter will remember the setting between power cycles. The settings database in the Ethernet Port Adapter will be updated.

Responses	Description
<CR><LF>*AGSSID:<ssid><CR><LF>OK<CR><LF>	Successful read response
<CR><LF>OK<CR><LF>	Successful response
<CR><LF>ERROR<CR><LF>	Error response

#### 4.12 AT\*AGRSS RSSI Value

Syntax	Description
AT*AGRSS?	Read RSSI value of the connection. ERROR is returned if the module is not connected.

Parameters	Type	Value
rss	Integer	RSSI value. -128...10 where value is dBm value. If no connection is established, the response is an error response.

Responses	Description
<CR><LF>*AGRSS:<rss><CR><LF>OK<CR><LF>	Successful response
<CR><LF>ERROR<CR><LF>	Error response

#### 4.13 AT\*AGCH Channel Number

Syntax	Description
AT*AGCH=<ch_no>,<store_in_startup_database><CR>	Write channel number to use.
AT*AGCH?	Read channel number in use

Parameters	Type	Value
ch_no	Integer	0 = Auto (default) 1...11, 1...13, or 14 depending on the channel list (AT*AGCL)

store_in_startup_database	Integer	0: The setting will only be valid for the current power cycle. 1: The Ethernet Port Adapter will remember the setting between power cycles. The settings database in the Ethernet Port Adapter will be updated.
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Responses	Description
<CR><LF>*AGCH:<ch_no> <CR><LF>OK<CR><LF>	Successful read response
<CR><LF>OK<CR><LF>	Successful response
<CR><LF>ERROR<CR><LF>	Error response

#### 4.14 AT\*AGCL Channel List

Syntax	Description
AT*AGCL=<ch1>,<ch2>,<ch3>,<ch4>,<ch5>,<ch6>,<ch7>,<ch8>,<ch9>,<ch10>,<ch11>,<ch12>,<ch13>,<ch14>,<store_in_startup_database><CR>	Write channel number to use.
AT*AGCH?	Read channel number in use

Parameters	Type	Value
ch#	Integer	0 = No more channels 1...11, 1...13, or 14 depending on regulatory domain setting (ATS3019)
store_in_startup_database	Integer	0: The setting will only be valid for the current power cycle. 1: The Ethernet Port Adapter will remember the setting between power cycles. The settings database in the Ethernet Port Adapter will be updated.

Responses	Description
<CR><LF>*AGCL:<ch1>,<ch2>,...,<ch14>	Successful read response
<CR><LF>OK<CR><LF>	
<CR><LF>OK<CR><LF>	Successful response
<CR><LF>ERROR<CR><LF>	Error response

#### 4.15 AT\*AGSCAN

Syntax	Description
AT*AGSCAN?	Scan the surroundings for networks. The command will return 0...48 networks in the immediate surroundings, then return OK.
AT*AGSCAN=<ssid>,<channel>	Scan the surroundings for networks with specific SSID on a specified channel

Parameters	Type	Value
bssid	MAC_Addr	The MAC address of the access point
op_mode	Integer	1 = Infrastructure2 = Ad-hoc
ssid	String	The SSID name of network
channel	Integer	The channel the network uses
rsi	Integer	Signal strength value for the network

encryption	Integer	0 = No encryption 1 = WEP 2 = WPA 3 = WPA2/RSN
information_element	String	Hexadecimal string with the information element for WPA and RSN networks. Will not be present with WEP networks or networks without encryption.

Responses	Description
<CR><LF>*AGSCAN:<bssid>, <op_mode>, <ssid>, <channel>, <rssi>, <encryption>, <information_element> <CR><LF>OK<CR><LF>	Successful read response
<CR><LF>ERROR<CR><LF>	Error response

#### 4.16 AT\*AGRTE Data Rate and Link Adaptation

Syntax	Description
AT*AGRTE=<data_rate>, <link_adaptation>, <store_in_startup_database><CR>	Write data rate and link adaptation settings.
AT*AGRTE?	Read current data rate and link adaptation settings.

Parameters	Type	Value
data_rate	Integer	1 = 1Mbit 2 = 2Mbit 3 = 5.5Mbit 4 = 6Mbit 5 = 9Mbit 6 = 11Mbit 7 = 12Mbit 8 = 18Mbit 9 = 24Mbit (default) 10 = 36Mbit 11 = 48Mbit 12 = 54Mbit
link_adaptation	Integer	0 = Link adaptation off. The set data_rate will always be used. 1 = Link adaptation on. The data_rate used will automatically be adjusted depending on the operation environment. Maximum rate used will be data_rate (default).
store_in_startup_database	Integer	0: The setting will only be valid for the current power cycle. 1: The Ethernet Port Adapter will remember the setting between power cycles. The settings database in the Ethernet Port Adapter will be updated.

Responses	Description
<CR><LF>*AGRTE:<data_rate>, <link_adaption> <CR><LF>OK<CR><LF>	Successful read response
<CR><LF>OK<CR><LF>	Successful response
<CR><LF>ERROR<CR><LF>	Error response

## 5 Network Layer Commands

### 5.1 AT\*ANIP IP Settings

Syntax	Description
AT*ANIP=<ip_addr>,<netmask>,<gw>,<store_in_startup_database><CR>	Write IP address and related information. The information set by this command will not be valid until after the module is restarted. The AT*ANIP? Command will therefore return the old IP settings until you restart the module.
AT*ANIP?	Read IP address and related information currently in use.

Parameters	Type	Value
ip_addr	IP_Addr	IP address for the device (default 192.168.0.99)
netmask	IP_Addr	Netmask for the device (default 255.255.0.0)
gw	IP_Addr	The IP address of the gateway (default 192.168.0.1)
store_in_startup_database	integer	0: The setting will only be valid for the current power cycle. 1: The Ethernet Port Adapter will remember the setting between power cycles. The settings database in the Ethernet Port Adapter will be updated.

Responses	Description
<CR><LF>*ANIP<ip_addr>,<netmask>,<gw><CR><LF>OK<CR><LF>	Successful read response.
<CR><LF>OK<CR><LF>	Successful response
<CR><LF>ERROR<CR><LF>	Error response.

### 5.2 AT\*ANDHCP DHCP Activation

Syntax	Description
AT*ANDHCP=<dhcp_mode>,<store_in_startup_database><CR>	Activate/deactivate DHCP. If activated, this will take precedence over settings made with AT*ANIP.
AT*ANDHCP?	Read the current DHCP setting

Parameters	Type	Value
dhcp_mode	integer	0 = Off, use static IP address (default) 1 = On, Acquire an IP address using DHCP
store_in_startup_database	integer	0: The setting will only be valid for the current power cycle. 1: The Ethernet Port Adapter will remember the setting between power cycles. The settings database in the Ethernet Port Adapter will be updated.

Responses	Description
<CR><LF>*ANDHCP:<on><CR><LF>OK<CR><LF>	Successful read response.
<CR><LF>OK<CR><LF>	Successful response
<CR><LF>ERROR<CR><LF>	Error response.

### 5.3 AT\*ANHN Hostname

Syntax	Description
AT*ANHN=<hostname>, < store_in_startup_database ><CR>	Write the hostname used with dynamic DNS.
AT*ANHN?	Read the hostname used with dynamic DNS.

Parameters	Type	Value
hostname	string	Any string (default: "EPA")
store_in_startup_database	integer	0: The setting will only be valid for the current power cycle. 1: The Ethernet Port Adapter will remember the setting between power cycles. The settings database in the Ethernet Port Adapter will be updated.

Responses	Description
<CR><LF>*ANHN:<hostname> <CR><LF>OK<CR><LF>	Successful read response.
<CR><LF>OK<CR><LF>	Successful response
<CR><LF>ERROR<CR><LF>	Error response.

### 5.4 AT\*ANDNS DNS Settings

Syntax	Description
AT*ANDNS=<dns1>,<dns2>,<store_in_startup_database><CR>	Write the name server information.
AT*ANDNS?	Read the name server information.

Parameters	Type	Value
dns1	IP_Addr	Primary DNS server. If DNS is not used, set this parameter to 0.0.0.0 (default 0.0.0.0).
dns2	IP_Addr	Secondary DNS server. If DNS is not used or if only one server is used, set this parameter to 0.0.0.0 (default 0.0.0.0).
store_in_startup_database	integer	0: The setting will only be valid for the current power cycle. 1: The Ethernet Port Adapter will remember the setting between power cycles. The settings database in the Ethernet Port Adapter will be updated.

Responses	Description
<CR><LF>*ANDNS:<dns1>,<dns2> <CR><LF>OK<CR><LF>	Successful read response.
<CR><LF>OK<CR><LF>	Successful response
<CR><LF>ERROR<CR><LF>	Error response.

## 6 Data Mode Commands

### 6.1 AT\*ADC Connect

Syntax	Description
AT*ADC<CR>	Connect to a previously configured WLAN network.

Parameters	Type	Value
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Responses	Description
<CR><LF>*ADC:<connection_handle>	Successful response.
<CR><LF>OK<CR><LF>	
<CR><LF>ERROR<CR><LF>	Error response.

### 6.2 AT\*ADCP Connect to BSSID

Syntax	Description
AT*ADCP=<BSSID>, <network_type >, <wlan_channel>, <reserved><CR>	Connect to a WLAN network. (Managed mode only)

Parameters	Type	Value
BSSID	Mac_Addr	BSSID of the AP connect to.
network_type	Integer	1 = Managed mode, This is the only mode supported by this command
wlan_channel	Integer	0 = Auto (default) 1...11, 1...13 or 14 depending on regulatory domain setting
reserved	Integer	Ignored, dummy parameter just to be compatible with the Bluetooth spec.

Responses	Description
<CR><LF>*ADCP:<connection_handle>	Successful response.
<CR><LF>OK<CR><LF>	
<CR><LF>ERROR<CR><LF>	Error response.

### 6.3 AT\*ADCPN Connect to name (SSID)

Syntax	Description
AT*ADCPN=<SSID >, <network_type>, <wlan_channel>, <reserved><CR>	Connect to a WLAN network specified by the SSID.

Parameters	Type	Value
SSID	string	SSID of the AP or Ad Hoc unit to connect to..
network_type	Integer	1 = Managed mode 2 = Ad-Hoc
wlan_channel	Integer	0 = Auto (default) 1...11, 1...13 or 14 depending on regulatory domain setting
reserved	Integer	Ignored, dummy parameter just to be compatible with the Bluetooth spec.

Responses	Description
<CR><LF>*ADCPN:<connection_handle>	Successful response.
<CR><LF>OK<CR><LF>	
<CR><LF>ERROR<CR><LF>	Error response.

## 6.4 AT\*ADCC Close Connection

Syntax	Description
AT*ADCC=<connection_handle><CR>	Close an existing network connection.

Parameters	Type	Value
connection_handle	integer	Exists for Bluetooth compatibility. Should always be 1.

Responses	Description
<CR><LF>OK<CR><LF>	Successful response.
<CR><LF>ERROR<CR><LF>	Error response.

## 6.5 AT\*ADRDRP Read Default Remote Peer

Syntax	Description
AT*ADRDRP=<peer_id><CR>	Read the default peer

Parameters	Type	Value
peer_id	Integer	Any value between 0 and the response from AT*ADMMP - 1
address	String	Address to the service on the remote peer. On the form of <protocol>://ipaddr:port. I.e. tcp://192.169.0.1:5130
conn_scheme	Integer	<b>Ignored by the EPA</b> 0 = Unused 1 = Connect on data (Connects when there is something to send, then remains connected) 2 = Always connected (Connects right after power on)
update_on_incoming	Integer	Reserved for future use.
name	String	A string with a user defined name of the peer.

Responses	Description
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<CR><LF>*ADRDRP:<address>, <conn_scheme>, <update_on_incoming>, <name> <CR><LF>OK<CR><LF>	Successful response
<CR><LF>ERROR<CR><LF>	Error response

### 6.6 AT\*ADWDRP Write Remote Peer Information

Syntax	Description
AT*ADWDRP=<peer_id>, <address>, <conn_scheme>, <reserved>, <name>, <store_in_startup_database>	Write information for a remote peer.

Parameters	Type	Value
peer_id	Integer	Any value between 0 and the response from AT*ADMRP - 1
address	String	Address to the service on the remote peer. On the form of <protocol>://ipaddr:port. I.e. udp://192.169.0.1:5130
conn_scheme	Integer	<b>Ignored by the EPA</b> Reserved, use 0
reserved	Integer	Reserved for future use. Use 0
name	String	A string with a user defined name of the peer.
store_in_startup_database	Integer	0: The setting will only be valid for the current power cycle. 1: The Ethernet Port Adapter will remember the setting between power cycles. The settings database in the Ethernet Port Adapter will be updated.

Responses	Description
<CR><LF>OK<CR><LF>	Successful response.
<CR><LF>ERROR<CR><LF>	Error response.

### 6.7 AT\*ADRL Roaming List

Syntax	Description
AT*ADRL?	Read the list of Access Points used for roaming.

Parameters	Type	Value
Index	integer	Position in the roaming list
bssid	Mac_Addr	BSSID of the Access Point.
store_in_startup_database	integer	0: The setting will only be valid for the current power cycle. 1: The Ethernet Port Adapter will remember the setting between power cycles. The settings database in the Ethernet Port Adapter will be updated.

Responses	Description
<CR><LF>*ADAPL:<position>,<bssid >	This response is sent for every AP in the list.

<CR><LF>OK<CR><LF>	Successful response.
<CR><LF>ERROR<CR><LF>	Error response.

## 6.8 AT\*ADRRLL Read Roaming List

Syntax	Description
AT*ADRRLL=<index><CR>	This command reads the BSSID of the selected AP in the roaming list.

Parameters	Type	Value
index	integer	Position in the roaming list.
bssid	Mac_Addr	BSSID of the Access Point.

Responses	Description
<CR><LF>*ADRRLL:<index>,<mac_addr>	Successful read response.
<CR><LF>OK<CR><LF>	
<CR><LF>ERROR<CR><LF>	Error response.

## 6.9 AT\*ADWRL Write Roaming List

Syntax	Description
AT*ADWRL=<index>,<mac_addr>, <store_in_startup_database><CR>	This command writes the BSSID of the AP in the roaming list.

Parameters	Type	Value
index	integer	Position in the roaming list.
bssid	Mac_Addr	BSSID of the Access Point.
store_in_startup_database	integer	0: The setting will only be valid for the current power cycle. 1: The Ethernet Port Adapter will remember the setting between power cycles. The settings database in the Ethernet Port Adapter will be updated.

Responses	Description
<CR><LF>OK<CR><LF>	Successful response.
<CR><LF>ERROR<CR><LF>	Error response.

## 6.10 AT\*ADLNK Read WLAN link status

Syntax	Description
AT*ADLNK?<CR>	Read wlan link status

Parameters	Type	Value
link_status	integer	0: Not associated 1: Associated

bssid	Mac_Addr	BSSID of the Wlan network or N/A if not associated.
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Responses	Description
<CR><LF>*ADLNK:<link_status>,<bssid> <CR><LF>OK<CR><LF>	Successful read response.
<CR><LF>ERROR<CR><LF>	Error response.

## 7 Informational Commands

### 7.1 AT\*AILBA Read Local MAC Address

Syntax	Description
AT*AILBA?<CR>	Reads the MAC Address of the local device.

Parameters	Type	Value
mac_addr	Mac_Addr	Local MAC address.

Responses	Description
<CR><LF>*AILBA:<bd_addr> <CR><LF>OK<CR><LF>	Successful response
<CR><LF>ERROR<CR><LF>	Error message.

### 7.2 AT\*AILVI Local version

Syntax	Description
AT*AILVI?<CR>	This command reads the local version information to the Ethernet Port Adapter.

Parameters	Type	Value
manufacturer	String	Ethernet port adapter manufacturer, example "connectBlue"
spa_sw_version	String	Ethernet port adapter software version, example "1.0.2 [11:32:15,May 14 2007]"
wlan_driver_version	String	WLAN host driver version, example "1.0"
wlan_fw_version	String	WLAN firmware version, example "1.3.15.32"
wlan_hw_manufacturer	String	WLAN hardware manufacturer, example "NXP"

Responses	Description
<CR><LF>*AILVI: <manufacturer>, <spa_sw_version>, <wlan_driver_version>, <wlan_fw_version>, <wlan_hw_manufacturer> <CR><LF>OK<CR><LF>	Successful response
<CR><LF>ERROR<CR><LF>	Error message.

## 8 Miscellaneous Commands

### 8.1 AT\*AMLI Log in

Syntax	Description
AT*AMLI=<password><CR>	Log in to the AT command interface <b>Note:</b> The Use User management S register must be set to enable user management.

Parameters	Type	Value
password	String	A null terminated string of up to 15 bytes

Responses	Description
<CR><LF>OK<CR><LF>	Successful response
<CR><LF>ERROR<CR><LF>	Error message.

### 8.2 AT\*AMLO Log Out

Syntax	Description
AT*AMLO=<log_out><CR>	Log out from the AT command interface

Parameters	Type	Value
log_out	Integer	For a successful log out this shall be 1

Responses	Description
<CR><LF>OK<CR><LF>	Successful response
<CR><LF>ERROR<CR><LF>	Error message.

### 8.3 AT\*AMGD General data

Syntax	Description
AT*AMGD=<data><CR>	Write any data, this will be stored between power cycles.
AT*AMGD?<CR>	Read previously written data.

Parameters	Type	Value
data	String	Any 31 bytes long data that should be stored.

Responses	Description
<CR><LF><data><CR><LF> OK<CR><LF>	Successful read response
<CR><LF>OK<CR><LF>	Successful response
<CR><LF>ERROR<CR><LF>	Error message.

## 8.4 AT\*AMPM Power mode

Syntax	Description
AT*AMPM=<power_mode>, <store_in_startup_database><CR>	Write the operational power mode.
AT*AMPM?	Read the operational power mode.

Parameters	Type	Value
power_mode	Integer	1 = Online (default) 2 = Sleep mode 3 = Stop mode
store_in_startup_database	Integer	0: The setting will only be valid for the current power cycle. 1: The Ethernet Port Adapter will remember the setting between power cycles. The settings database in the Ethernet Port Adapter will be updated.

Responses	Description
<CR><LF>*AMPM:<power_mode>	Successful read response
<CR><LF>OK<CR><LF>	
<CR><LF>OK<CR><LF>	Successful response
<CR><LF>ERROR<CR><LF>	Error message.

## 8.5 AT\*AMMP Max Output Power

Syntax	Description
AT*AMMP=<max_power>, <store_in_startup_database><CR>	Write the max power settings
AT*AMMP?	Read max power setting

Parameters	Type	Value
max_power	Integer	Actual dBm. Valid range is between 0...17
store_in_startup_database	Integer	0: The setting will only be valid for the current power cycle. 1: The Ethernet Port Adapter will remember the setting between power cycles. The settings database in the Ethernet Port Adapter will be updated.

Responses	Description
<CR><LF>*AMMP:<max_output_power>	Successful read response
<CR><LF>OK<CR><LF>	
<CR><LF>OK<CR><LF>	Successful response
<CR><LF>ERROR<CR><LF>	Error message.

## 8.6 AT\*AMWS Watchdog Settings

Syntax	Description
AT*AMWS=<reserved1>,<inactivity_timeout>,<reserved3>,<reserved4>,<reset>,<store_in_startup_database><CR>	Write the watchdog settings. The watchdog functionality will disconnect from a remote peer if one of the given conditions are met.
AT*AMWS?	Read the watchdog settings

Parameters	Type	Value
reserved1	Integer	Reserved for future use. Use 0.
inactivity_timeout	Integer	Disconnect WLAN after this long idle time in seconds (default 0) <b>NOT Supported</b>
reserved3	Integer	Reserved for future use. Use 0.
reserved4	Integer	Reserved for future use. Use 0.
reset	Integer	1 Will reset the unit immediately. (Will not store nor return any response)
store_in_startup_database	Integer	0: The setting will only be valid for the current power cycle. 1: The Ethernet Port Adapter will remember the setting between power cycles. The settings database in the Ethernet Port Adapter will be updated.

Responses	Description
<CR><LF>*AMWS:<reserved1>,<reserved2>,<reserved3>,<reserved4>,<reset><CR><LF>OK<CR><LF>	Successful read response
<CR><LF>OK<CR><LF>	Successful response
<CR><LF>ERROR<CR><LF>	Error response

## 8.7 AT\*AMESS Event and Status Subscriber

Syntax	Description
AT*AMESS=<mac_addr>,<ip_addr>,<port>,<protocol>,<store_in_startup_database><CR>	Write Event and Status subscriber.
AT*AMESS? <CR>	Read Event and Status subscriber.

Parameters	Type	Value
mac_addr	MAC_Addr	MAC address of event subscriber.
IP_Addr	IP_Addr	IP address of event subscriber.
port	Integer	Port number of event subscriber 0: use default For Layer-2 events, this must be specified

protocol	Integer	Value deciding how events should be sent. 0: disable (default) 1: Messages sent by AT over TCP 2: Messages sent by AT over Layer-2 (mac_address must be specified, FFFFFFFF means that it will be broadcasted) 3: Syslog 4 - 255: reserved
store_in_startup_database	integer	0: The setting will only be valid for the current power cycle. 1: The Ethernet Port Adapter will remember the setting between power cycles. The settings database in the Ethernet Port Adapter will be updated.

Responses	Description
<CR><LF>*AMESS: <mac_addr>,<ip_addr>,<port>, <protocol><CR><LF>OK<CR><LF>	Successful read response
<CR><LF>OK<CR><LF>	Successful response
<CR><LF>ERROR<CR><LF>	Error message.

### 8.8 AT\*AMSMF SMART Mode (Button) functionality

Syntax	Description
AT*AMSMF=<short_mode>,<long_mode>, <store_in_startup_database><CR>	Write SMART button functionality.
AT*AMSMF? <CR>	Read SMART button functionality.

Parameters	Type	Value
short_mode	Integer	Push functionality 0: Trigger roaming (disconnect/connect) 1: Toggle Leds 2: Soft reset
long_mode	Integer	Hold functionality 0: Trigger roaming (disconnect/connect) 1: Toggle Leds 2: Soft reset
store_in_startup_database	integer	0: The setting will only be valid for the current power cycle. 1: The Ethernet Port Adapter will remember the setting between power cycles. The settings database in the Ethernet Port Adapter will be updated.

Responses	Description
<CR><LF>*AMSMF: <short_mode>,<long_mode><CR><LF>OK<CR><LF>	Successful read response
<CR><LF>OK<CR><LF>	Successful response
<CR><LF>ERROR<CR><LF>	Error message.

## 8.9 AT\*AMSMFL SMART Mode Function List

Syntax	Description
AT*AMSMFL=<smart_mode_1>, <smart_mode_2>,<smart_mode_3>, <smart_mode_4>,<smart_mode_5>, <smart_mode_6>,<smart_mode_7>, <smart_mode_8>,<smart_mode_9>, <smart_mode_10>,<smart_mode_11>,  <smart_mode_12>,<smart_mode_13>,  <smart_mode_14>,<smart_mode_15>,  <store_in_startup_database><CR>	Write sequence of SMART button functionality modes. Example: "AT*AMSMFL=15,2,3,4,5,11,12,0,0,0,0,0,0,0,1" will limit the number of SMART modes to 7. The first mode indicated by the "A" LED will be 15 (see list below), the second, indicated by the "B" LED will be 2 and the third, indicated by "A" and "B", will be 3 and so on. See the product guide for more details.
AT*AMSMFL? <CR>	Read SMART button function list.

Parameters	Type	Value
smart_mode_#	Integer	0: End Smart mode function list 1 - 15 SMART functionality: 1: Exit Smart mode 2: Reset to factory defaults 3: Reset IP settings to factory defaults 4: Wait for Automatic configuration - Ad-Hoc 5: Initiate Automatic configuration - Ad-Hoc 6: Wait for Automatic configuration - Profinet - Ad-Hoc 7: Initiate Automatic configuration - Profinet - Ad-Hoc 8: Wait for Automatic configuration - Managed mode 9: Initiate Automatic configuration - Managed mode 10: Initiate Automatic configuration - Managed mode - wired 11: Configure External wireless 12: Initiate Automatic configuration - Ad-Hoc - Multipoint 13: Reserved 14: Reserved 15: Enable DHCP server 16 - 255: Reserved Default: 15,2,3,4,5,6,7,8,9,10,11,12
store_in_startup_database	integer	0: The setting will only be valid for the current power cycle. 1: The Ethernet Port Adapter will remember the setting between power cycles. The settings database in the Ethernet Port Adapter will be updated.

Responses	Description
<CR><LF>*AMSMFL:<smart_mode_1>,  <smart_mode_2>,<smart_mode_3>, <smart_mode_4>,<smart_mode_5>, <smart_mode_6>,<smart_mode_7>, <smart_mode_8>,<smart_mode_9>, <smart_mode_10>,<smart_mode_11>, <smart_mode_12>,<smart_mode_13>, <smart_mode_14>,<smart_mode_15> <CR><LF>OK<CR><LF>	Successful read response
<CR><LF>OK<CR><LF>	Successful response
<CR><LF>ERROR<CR><LF>	Error message.

## 8.10 AT\*AMSSC SNMP Sys Contact

Syntax	Description
AT*AMSSC=<sys_contact>,<store_in_startup_database><CR>	Write SNMP Sys Contact.
AT*AMSSC? <CR>	Read SNMP Sys Contact.

Parameters	Type	Value
sys_contact	String	Any String up to 32 characters
store_in_startup_database	integer	0: The setting will only be valid for the current power cycle. 1: The Ethernet Port Adapter will remember the setting between power cycles. The settings database in the Ethernet Port Adapter will be updated.

Responses	Description
<CR><LF>*AMSSC: <sys_contact><CR><LF>OK<CR><LF>	Successful read response
<CR><LF>OK<CR><LF>	Successful response
<CR><LF>ERROR<CR><LF>	Error message.

## 8.11 AT\*AMSSL SNMP Sys Location

Syntax	Description
AT*AMSSL=<sys_location>,<store_in_startup_database><CR>	Write SNMP Sys Location.
AT*AMSSL? <CR>	Read SNMP Sys Location.

Parameters	Type	Value
sys_Location	String	Any String up to 32 characters
store_in_startup_database	integer	0: The setting will only be valid for the current power cycle. 1: The Ethernet Port Adapter will remember the setting between power cycles. The settings database in the Ethernet Port Adapter will be updated.

Responses	Description
<CR><LF>*AMSSL: <sys_location><CR><LF>OK<CR><LF>	Successful read response
<CR><LF>OK<CR><LF>	Successful response
<CR><LF>ERROR<CR><LF>	Error message.

## 8.12 AT\*AMSSS SNMP Sys Services

Syntax	Description
AT*AMSSS? <CR>	Read SNMP Sys Services.

Parameters	Type	Value
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sys_services	Integer	Represents the system services defined by SNMP
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Responses	Description
<CR><LF>*AMSSS: <sys_services><CR><LF>OK<CR><LF>	Successful read response
<CR><LF>ERROR<CR><LF>	Error message.

### 8.13 AT\*AMSBN SNMP Basic Name

Syntax	Description
AT*AMSBN=<basic_name>, <store_in_startup_database><CR>	Write SNMP Basic Name.
AT*AMSBN? <CR>	Read SNMP Basic Name.

Parameters	Type	Value
basic_name	String	Any String up to 32 characters
store_in_startup_database	integer	0: The setting will only be valid for the current power cycle. 1: The Ethernet Port Adapter will remember the setting between power cycles. The settings database in the Ethernet Port Adapter will be updated.

Responses	Description
<CR><LF>*AMSBN: <basic_name><CR><LF>OK<CR><LF>	Successful read response
<CR><LF>OK<CR><LF>	Successful response
<CR><LF>ERROR<CR><LF>	Error message.

### 8.14 AT\*AMSBN SNMP Basic Descriptor

Syntax	Description
AT*AMSBND=<basic_descriptor>, <store_in_startup_database><CR>	Write SNMP Basic Descriptor.
AT*AMSBND? <CR>	Read SNMP Basic Descriptor.

Parameters	Type	Value
basic_descriptor	String	Any String up to 32 characters
store_in_startup_database	integer	0: The setting will only be valid for the current power cycle. 1: The Ethernet Port Adapter will remember the setting between power cycles. The settings database in the Ethernet Port Adapter will be updated.

Responses	Description
<CR><LF>*AMSBND: <basic_descriptor><CR><LF>OK<CR><LF>	Successful read response
<CR><LF>OK<CR><LF>	Successful response
<CR><LF>ERROR<CR><LF>	Error message.

## 8.15 AT\*AMSSD SNMP Sys Description

Syntax	Description
AT*AMSSD=<basic_description>,<store_in_startup_database><CR>	Write SNMP System Description.
AT*AMSBD? <CR>	Read SNMP System Description.

Parameters	Type	Value
basic_description	String	Any String up to 32 characters
store_in_startup_database	integer	0: The setting will only be valid for the current power cycle. 1: The Ethernet Port Adapter will remember the setting between power cycles. The settings database in the Ethernet Port Adapter will be updated.

Responses	Description
<CR><LF>*AMSBD: <basic_description><CR><LF>OK<CR><LF>	Successful read response
<CR><LF>OK<CR><LF>	Successful response
<CR><LF>ERROR<CR><LF>	Error message.

## 8.16 AT\*AMSRC SNMP Read Community (Public Community)

Syntax	Description
AT*AMSRC=<community>,<store_in_startup_database><CR>	Write SNMP Public Community.

Parameters	Type	Value
community	String	Any String up to 12 character. The EPA currently only supports 1 community that has both read and write access. <b>This is not used by the EPA</b>
store_in_startup_database	integer	0: The setting will only be valid for the current power cycle. 1: The Ethernet Port Adapter will remember the setting between power cycles. The settings database in the Ethernet Port Adapter will be updated.

Responses	Description
<CR><LF>OK<CR><LF>	Successful response
<CR><LF>ERROR<CR><LF>	Error message.

## 8.17 AT\*AMSWC SNMP Write Community (Private Community)

Syntax	Description
AT*AMSWC=<community>,<store_in_startup_database><CR>	Write SNMP Private Community.

Parameters	Type	Value
community	String	Any String up to 12 characters

store_in_startup_database	integer	0: The setting will only be valid for the current power cycle. 1: The Ethernet Port Adapter will remember the setting between power cycles. The settings database in the Ethernet Port Adapter will be updated.
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Responses	Description
<CR><LF>OK<CR><LF>	Successful response
<CR><LF>ERROR<CR><LF>	Error message.

## 8.18 AT\*AMSEID SNMP Enterprise ID

Syntax	Description
AT*AMSEID?<CR>	Read SNMP Enterprise Id.

Parameters	Type	Value
id	Integer	Integer representing your company

Responses	Description
<CR><LF>*AMSEID: <id><CR><LF>OK<CR><LF>	Successful read response
<CR><LF>ERROR<CR><LF>	Error message.

## 8.19 AT\*AMTL TCP Listener

Syntax	Description
AT*AMTL=<port>,<enable>,<store_in_startup_database><CR>	Enable or disable the TCP listener.
AT*AMTL?	Read TCP listener activation status.

Parameters	Type	Value
enable	Integer	0 = Disables TCP Listener 1 = Enables TCP Listener. When enabled, it will always enter at mode at startup
port	Integer	TCP port to listen for incoming connections
store_in_startup_database	Integer	0: The setting will only be valid for the current power cycle. 1: The Ethernet Port Adapter will remember the setting between power cycles. The settings database in the Ethernet Port Adapter will be updated.

Responses	Description
<CR><LF>*AMTL:<port>,<enable> <CR><LF>OK<CR><LF>	Successful read response
<CR><LF>OK<CR><LF>	Successful response
<CR><LF>ERROR<CR><LF>	Error message.

## 8.20 AT\*AMUR UDP Receiver

Syntax	Description
AT*AMUR=<port>,<enable>,<store_in_startup_database><CR>	Enable or disable the UDP receiver.
AT*AMUR?	Read UDP receiver activation status.

Parameters	Type	Value
enable	Integer	0 = Disables UDP Receiver 1 = Enables UDP Receiver
port	Integer	UDP port to listen for incoming packets
store_in_startup_database	Integer	0: The setting will only be valid for the current power cycle. 1: The Ethernet Port Adapter will remember the setting between power cycles. The settings database in the Ethernet Port Adapter will be updated.

Responses	Description
<CR><LF>*AMUR:<port>,<enable> <CR><LF>OK<CR><LF>	Successful read response
<CR><LF>OK<CR><LF>	Successful response
<CR><LF>ERROR<CR><LF>	Error message.

## 8.21 AT\*AMHL HTTP Listener

Syntax	Description
AT*AMHL=<port>,<enable>,<store_in_startup_database><CR>	Enable or disable the HTTP server.
AT*AMHL?	Read the HTTP server status.

Parameters	Type	Value
enable	Integer	0 = Disables HTTP Listener 1 = Enables HTTP Listener
port	Integer	TCP port to listen for incoming connections
store_in_startup_database	Integer	0: The setting will only be valid for the current power cycle. 1: The Ethernet Port Adapter will remember the setting between power cycles. The settings database in the Ethernet Port Adapter will be updated.

Responses	Description
<CR><LF>*AMHL:<port>,<enable> <CR><LF>OK<CR><LF>	Successful read response
<CR><LF>OK<CR><LF>	Successful response
<CR><LF>ERROR<CR><LF>	Error message.

## 8.22 AT\*AMSR SNMP Receiver

Syntax	Description
AT*AMSR=<port>,<enable>,<store_in_startup_database><CR>	Enable or disable the SNMP receiver.
AT*AMSR?	Read the SNMP receiver status.

Parameters	Type	Value
enable	Integer	0 = Disables SNMP Receiver 1 = Enables SNMP Receiver

port	Integer	UDP port to listen for incoming packets
store_in_startup_database	Integer	0: The setting will only be valid for the current power cycle. 1: The Ethernet Port Adapter will remember the setting between power cycles. The settings database in the Ethernet Port Adapter will be updated.

Responses	Description
<CR><LF>*AMSR:<port>,<enable> <CR><LF>OK<CR><LF>	Successful read response
<CR><LF>OK<CR><LF>	Successful response
<CR><LF>ERROR<CR><LF>	Error message.

### 8.23 AT\*AMLCR Link Config Receiver

Syntax	Description
AT*AMLCR=<eth_type>,<enable>,<store_in_startup_database><CR>	Enable or disable the link configuration receiver.
AT*AMLCR?	Read the Link configuration receiver status.

Parameters	Type	Value
enable	Integer	0 = Disables Link Config Receiver 1 = Enables Link Config Receiver
eth_type	Integer	Ethernet type that will be passed up the AT parser
store_in_startup_database	Integer	0: The setting will only be valid for the current power cycle. 1: The Ethernet Port Adapter will remember the setting between power cycles. The settings database in the Ethernet Port Adapter will be updated.

Responses	Description
<CR><LF>*AMLC:<eth_type>,<enable> <CR><LF>OK<CR><LF>	Successful read response
<CR><LF>OK<CR><LF>	Successful response
<CR><LF>ERROR<CR><LF>	Error message.

### 8.24 AT\*ACEW Configure External Wireless

Syntax	Description
AT*ACEW=<mac_addr>,<enter>,<store_in_startup_database><CR>	Configure and enter External Wireless mode.
AT*ACEW?	Read External Wireless MAC address and mode.

Parameters	Type	Value
mac_addr	MAC_Addr	MAC address to use as External Wireless interface. (Ignored if second parameter != 0)
enter	Integer	0: Configure External Wireless mode (Will issue a reset of the module) 1: Leave External Wireless mode 2: Enter External Wireless mode
Mode	Integer	0: External wireless mode 1: Cable replacement mode
store_in_startup_database	integer	0: The setting will only be valid for the current power cycle. 1: The Ethernet Port Adapter will remember the setting between power cycles. The settings database in the Ethernet Port Adapter will be updated.

Responses	Description
<CR><LF>*ACEW:<mac_addr>,<mode> <CR><LF>OK<CR><LF>	Successful read response.
<CR><LF>OK<CR><LF>	Successful response
<CR><LF>ERROR<CR><LF>	Error message.

## 9 Events

### 9.1 \*ADCPO Connection Up

Event	Description
*ADCPO:<connection_handle>, <network_type>, <mac_addr>, <bssid><CR><LF>	A connection to a remote device has been established.

Parameters	Type	Value
connection_handle	integer	Identifies the connection.
network_type	integer	1: Managed 2: Ad Hoc
Mac_addr	Mac_Addr	Local mac address
BSSID	Mac_Addr	Bssid of the network we are connected to.

### 9.2 \*ADCCO Connection Closed

Event	Description
*ADCCO:<connection_handle>, <reason>, <mac_addr>, <bssid><CR><LF>	A connection to a remote device has been disconnected.

Parameters	Type	Value
connection_handle	integer	Identifies the connection.
Reason	integer	0: Disconnected by command 1: Disconnected by link loss 255: Reason unknown
mac_addr	Mac_Addr	Local MAC address.
Bssid	Mac_Addr	Bssid of the network we were previously connected to.

### 9.3 \*AMDST Digital Signal Transition

Event	Description
*AMDST:<mac_addr><CR><LF>	An external digital signal was detected.

Parameters	Type	Value
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mac_addr	Mac_Addr	MAC address of the device.
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## 9.4 \*AMRSS Low RSSI Warning

Event	Description
*AMRSS:<mac_addr>,<rssi><CR><LF>	The RSSI value is below -70 dBm.

Parameters	Type	Value
mac_addr	Mac_Addr	MAC address of the device.
Rssi	Integer	RSSI value

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 *
 * This file is part of the lwIP TCP/IP stack.
 *
 * Author: Adam Dunkels <adam@sics.se>
 */

```

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