Technology Document

MC2718 AT Command User Manual

Version:V1.1

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Update History

Version	Update section	Type of Revision	author	Release Date
V1.0			Lihongjun Zhangxiaowei	03/10/2010
V1.1		Changed/added/replaced many items	Wanghuan Zhouxianghui Zhangxiaowei	05/24/2010
Bak 1:The update history is added after this document is update. Bak 2:This version only support sprint at command.				

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1 ZTE AT Commands

1.1 Proprietary Interface: Voice Call Interface(only support MC2718)

1.1.1 +ZORIG: Call Originated

description	Indicating MT for originating a call	
format		<CR><LF>+ZORIG: <call_x>,<call_type> <CR><LF>
parameter	<call_x> Call ID, ranging from 1~6. <call_type> Take the value as below: 0: voice call 7: OTA call (standard OTASP numbers) 8: OTA call (none standard OTASP numbers) 9**:** Emergency call	
example		+ZORIG:0,0

1.1.2 +ZCONN: Call Connected

description	When the call is connected, MT will report it to TE, indicating the current status has already become to call status	
format		<CR><LF>+ZCONN: <call_x>,<call_type> <CR><LF>
parameter	<call_x> Call ID, ranging from 1~6 <call_type> Take the value as below: 0: voice call 7: OTA call (standard OTASP numbers) 8: OTA call (none standard OTASP numbers) 9**:** Emergency call	
example		+ZCONN: 0,0

1.1.3 +ZCEND: Call Ended

description	When the call is ended, MT will report it to TE, inform TE the reason of ending the call and the talk duration	
format		<CR><LF>+ZCEND: <call_x>,<duration>, <end_status><CR><LF>

parameter	<call_x> Call ID，ranging from 0-6 <duration> talk duration, unit: s <end_status>:call ended reason CM_CALL_END_OFFLINE=0, single board at OFFLINE CM_CALL_END_NO_SRV=21, single board no service CM_CALL_END_FADE=22, ended normally CM_CALL_END_INTERCEPT=23, intercepted by BS during the calling CM_CALL_END_REORDER=24, receive the recorder from BS during the calling CM_CALL_END_REL_NORMAL=25, call released by BS CM_CALL_END_REL_SO_REJ=26, current SO rejected by BS CM_CALL_END_INCOM_CALL=27, receive the call from BS CM_CALL_END_ALERT_STOP=28, receive the signal of stopping ringer upon incoming call CM_CALL_END_CLIENT_END=29, client end ended normally CM_CALL_END_ACTIVATION=30, activation ended upon OTASP call CM_CALL_END_MC_ABORT=31, MC stops originating a call or conversation CM_CALL_END_RUIM_NOT_PRESENT=34, RUIM does not exist CM_CALL_END_NDSS_FAIL=99, NDSS error CM_CALL_END_LL_CAUSE=100, release from bottom layer CM_CALL_END_CONF_FAILED=101, network response failed after call originating CM_CALL_END_INCOM_REJ=102, rejected as called. CM_CALL_END_SETUP_REJ=103, rejected during the call connecting CM_CALL_END_NETWORK_END=104, release due to network CM_CALL_END_NO_FUNDS=105, No funds CM_CALL_END_NO_GW_SRV=106, Not in service area
example	+ZCEND: 0,10,25,17
note	If call is ended due to network side, the string <cc_cause> will be reported; if the local call is ended before responded by the network side, the string <cc_cause> will not be reported

1.1.4 +ZDTMF: Redial command

description	Under talk status, send DTMF value to network side through the signal, and at the same time play DTMF tone at the single board side. The back-end software notifies the single board to press down and release the keys through AT command.	
format	AT+ZDTMF=<call_x>,<dtmf_digit>[,<on_length>[,<off_length>]]	<CR><LF>OK<CR><LF> otherwise: +CMS ERROR: <err>

parameter	<call_x> call ID <dtmf_digit> DTMF value, ASCII code, the legal characters only include: '0'~'9', '*' , '#' <on_length> 1: key pressed down 0: key released up 95,150,200,250,300,350 is DTMF time length, unit: ms <off_length> under burst, DTMF interval, unit: ms, reserved temporarily	
example	AT+ZDTMF=0,0,1	OK
note		

1.1.5 +ZCVOICE: Switch Audio Mode

description	Switch audio mode	
format	AT+ZCVOICE=<mode>	<CR><LF>OK<CR><LF>
	AT+ZCVOICE?	<CR><LF>+ZCVOICE: <mode > [,<sampling_rate>,<data_bit>,<frame_period>] <CR><LF><CR><LF>OK<CR><LF>
	AT+ZCVOICE=?	<CR><LF>+ZCVOICE: (list of supported <mode >s) <CR><LF><CR><LF>OK <CR><LF>
parameter	<mode> audio mode 0: PC audio mode <sampling _rate> sampling rate, <data_bit> data bit <frame_period> frame period, unit: ms	
example	AT+ZCVOICE=1	OK
note	READ command is used to read current audio mode. The data frame from PC audio adopts PCM coding and returns the sampling rate, data bit and frame period of PCM data frame (default setting must support PCM frame format with 8000Hz sampling rate, 16-bit data and 20ms frame period）. TEST command is used to return the value range for audio mode MC2718 only supports PC audio mode	

1.2 SMS Text Mode Command

1.2.1 +CPMS: Preferred Message Storage

description	SET command is used to set the corresponding SMS storage media and return the current using information of selected storage media	
format	AT+CPMS=<mem1> [,<mem2>[,<mem3>]]	<CR><LF>+CPMS: <used1>,<total1>, <used2>,<total2>,<used3>,<total3> <CR><LF><CR><LF>OK<CR><LF> otherwise: +CMS ERROR: <err>
	AT+CPMS?	+CPMS: <mem1>,<used1>,<total1>, <mem2>,<used2>,<total2>,<mem3>, <used3>,<total3><CR><LF><CR> <LF>OK<CR><LF> otherwise: +CMS ERROR: <err>
	AT+CPMS=?	+CPMS: (list of supported <mem1>s), (list of supported <mem2>s), (list of supported <mem3>s) <CR><LF><CR><LF>OK<CR><LF>
parameter	<mem1> Value of character string, indicating the storage media for reading/deleting SMS; the optional value can be: "ME": indicating NV <mem2> Value of character string, indicating the storage media for writing/sending SMS; the optional value is the same as <mem1>. <mem3> Value of character string, indicating the storage media for receiving SMS; the optional value is the same as <mem1> <total1> Value of integral number, indicating the total number of messages saved in <mem1> <total2> Value of integral number, indicating the total number of messages saved in <mem2> <total3> Value of integral number, indicating the total number of messages saved in <mem3> <used1> Value of integral number, indicating the current number of messages in <mem1> <used2> Value of integral number, indicating the current number of messages in <mem2> <used3> Value of integral number, indicating the current number of messages in <mem3>	

note	READ command is used to return the name and using information of current selected storage media. TEST command is used to return all types of storage media MT supports

1.2.2 +CMGF: Message Format

description	SET command is used to set the message format. There are two kinds of modes, determined by <mode> parameter. It only adopts TEXT mode currently.	
format	AT+CMGF[=<mode>]	<CR><LF>OK<CR><LF>
	AT+CMGF?	<CR><LF>+CMGF: <mode><CR><LF> <CR><LF>OK<CR><LF>
	AT+CMGF=?	<CR><LF>+CMGF: (list of supported <mode>s)<CR><LF><CR><LF> OK <CR><LF>
parameter	<mode> 0: PDU mode (default when implemented) 1: text mode	
note	READ command is used to return current the mode selection TEST command is used to return <mode > value Now we support text mode only	

1.2.3 +CNMI: New Message Indications to TE

description	Set command is used to set the procedure that new messages are reported to TE.	
format	AT+CNMI=[<mode>[,<mt>[,<bm>[,<ds>[,<bfr>]]]]]	<CR><LF>OK<CR><LF> otherwise: +CMS ERROR: <err>
	AT+CNMI?	<CR><LF>+CNMI: <mode>,<mt>,<bm>,<ds>,<bfr> <CR><LF><CR><LF>OK<CR><LF>
	AT+CNMI=?	<CR><LF>+CNMI: (list of supported <mode>s),(list of supported <mt>s),(list of supported <bm>s),(list of supported <ds>s),(list of supported <bfr>s) <CR><LF><CR><LF>OK<CR><LF>

parameter	<mode>: set the message notice method (currently support mode=1). 0: cache the message notice in ME. If ME's cache memory is full, new notice will cover the older one 1: directly send the message notice to TE. When it is unable to send (e.g.. under online data mode), give up the notice. 2: directly send the message notice and message status report to TE. When it is unable to send (e.g.. under online data mode), cache the message notice into ME, and send to TE at a time Note: Message notice will be cached in volatile memory. If MT is powered off before sending, the message could lose. Therefore, as <mode>=0 or 2, can't use the message to directly forward (<mt>=2 and 3). <mt>: used to set the message storage and notice rules <bm>: used to set cell broadcast information, do not temporarily support <ds>: used to set the message receipt 0: do not send the message receipt to TE 1: do not save the message receipt to MT, but send to TE +ZCDS:<callerID>,<year>,<month>,<day>,<hour>,<minute>,<second>,<lang>, <format>, <length>, <prt>, <prv>,<type>,<tag><CR><LF><msg> <CTRL+Z> 2: save the message receipt to MT, and send a notice to TE through +CDSI to show the storage location +CDSI: <mem>,<index> <bfr>: used to set the cache processing from <mode>=0 to <mode>=1, 2 0: after entering <mode>1-2, send unsolicited result code to TE at a time 1: after entering <mode>1-2, clear unsolicited result code
note	<mode> and <bfr> are used to set new message alert（including +CMTI, +ZCMT, +CDSI, +ZCDS） <mt> is used to set directly report to TE or save in MT and report the storage location when receiving new message <bm> do not use it temporarily <ds> is used to set whether or not report SMS status report（+CDSI, +ZCDS） Default: +CNMI=1,1,0,2,0

1.2.4 +CMTI: Message Arrival Indication

description	Indicates new messages are received (or new message report)	
format		<CR><LF>+CMTI: <mem>,<index> <CR><LF>

parameter	<mem> type of memory, currently support "ME" only, other memory optional. "BM": broadcast message memory. "ME": ME message memory "MT": memory relating to ME "TA": TA message memory "SR": status report memory <index> value of integral type, the location in memory

1.2.5 +CDSI: New Message Status Report

description	Indicates new message status report is received and show the storage location.	
format		<CR><LF>+CDSI: <mem>,<index> <CR><LF>
parameter	<mem>: message memory "ME":ROM message memory <index> value of integral type, location in memory	

1.2.6 +CMGD: Delete Messages

description	Execution command is used to delete the messages at <index> in <mem1>	
format	AT+CMGD=<index>[,<delflag>]	<CR><LF>OK<CR><LF> otherwise: +CMS ERROR: <err>
	AT+CMGD=?	<CR><LF>+CMGD: (list of supported <index>s)[,(list of supported <delflag>s)] <CR><LF><CR><LF>OK<CR><LF>
parameter	<index>: the messages storage location. <delflag> 0: (or default) delete the messages designated by <index>. 1: delete all read messages in first prior memory, save unread messages, sent messages and unsent messages 2: delete all read and sent messages in first prior memory, save unread messages and unsent messages 3: delete all read, sent and unsent messages in first prior memory, save unread messages 4: delete all messages including unread messages in first prior memory	

1.2.7 +CNMA: Acknowledge New Messages

description	Execution command is used to acknowledge the receipt of new message directly sent to TE. For the use of this command, please refer to the descriptions of +CNMI command

format	AT+CNMA	<CR><LF>OK<CR><LF> if there is any error regarding message: <CR><LF>+CMS ERROR:<err><CR><LF>
	AT+CNMA=?	<CR><LF>OK<CR><LF>
note	Before the acknowledge of previous message, MT would not sent TE another +CMT or +CDS result code. If MT doesn't obtain the acknowledge in specified period of time (network timeout), MT would send RP-ERROR to network and automatically set the parameter <mt> and <ds> of +CNMI command as 0. It would forbid sending message notice to TE. If it requires MT to report the message notice again, you need set <mt> & <ds> again If the command is executed, but the message is not acknowledged, return with +CMS ERROR: <err> Test command is used to <n> value supported by the command. If it supports 0 only, it means the command doesn't support send by TPDU Mandatory when <service> value 1 of command Select Message Service +CSMS is supported	

1.3 Proprietary Interface: SMS Interface

1.3.1 +ZSMMEMFULL: SMS Storage memory full

description	When SMS storage memory is full, it will report the message	
format		<CR><LF>+ZSMMEMFULL:<mem_type> <CR><LF>
parameter	<mem_type> value of character string, indicating the type of full storage memory "ME": indicating NV	
example		+ZSMMEMFULL: "ME"

1.3.2 +ZCMT: Don't save newly received messages, and report to TE directly

description	Don't save newly received messages, and report to TE directly	
format		<CR><LF>+ZCMT: <call ID>, <year>, <month>, <day>, <hour>, <minute>, <second>,<lang>, <format>, <length>, <prt>, <prv>,<type>,<tag><CR><LF><msg> <CTRL+Z><CR><LF>

parameter	<callerID>: number of message sender <year, month, day, hour, minute, second>: year, month, day, hour, minute, second when received SMS <lang>: language, refer to +ZCMGW to take the value <format>: indicating the coding format of the message, refer to +ZCMGW to take the value <Length>: the length of received message. <prt>: message priority level, refer to +ZCMGW to take the value <Prv>: Privacy level, refer to +ZCMGR to take the value <type>: type of message, refer to +ZCMGR to take the value <tag>: value of integral number, SMS status, refer to +ZCMGR to take the value <Msg>: received SMS. Control characters <ctrl-Z>: indicating the ending of one message, character:'0x1A'(Unicode: '0x001A') <ESC>: cancel the sending of the message， character: '0x1B'(Unicode: '0x001B')

1.3.3 +ZCDS: New SMS Status Direct Report

description	Don't save newly received messages, and directly report to TE	
format		<CR><LF>+ZCDS: <callerID>,<year>,<month>, <day>,<hour>,<minute>,<second> <lang>,<format>,<length>,<prt>,<prv>,<type>, <tag><CR><LF><msg><CTRL+Z><CR><LF>
parameter	<callerID>: number of message sender <year, month, day, hour, minute, second> year, month, day, hour, minute, second when received SMS <lang>: language, refer to +ZCMGW to take the value: <format> indicating the coding format of the message, refer to +ZCMGW to take the value <Length>: the length of received message <prt>: message priority level, refer to +ZCMGW to take the value <Prv>: Privacy level, refer to +ZCMGR to take the value <type>: type of message, refer to +ZCMGR to take the value <tag>: value of integral number, SMS status, refer to +ZCMGR to take the value <Msg>: received SMS. Control characters <ctrl-Z>: indicating the ending of one message, character: '0x1A'(Unicode: '0x001A') <ESC>: cancel the sending of the message， character: '0x1B'(Unicode: '0x001B')	

1.3.4 +ZCMGS: Send Message

description	Send a message to network side. It takes two steps to save a message

format	AT+ZCMGS="<da>",<language>, <encode>,<ack>,<priority>,<tele id>, <length>,"<cbn>",<total_num>, <seq_num>,<msg_ref>,<display_mode>, <validity_period><CR><data> <ctrl-Z/ESC>	<CR><LF>+ZCMGS: <mr><CR><LF><CR><LF>OK<CR><LF> otherwise: +CMS ERROR: <err>
	AT+ZCMGS=?	<CR><LF>OK<CR><LF>
parameter	TEXT mode: When GSM 7 BIT or UNICODE is used, the value of text character is shown. For example: the UCS2 value for the character "会" is 4E1A, then, the text should be '0x4E1A' rather than "4E1A" <da>: number of message recipient. Take the value from 0~9,*, #, up to 20 digits. < language > language, take the value as below: 0: UNSPECIFIED 1: ENGLISH 2: FRENCH 3: SPANISH 4: JAPANESE 5: KOREAN 6: CHINESE 7: HEBREW <encode>: indicating the coding method of the message, take the value as below: 0: GSM 7 BIT 1: ASCII code (coding range<=7F). Send the original characters in ASCII coding, for example, the ASCII code for the letter A is 0x41, then the character to be transmitted is "A" 2: IA5 (optional) 3: OCTET (optional) 4: LATIN (optional) 5: LATIN_HEBREW (optional) 6: UNICODE (coding range>7F). Send the original value in UNICODE coding. For example, the UNICODE for the Chinese character "一" is 0x4E00, then the character to be transmitted is '0x4E00' 7: Other coding method <ack> 0: no ack 1: need ack <ptriority> value of integral type, indicating the priority level of the message, take the value as below: 0: Normal	

	1: Interactive 2: Urgent 3: Emergency <tele id> 4097:Paging 4098:Short Message, Push Mail 4099:Voice Mail 4100:Java Mail <length>: the message data length <cbn>call back number <total_num>:the split total num of long message <seq_num>:sequence number of long message <msg_ref>:long message reference number number <display_mode>: display directly or not 0: display directly 1,2,3: not display directly <validity_period>:message validity date <data>: message date <mr>: message symbol <ctrl-Z>: indicating the ending of one message. Under non-UNICOD:'0x1A'; under UNICOD:'0x001A' <ESC>: Cancel the sending of the message. Under non-UNICOD: '0x1B', under UNICOD:'0x001B'	
example	AT+ZCMGS=13554890280,1,1,1,0,4098,,,,,,<CR>414243<ctrl-Z>	+ZCMGS:4 OK

1.3.5 +ZCMGW: Write Message to Memory

description	Save message into <mem2> through +CPMS command, and you could save it into ME	
format	AT+ZCMGW=<oa/da>[,<tooa/toda>],<stat>,<ptr>,<type>,<format>,<lang>[,<year>,<month>,<day>,<hour>,<minute>,<second>]<CR><text><ctrl-Z/ESC>	+ZCMGW: <index> otherwise: +CMS ERROR: <err>
	AT+ZCMGW=?	<CR><LF>OK<CR><LF>
parameter	<oa/da> number of message sender/recipient. Take the value from 0~9,*, #, up to 20 digits < tooa/toda> address coding method. The number of one byte, this parameters works as the address coding is 8bit. Now 4bit coding is used, therefore this parameter doesn't work. The value is fixed to be 0	

	The higher four digits is number type: 0: UNKNOWN 1: INTERNATIONAL The lower four digits is number plan: 0: UNKNOWN 1: TELEPHONY <stat> value of integral type, indicating the storage status of SMS, take the value as below: 0: received unread messages 1: received read messages 2: saved unsent messages 3: saved sent messages 4: all messages (the value is only applicable for +CMGL command) <lang> language take the value as below: 0: UNSPECIFIED 1: ENGLISH 2: FRENCH 3: SPANISH 4: JAPANESE 5: KOREAN 6: CHINESE 7: HEBREW <ptr> value of integral type, indicating the priority level of the message, take the value as below: 0: Normal 1: Interactive 2: Urgent 3: Emergency <year>,<month>,<day>,<hour>,<minute>,<second>: year, month, day, hour, minute, second when received SMS. <index>: the location number in memory, take a decimal from 0~9, and the value ranges from 0 to the max. capacity of the memory. <format>: indicating the coding method of the message, take the value as below: 0: GSM 7 BIT 1: ASCII code (coding range<=7F). Send the original characters in ASCII coding, for example, the ASCII code for the letter A is 0x41, then the character to be transmitted is "A" 2: IA5 (optional) 3: OCTET (optional) 4: LATIN (optional)

	5: LATIN_HEBREW (optional) 6: UNICODE (coding range>7F). Send the original value in UNICODE coding. For example, the UNICODE for the Chinese character "-" is 0x4E00, then the character to be transmitted is '0x4E00' 7: Other coding method <type>: type of message 0: Normal 1: CPT (Optional) 2: Voice Mail 3: SMS Report <text>: message text <CR>: command ending mark, indicating the ending of one command. <ctrl-Z>: indicating the ending of one message. Under non-UNICOD:'0x1A', and under UNICOD:'0x001A' <ESC>: Cancel the sending of the message. Under non-UNICOD:'0x1B', and under UNICOD:'0x001B'

1.3.6 +ZCMGL: List Messages

description	Return all SMS index designated by <stat> from <mem1>	
format	AT+ZCMGL=<stat>	Under text mode, the command is successfully executed: <CR><LF>+ZCMGL: <index1>, <tag1><CR><LF> <CR><LF>+ZCMGL: <index2>, <tag2><CR><LF> …… <CR><LF>OK<CR><LF> otherwise: +CMS ERROR: <err>
	AT+ZCMGL=?	<CR><LF>+ZCMGL: (list of supported <stat>s) <CR><LF><CR><LF>OK <CR><LF>
parameter	<stat> type of message, the default value is 0: 0: received unread message 1: received read message 2: saved unsent message 3: saved messages in Sent Messages 4: all sms <index>: value of integral type, location in memory <tag>: value of integral number, SMS status, please refer to +ZCMGR to take the value	
note	The SMS status report will be processed as a common received message. TEST command is used to return all stat values	

1.3.7 +ZCMGR: Read Message

description	EXECUTION command is used to return the message saved at index from <mem1>	
format	AT+ZCMGR=<index>[,<mode>]	Under text mode, the command is successfully executed: <CR><LF>+ZCMGR: <callerID>, <year>, <month>, <day>, <hour>, <minute>, <second>, <lang>, <format>, <length>, <prt>, <prv>,<type>, <stat><CR><LF><msg><CTRL+Z> <CR><LF>OK<CR><LF> otherwise: +CMS ERROR: <err>
	AT+ZCMGR=?	<CR><LF>OK<CR><LF>
parameter	<index>: value of integral type, location in memory <mode>: SMS status modifying mode: 0: change to READ status 1: Do not change the status <callerID>: number of message sender <format>: indicating the coding format of the message, refer to +ZCMGW to take the value; <year, month, day, hour, minute,second>: year, month, day, hour, minute, second when received SMS. <Length>: the length of received message. <lang>: language, refer to +ZCMGW to take the value: <prt>: message priority level, refer to +ZCMGW to take the value: <Prv>: Privacy level 0: Normal 1: Restricted 2: Confidential 3: Secret <type>: type of message 0: Normal 1: CPT 2: Voice Mail 3: SMS Report <stat>: type of message, refer to +ZCMGW to take the value: <Msg>: received messages <ctrl-Z>: indicating the ending of one message. Under non-UNICOD: '0x1A'; under UNICOD:'0x001A'	
note	The SMS status will be revised by single board or back end according to the value of <mode>.	

1.3.8 +ZCMGSS: Message Sent Report

description	If the message is sent successfully, report to TE through this command.	
format		<CR><LF>+ZCMGSS: <mr><CR><LF>
parameter	<mr> the message's mark, take a decimal from 0~9, and the value ranges from 0～65535.	

1.3.9 +ZCMGSF: Message Unsent Report

description	If the message is unsent, report to TE through this command	
format		<CR><LF>+ZCMGSF:<err code> <CR><LF>
parameter	<err code> take the value of the error code as below as the message is unsent: 0 WMS_ADDRESS_VACANT_S 1 WMS_ADDRESS_TRANSLATION_FAILURE_S 2 WMS_NETWORK_RESOURCE_SHORTAGE_S 3 WMS_NETWORK_FAILURE_S 4 WMS_INVALID_TELESERVICE_ID_S 5 WMS_OTHER_NETWORK_PROBLEM_S 6 WMS_OTHER_NETWORK_PROBLEM_MORE_FIRST_S 31 WMS_OTHER_NETWORK_PROBLEM_MORE_LAST_S 32 WMS_NO_PAGE_RESPONSE_S 33 WMS_DESTINATION_BUSY_S 34 WMS_NO_ACK_S 35 WMS_DESTINATION_RESOURCE_SHORTAGE_S 36 WMS_SMS_DELIVERY_POSTPONED_S 37 WMS_DESTINATION_OUT_OF_SERVICE_S 38 WMS_DESTINATION_NO_LONGER_AT_THIS_ADDRESS_S 39 WMS_OTHER_TERMINAL_PROBLEM_S 40 WMS_OTHER_TERMINAL_PROBLEM_MORE_FIRST_S 47 WMS_OTHER_TERMINAL_PROBLEM_MORE_LAST_S 48 WMS_SMS_DELIVERY_POSTPONED_MORE_FIRST_S 49 WMS_SMS_DELIVERY_POSTPONED_MORE_LAST_S 64 WMS_RADIO_IF_RESOURCE_SHORTAGE_S 65 WMS_RADIO_IF_INCOMPATIBLE_S 66 WMS_OTHER_RADIO_IF_PROBLEM_S 67 WMS_OTHER_RADIO_IF_PROBLEM_MORE_FIRST_S 95 WMS_OTHER_RADIO_IF_PROBLEM_MORE_LAST_S 96 WMS_UNEXPECTED_PARM_SIZE_S 97 WMS_SMS_ORIGINATION_DENIED_S 98 WMS_SMS_TERMINATION_DENIED_S 99 WMS_SUPPL_SERVICE_NOT_SUPPORTED 100 WMS_SMS_NOT_SUPPORTED_S	

	101 WMS_RESERVED_101_S 102 WMS_MISSING_EXPECTED_PARM_S 103 WMS_MISSING_MANDATORY_PARM_S 104 WMS_UNRECOGNIZED_PARM_VALUE_S 105 WMS_UNEXPECTED_PARM_VALUE_S 106 WMS_USER_DATA_SIZE_ERROR_S 107 WMS_OTHER_GENERAL_PROBLEMS_S 108 WMS_OTHER_GENERAL_PROBLEMS_MORE_FIRST_S 109 WMS_OTHER_GENERAL_PROBLEMS_MORE_LAST_S

2 Basic AT Commands

2.1.1 E: Turn off/on echo commands

description	Turn off/on echo commands	
format	ATE<value>	<CR><LF>OK<CR><LF>
parameter	<value> 0: turn off echo 1: turn on echo	
example	ATE0	OK
	ATE1	ATE1 OK
note	CE MUST support the parameter E0 which will turn off echo commands CE MUST support the parameter E1 which will turn on echo commands CE MUST set the E parameter to E1 as default	

2.1.2 Q: Enable/Disable return result codes

description	Enable /Disable return result codes	
format	ATQ<value>	<CR><LF>OK<CR><LF>
parameter	<value> 0: enable 1: disable	
example	ATQ0	OK
	ATQ1	OK
note	CE MUST support the parameter Q0 which will cause the device to return result codes CE MUST support the parameter Q1 which will cause the device to NOT return result codes CE MUST set the Q parameter to Q0 as default	

2.1.3 V: Return result codes as numbers/words

description	Return result codes as numbers/words	
format	ATV<value>	<CR><LF>OK<CR><LF>

parameter	<value> 0: result codes as numbers 1: result codes as words	
example	ATV0	0
	ATV1	OK
note	CE MUST support the parameter V0 which will cause the device to return result codes as numbers CE MUST support the parameter V1 which will cause the device to return result codes as words CE MUST set the V parameter to V1 as default	

2.1.4 Z0: Reset the parameters to the default configuration

description	Reset the parameters to the default configuration	
format	ATZ0	<CR><LF>OK<CR><LF>
example	ATZ0	OK
note	CE MUST support the parameter Z0 which will cause the device to reset the parameters to the default configuration	

2.1.5 &C: Set circuit 109 (CF) or Received Line Signal Detector (RLSD)

description	Set circuit 109 (CF) or Received Line Signal Detector (RLSD)	
format	AT&C<value>	<CR><LF>OK<CR><LF>
parameter	<value> 0: set circuit 109 (CF) or Received Line Signal Detector (RLSD) always on 1: set circuit 109 (CF) or Received Line Signal Detector (RLSD) on in accordance with the specified service	
example	AT&C0	OK
	AT&C1	OK
note	CE MUST support the parameter &C0 (Data Carrier Detect) which will set circuit 109 (CF) or Received Line Signal Detector (RLSD) always on Note: Circuit 109 is generally used for serial communications. Most Sprint devices use the USB interface and this is not required for general use of the device. It may be needed for specific applications or unusual use cases. CE MUST support the parameter &C1 (Data Carrier Detect) which will set circuit 109 (CF) or Received Line Signal Detector (RLSD) on in accordance with the specified service CE MUST set the C parameter (Data Carrier Detect) to C1 as default	

2.1.6 &D: Set DTR(Data Terminal Ready) Signal

description	Set DTR(Data Terminal Ready) Signal	
format	AT&D<value>	<CR><LF>OK<CR><LF>

parameter	<value> 0: ignore circuit 108/2 1: enter online command state following ON-to-OFF transition of circuit 108/2 2: enter command state following On to Off transition of circuit 108/2	
example	AT&D0	OK
	AT&D1	OK
	AT&D2	OK
note	CE MUST support the parameter &D0 (Data Terminal Ready) which will ignore circuit 108/2 (CD) Note: Circuit 108 is generally used for serial communications. Most Sprint devices use the USB interface and this is not required for general use of the device. It may be needed for specific applications or unusual use cases CE MUST support the parameter &D1 (Data Terminal Ready) which will enter online command state following ON-to-OFF transition of circuit 108/2 CE MUST support the parameter &D2 (Data Terminal Ready) which will enter command state following On to Off transition of circuit 108/2 CE MUST set the D parameter (Data Terminal Ready) to D0 as default	

2.1.7 A: Answer

description	When there is an incoming call, TE informs MS to answer the call through this command; if there is a second incoming call, this command can still be used to answer the call	
format	ATA	<CR><LF>OK<CR><LF>
example	ATA	OK

2.1.8 RING: Incoming Call

description	As the mobile terminal has an incoming call, MT will report the indication to TE periodically (period: T=5s)

3 Extended AT Configuration Commands

3.1.1 +CDV: Dial

description	The interface is used for TE to originate a voice call to network side through MT	
format	AT+CDV[digits]	<CR><LF>OK<CR><LF> otherwise: +CMS ERROR: <err>
parameter	<digits> telephone number called, ASCII character, the legal characters only include: ‘0‘- ‘9‘, ‘*‘, ‘# ’, ‘+‘. ‘+‘ can only appear in front of the number and the length of the number cannot exceed 24 (not including ‘+’)	
example	AT+CDV13512345678	OK

3.1.2 +CHV: Hang up

description	The interface is used in CDMA system to hang up voice call

format	AT+CHV	<CR><LF>OK<CR><LF> otherwise: +CMS ERROR: <err>
example	AT+CHV	OK
note	Only can be used in CDMA system	

3.1.3 +GCAP: Return the list of all commands supported by the device

description	Return the list of all commands supported by the device	
format	AT+GCAP	<CR><LF>+GCAP: +CIS707-A,CIS-856, +MS, +ES, +DS, +FCLASS<CR><LF> <CR><LF>OK<CR><LF>
example	AT+GCAP	+GCAP: +CIS707-A,+MS,+ES,+DS, +FCLASS OK
note	CE MUST support "AT+GCAP" which will return the list of all commands supported by the device CE MUST return "ERROR" for any other AT+GCAP string	

3.1.4 +GMI: Return the manufacturer name on a single line

description	Return the manufacturer name on a single line	
format	AT+GMI	<CR><LF>+GMI: ×××CO,.LTD <CR><LF><CR><LF><CR><LF>OK<CR><LF>
example	AT+GMI	+GMI: ZTE CO,.LTD OK
note	CE MUST support "AT+GMI" which will return the manufacturer name on a single line CE MUST return "ERROR" for any other AT+GMI string	

3.1.5 +GMM: Return the device model name and number

description	Return the device model name and number	
format	AT+GMM	<CR><LF>+GMM: <name><CR><LF> <CR><LF>OK<CR><LF>
example	AT+GMM	+GMM: MC2716 OK
note	CE MUST support "AT+GMM" which will return the device model name and number as defined by the OEM and approved by Sprint on a single line CE MUST return "ERROR" for any other AT+GMM string	

3.1.6 +GMR: Return the current firmware version on a single line

description	Return the current firmware version on a single line	
format	AT+GMR	<CR><LF>+GMR: <firmware version> <CR><LF><CR><LF>OK<CR><LF>

example	AT+GMR	+GMR: <firmware version> OK
note	CE MUST support "AT+GMR" which will return the current firmware version on a single line "AT+GMR" MUST return the firmware of each processor on a separate line in the format of "<firmware version>" CE MUST return "ERROR" for any other AT+GMR string	

3.1.7 +GSN: Get the ESN of device

description	Return the "<ESN>" or the "<MEID>:<pseudo ESN>" of the device	
format	AT+GSN	<CR><LF>+GSN: <ESN><CR><LF > <CR><LF>OK<CR><LF> or <CR><LF> +GSN: <MEID>:<pseudo ESN> <CR><LF><CR><LF>OK<CR><LF>
example	AT+GSN	+GSN: 0x11111111 OK
note	CE MUST support "AT+GSN" which will return the "<ESN>" or the "<MEID>:<pseudo ESN>" of the device CE MUST return the decimal value on the first line and the hexadecimal value on the second line for "AT+GSN" CE MUST return "ERROR" for any other AT+GSN string	

3.1.8 +ICF: Set the character framing

description	Set the character framing between the device and a connected terminal	
format	AT+ICF=<format>,<parity>	<CR><LF>OK<CR><LF>
	AT+ICF?	<CR><LF>+ICF: <format>,<parity><CR> <LF><CR><LF>OK<CR><LF>
	AT+ICF=?	<CR><LF>+ICF: (),() <CR><LF><CR><LF>OK<CR><LF>

parameter	<format> 0: Auto Detect 1: 8 Data 2 Stop 2: 8 Data 1 Parity 1 Stop 3: 8 Data 1 Stop 4: 7 Data 2 Stop 5: 7 Data 1 Parity 1 Stop 6: 7 Data <parity> 0: Odd 1: Even 2: Mark 3: Space	
example	AT+ICF=0,0	OK
	AT+ICF?	+ICF: 2,2 OK
	AT+ICF=?	+ICF: (0-6),(0-3) OK
note	CE MUST support "AT+ICF=<format>,<parity>" which will set the character framing between the device and a connected terminal CE MUST set the default value of ICF to auto detect CE MUST support "AT+ICF?" which will return the current setting in the format "<format>,<parity> CE MUST support "AT+ICF=?" which will return the list of supported format and parity values in the format "<format>:<comment>" with each setting on a separate line followed by "<parity>:<comment>" with each setting on a separate line CE MUST return "ERROR" for any other AT+ICF string	

3.1.9 +IFC: Control the local flow control

description	Control the local flow control	
format	AT+IFC=<DCE_by_DTE>, <DTE_by_DCE>	<CR><LF>OK<CR><LF>
	AT+IFC?	<CR><LF>+IFC: <DCE_by_DTE>, <DTE_by_DCE><CR><LF><CR><LF> OK<CR><LF>
	AT+IFC=?	<CR><LF>+IFC: (),() <CR><LF><CR><LF>OK<CR><LF>

parameter	<DCE_by_DTE> 0: None 1: DC1/DC3 (in band- X-On/X-Off) on circuit 103 (TD); do not pass DC1/DC3 characters to the remote modem 2: Circuit 133 (Ready for Receiving) <DTE_by_DCE> 0: None 1: DC1/DC3 (in band- X-On/X-Off) on circuit 104 (RD 2: Circuit 106 (Clear to Send/Ready for Sending)	
example	AT+IFC=0,0	OK
	AT+IFC?	+IFC: 2,2 OK
	AT+IFC=?	+IFC: (0-2),(0-2) OK
note	CE MUST set the default value of IFC to none for DCE_by_DTE and DTE_by_DCE CE MUST return "ERROR" for any other AT+IFC string	

3.1.10 +IPR: Set the Rm interface rate

description	Set the Rm interface rate to the specified rate	
format	AT+IPR=<rate>	<CR><LF>OK<CR><LF>
	AT+IPR?	<CR><LF>+IPR: <rate><CR><LF> <CR><LF>OK<CR><LF>
	AT+IPR=?	<CR><LF>+IPR: (),<rate><CR><LF> <CR><LF>OK<CR><LF>
parameter	<rate> (300,1200,2400,4800,9600,19200,38400,57600,115200,230400)	
example	AT+IPR=115200	OK
	AT+IPR?	+IPR: 115200 OK
	AT+IPR=?	+IPR: (),(300,600,1200,2400,4800,9600, 19200,38400,57600,115200,230400) OK
note	CE MUST return "ERROR" for any rate that is not supported by the device CE MUST set the IPR value to 0 by default which will enable auto detect of the Rm Interface rate CE MUST return "ERROR" for any other AT+IPR string	

3.1.11 +CAD: Return the type of service available

description	The type of service available	
format	AT+CAD?	<CR><LF>+CAD: <num><CR><LF> <CR><LF>OK<CR><LF>
parameter	<num> 0: no service is available 1: CDMA Digital service available 2: TDMA Digital service available 3: Analog service is available	
example	AT+CAD?	+CAD: 0 OK
note	CE MUST return “ERROR” for any other AT+CAD string.	

3.1.12 +CRM: Get he current numerical value of CRM

description	Get the current numerical value of CRM	
format	AT+CRM=<value>	<CR><LF>OK<CR><LF>
	AT+CRM?	<CR><LF>+CRM: <value><CR><LF> <CR><LF>OK<CR><LF>
parameter	<value> 1: Relay Layer Packet Data Service 2: PPP Network Layer Packet Data Service	
	AT+CRM?	+CRM: 0 OK
note	CE MUST return “ERROR” for any other AT+CRM string	

3.1.13 +CBC: The battery state and charge(not supported for modem)

description	The battery state and charge	
format	AT+CBC?	<CR><LF><BCS>,<BCL> <CR><LF><CR><LF>OK<CR><LF>
parameter	<BCS> 0: Powered by battery only 1: Connected to an external source 2: Battery status not available 3: Power fault <BCL> the number if battery bars the UI is currently displaying	
example	AT+CBC?	0,0 OK
note	CE MUST return “ERROR” for any other AT+CBC string	

3.1.14 +CMIP: IP address of the mobile station

description	IP address of the mobile station	
format	AT+CMIP?	<CR><LF><address> <CR><LF> <CR><LF>OK<CR><LF>
parameter	<address> the IP address will be the IP address assigned by the network in PPP IPCP for SIP or in the MIP Registration Reply for Mobile IP	
example	AT+CMIP?	0.0.0.0 OK
note	CE MUST return "0.0.0.0" for "AT+CMIP?" if there is currently no IP session established CE MUST return "ERROR" for any other AT+CMIP string	

3.1.15 +CBIP: IP address of the base station

description	IP address of the base station	
format	AT+CBIP?	<CR><LF><address> <CR><LF><CR><LF>OK<CR><LF>
parameter	<address> the IP address will be the source IP address in the Router Advertisement message that the device receives from the network	
example	AT+CBIP?	0.0.0.0 OK
note	CE MUST return "0.0.0.0" for "AT+CBIP?" if there is currently no IP session established CE MUST return "ERROR" for any other AT+CBIP string	

3.1.16 +CSS: The serving system band and SID

description	The serving system band and SID	
format	AT+CSS?	<CR><LF>+CSS: <Channel>,<Band>, <SID><CR><LF><CR><LF>OK <CR><LF>

parameter	<Channel> Channel will be the channel that the device is currently talking or listening to <Band> A: Device is operating in the A block B: Device is operating in the B block C: Device is operating in the C block D: Device is operating in the D block E: Device is operating in the E block F: Device is operating in the F block G: Device is operating in the G block Z: Device is not registered <SID> SID will be the numerical value of the SID or 999999 if the mobile is not registered	
example	AT+CSS?	+CSS: 0,0,0 OK
note	CE MUST return “ERROR” for any other AT+CSS string	

3.1.17 +CSQ: Signal Quality Measure and the Frame Error Rate

description	Signal Quality Measure and the Frame Error Rate	
format	AT+CSQ?	<CR><LF>+CSQ: <SEQ>,<FER> <CR><LF><CR><LF>OK<CR><LF>
parameter	<SEQ> the measured RSSI value <FER> 0: less than 0.01% 1: 0.01% to less than 0.1% 2: 0.1% to less than 1.0% 3: 0.5% to less than 1.0% 4: 1.0% to less than 2.0% 5: 2.0% to less than 4.0% 6: 4.0% to less than 8.0% 7: greater than 8.0% 99: FER is unknown	
example	AT+CSQ?	+CSQ: 31,99 OK
note	CE MUST return “ERROR” for any other AT+CSQ string	

3.1.18 +CTA: The packet data inactivity timer

description	The packet data inactivity timer	
format	AT+CTA?	<CR><LF>+CTA: <value> <CR><LF><CR><LF>OK<CR><LF>

	AT+CTA=<value>	<CR><LF>OK<CR><LF>
example	AT+CTA?	+CTA: 30 OK
	AT+CTA=1	OK
note	CE MUST NOT support “AT+CTA=<value>” CE MUST return “ERROR” for any other AT+CTA string	

3.1.19 +CPS: The service option to be used for packet data service(Not implemented)

description	The service option to be used for packet data service	
format	AT+CPS?	<CR><LF>+CPS: <value><CR><LF> <CR><LF>OK<CR><LF>
example	AT+CPS?	+CPS: 1 OK
note	CE MUST NOT support “AT+CPS =<value>” CE MUST return “ERROR” for any other AT+CPS string	

3.1.20 +CPSR: Disable/Enable the packet call state reporting(Not implemented)

description	Disable/Enable the packet call state reporting	
format	AT+CPSR?	<CR><LF>+CPSR: <value><CR><LF> <CR><LF>OK<CR><LF>
	AT+ CPSR=<value>	<CR><LF><CR><LF>OK<CR><LF>

parameter	<value> 0: disable 1: enable Note: enabling packet call state reporting will cause the device to autonomously send the following information 0: Packet data service is in the Inactive State 1: Packet data service is in the Active State, and the call control function is in the Initialization/Idle State 2: Packet data service is in the Active State, and the call control function is in the Initialization/Traffic State 3: Packet data service is in the Active State, the call control function is in the Connected State, and the packet data service option is using primary traffic 4: Packet data service is in the Active State, the call control function is in the Connected State, and the packet data service option is using secondary traffic 5: Packet data service is in the Active State, and the call control function is in the Dormant/Idle State 6: Packet data service is in the Active State, and the call control function is in the Dormant/Traffic State 7: Packet data service is in the Active State, and the call control function is in the Reconnect/Idle State 8: Packet data service is in the Active State, and the call control function is in the Reconnect/Traffic State	
example	AT+CPSR?	+CPSR: 1 OK
	AT+CPSR=1	OK
note	CE MUST set the packet call state reporting to disable as they default CE MUST set the packet call state reporting to disable when the Rm Interface is torn down Note: this could be due to the data cable being removed or the device power cycling. CE MUST return “ERROR” for any other AT+CPSR string	

3.1.21 +CPTC: Request a traffic channel(Not implemented)

description	Request a traffic channel	
format	AT+CPTC=<value>	<CR><LF><CR><LF>OK<CR><LF>
parameter	<value> 0: release the traffic channel 1: originate a traffic channel	
example	AT+CPTC=0	OK
note	CE MUST return “ERROR” for any other AT+CPTC string	

3.1.22 +CPER: Disable/Enable the packet call event reporting(Not implemented)

description	Disable/Enable the packet call event reporting	
format	AT+CPER?	<CR><LF>+CPER: <value><CR><LF> <CR><LF>OK<CR><LF>
	AT+CPER=<value>	<CR><LF><CR><LF>OK<CR><LF>
parameter	<value> 0: disable 1: enable Note: enabling packet call event reporting will cause the device to autonomously send the following information 0: Enter Idle State 1: Idle handoff, same system 2: Idle handoff, new system 3: Page received 4: Origination sent 5: Traffic Channel assigned 6: Hard handoff	
example	AT+CPER?	+CPER: 1 OK
	AT+CPER=1	OK
note	CE MUST set the packet call event reporting to disable as they default. CE MUST set the packet call event reporting to disable when the Rm Interface is torn down. Note: this could be due to the data cable being removed or the device power cycling. ATCMD-089 CE MUST return “ERROR” for any other AT+CPER string	

4 Qualcomm Proprietary AT Command Set

4.1.1 $QCMIP: The current value of the Mobile IP behavior

description	The current value of the Mobile IP behavior	
format	AT$QCMIP?	<CR><LF>$QCMIP: <value><CR><LF> <CR><LF>OK<CR><LF>
	AT$QCMIP=<value>	<CR><LF><CR><LF>OK<CR><LF>
parameter	<value> 0: the Mobile IP behavior to Simple IP only 1: the Mobile IP behavior to MIP preferred with SIP fallback 2: the Mobile IP behavior to MIP only	
example	AT$QCMIP?	$QCMIP: 1 OK

	AT$QCMIP=1	OK
note	CE MUST return “ERROR” for any other AT$QCMIP string	

4.1.2 $QCMIPP: Return the current active Mobile IP profile

description	Return the current active Mobile IP profile	
format	AT$QCMIPP?	<CR><LF>$QCMIPP: <X><CR><LF> <CR><LF>OK<CR><LF>
	AT$QCMIPP=<X>	<CR><LF>OK<CR><LF>
parameter	<X> 0 ~ 5	
example	AT$QCMIPP?	$QCMIPP: 1 OK
note	CE MUST support “AT$QCMIPP=X” where X is an integer between 0 and 5 CE MUST return “ERROR” for any other AT$QCMIPP string	

4.1.3 $QCMIPT:The current value of the “RFC 2002bis authentication” flag

description	The current value of the “RFC 2002bis authentication” flag	
format	AT$QCMIPT?	<CR><LF>$QCMIPT: <value><CR><LF> <CR><LF>OK<CR><LF>
parameter	<value> the valid return values for this command are 0, 1	
example	AT$QCMIPT?	$QCMIPT: 1 OK
note	CE MUST return “ERROR” for any other AT$QCMIPT string	

4.1.4 $QCMIPEP: Disable/Enable the active profile

description	Disable/Enable the active profile	
format	AT$QCMIPEP?	<CR><LF>$QCMIPEP: <value><CR><LF> <CR><LF>OK<CR><LF>
	AT$QCMIPEP=<value>	<CR><LF><CR><LF>OK<CR><LF>
parameter	<value> 0: disable the active profile 1: enable the active profile	
example	AT$QCMIPEP?	$QCMIPEP: 1 OK
	AT$QCMIPEP=1	OK
note	CE MUST return “ERROR” for any other AT$QCMIPEP string	

4.1.5 $QCMIPGETP: The values of the specified profile

description	The values of the specified profile

format	AT$QCMIPGETP?	<CR><LF>$QCMIPGETP: <X> <CR><LF><CR><LF>OK<CR><LF>
	AT$QCMIPGETP=<X>	<CR><LF> Profile <X> (Enabled | Disabled) NAI: Home Address: Primary HA: Secondary HA: MN-AAA SPI: MN-HA SPI: Reverse Tunneling: (0 for off | 1 for on) RFC 2002bis: (0 for off | 1 for on) MN-AAA SS: (set | unset) NA-HA SS: (set | unset) <CR><LF><CR><LF>OK<CR><LF>
example	AT$QCMIPGETP?	$QCMIPGETP: 0 OK
	AT$QCMIPGETP=0	Profile:0 Enabled NAI:Unset Home Addr:0.0.0.0 Primary HA:255.255.255.255 Secondary HA:0.0.0.0 MN-AAA SPI:2 MN-HA SPI:3 Rev Tun:0 MN-AAA SS:Unset MN-HA SS:Unset OK
note	CE MUST separate each line of the profile with exactly one carriage return and line feed CE MUST NOT display the SS (Shared Secret) CE MUST return “ERROR” for any other AT$QCMIPGETP string	

4.1.6 $QCMIPNAI: Set ASCII NAI string

description	Set ASCII NAI string	
format	AT$QCMIPNAI?	<CR><LF>< NAI ><Y><CR><LF> <CR><LF>OK<CR><LF> or <CR><LF>$QCMIPNAI: Unset<CR><LF> <CR><LF>OK<CR><LF>

	AT$QCMIPNAI=”< NAI >”,<Y>	<CR><LF><CR><LF>OK<CR><LF>
parameter	<NAI> the user entered ASCII NAI string <Y> 0: not save the NAI to NV memory 1: save the NAI to NV memory	
example	AT$QCMIPNAI?	user@domain,0 OK
	AT$QCMIPNAI=”user@domain”,0	OK
note	CE MUST NOT save the NAI to NV memory if Y is set to 0 CE MUST use the user entered NAI only for the next MIP session if Y is set to 0. Note: the device must use the user entered NAI for MIP reregistrations as well as the initial MIP registration CE MUST use the NAI stored in NV memory after the MIP session has deregistered or expired if Y is set to 0 CE MUST save the NAI to NV memory if Y is set to 1	

4.1.7 $QCMIPRT: Set user reverse tunneling flag

description	Set user reverse tunneling flag	
format	AT$QCMIPRT?	<CR><LF>$QCMIPRT: <X>,<Y> <CR><LF><CR><LF>OK<CR><LF>
	AT$QCMIPRT=<X>,<Y>	<CR><LF><CR><LF>OK<CR><LF>
parameter	<X> set the user reverse tunneling flag (0|1) <Y> 0: not save the reverse tunneling flag to NV memory 1: save the reverse tunneling flag to NV memory	
example	AT$QCMIPRT?	$QCMIPRT: 0,1 OK
	AT$QCMIPRT=0,0	OK
note	CE MUST NOT save the reverse tunneling flag to NV memory if Y is set to 0 CE MUST use the user entered reverse tunneling flag only for the next MIP session if Y is set to 0 CE MUST use the reverse tunneling flag stored in NV memory after the MIP session has deregistered or expired if Y is set to 0 CE MUST save the reverse tunneling flag to NV memory if Y is set to 1 CE MUST return “ERROR” for any other AT$QCMIPRT string	

4.1.8 $QCMIPMASS: Set ASCII Mobile Node AAA shared secret string

description	Set ACSII Mobile Node AAA shared secret string

format	AT$QCMIPMASS=”<X>”,<Y>	<CR><LF><CR><LF>OK<CR><LF>
	AT$QCMIPMASS?	<CR><LF>$QCMIPMASS: (Set|Unset) <CR><LF><CR><LF>OK<CR><LF>
parameter	<X> ASCII Mobile Node AAA shared secret string <Y> 0: not save the change to NV memory 1: save the change to NV memory	
example	AT$QCMIPMASS =”sprint”,0	OK
	AT$QCMIPMASS?	$QCMIPMASS: Set OK
note	the Mobile Node AAA shared secret string MUST be enclosed between double quotes	

4.1.9 $QCMIPMASSX: Set Hex Mobile Node AAA shared secret

description	Set Hex Mobile Node AAA shared secret	
format	AT$QCMIPMASSX=”<X>”,<Y>	<CR><LF><CR><LF>OK<CR><LF>
	AT$QCMIPMASSX?	<CR><LF>$QCMIPMASSX: (Set|Unset) <CR><LF><CR><LF>OK<CR><LF>
parameter	<X> the user entered hex Mobile Node AAA shared secret of up to 16 bytes <Y> 0: not save the change to NV memory 1: save the change to NV memory	
example	AT$QCMIPMASSX=”aaa”,0	OK
	AT$QCMIPMASSX?	$QCMIPMASSX: Set OK

note	CE MUST return “ERROR” if the user entered Mobile Node AAA shared secret begins with “0x” for AT$QCMIPMASSX. CE MUST return “ERROR” and not save a Mobile Node AAA shared secret that is longer than 16 bytes for AT$QCMIPMASSX. CE MUST return “ERROR” and not save a Mobile Node AAA shared secret that is longer than the maximum allowed length when using AT$QCMIPMASS. CE MUST return “ERROR” and not save a Mobile Node AAA shared secret that contains any characters other than (0-9,A-F,a-f) for AT$QCMIPMASSX. CE MUST NOT save the Mobile Node AAA shared secret to NV memory if Y is set to 0. CE MUST use the user entered Mobile Node AAA shared secret only for the next MIP session if Y is set to 0. CE MUST use the Mobile Node AAA shared secret stored in NV memory after the MIP session has deregistered or expired if Y is set to 0. CE MUST save the Mobile Node AAA shared secret to NV memory if Y is set to 1

4.1.10 $QCMIPMHSS: Set ASCII Mobile Node Home Agent shared secret

description	Set ASCII Mobile Node Home Agent shared secret string	
format	AT$QCMIPMHSS=”<X>”,<Y>	<CR><LF><CR><LF>OK<CR><LF>
	AT$QCMIPMHSS?	<CR><LF>$QCMIPMHSS: (Set|Unset) <CR><LF><CR><LF>OK<CR><LF>
parameter	<X> the user entered ASCII Mobile Node Home Agent shared secret string <Y> 0: NOT save the reverse tunneling flag to NV memory 1: save the reverse tunneling flag to NV memory	
example	AT$QCMIPMHSS=“1234”,0	OK
	AT$QCMIPMHSS?	$QCMIPMHSS: Unset OK
note	The Mobile Node Home Agent shared secret string MUST be enclosed between double quotes	

4.1.11 $QCMIPMASSX: Set hex Mobile Node Home Agent shared secret

description	Set hex Mobile Node Home Agent shared secret	
format	AT$QCMIPMHSSX=”<X>”,<Y>	<CR><LF><CR><LF>OK<CR><LF>
	AT$QCMIPMHSSX?	<CR><LF>$QCMIPMHSSX: (Set|Unset) <CR><LF><CR><LF>OK<CR><LF>

parameter	<X> the user entered hex Mobile Node Home Agent shared secret of up to 16 bytes <Y> 0: not save the change to NV memory 1: save the change to NV memory	
example	AT$QCMIPMHSSX = “aaaaaa”,0	OK
	AT$QCMIPMHSSX?	$QCMIPMHSSX: Set OK
note	CE MUST return “ERROR” if the user entered Mobile Node Home Agent shared secret begins with “0x” for AT$QCMIPMHSSX CE MUST return “ERROR” and not save a Mobile Node Home Agent shared secret that is longer than 16 bytes for AT$QCMIPMHSSX CE MUST return “ERROR” and not save a Mobile Node Home Agent shared secret that is longer than the maximum allowed length when using AT$QCMIPMHSSX. CE MUST return “ERROR” and not save a Mobile Node Home Agent shared secret that contains any characters other than (0-9,A-F,a-f) for AT$QCMIPMHSSX CE MUST NOT save the Mobile Node Home Agent shared secret to NV memory if Y is set to 0 CE MUST use the user entered Mobile Node Home Agent shared secret only for the next MIP session if Y is set to 0 CE MUST use the Mobile Node Home Agent shared secret stored in NV memory after the MIP session has deregistered or expired if Y is set to 0. CE MUST save the Mobile Node Home Agent shared secret to NV memory if Y is set to 1	

4.1.12 $QCMIPMASPI: Set Mobile Node AAA SPI integer value

description	Set Mobile Node AAA SPI integer value the change to NV memory	
format	AT$QCMIPMASPI?	<CR><LF>$QCMIPMASPI: <X>,<Y> <CR><LF><CR><LF>OK<CR><LF>
	AT$QCMIPMASPI=<X>,<Y>	<CR><LF><CR><LF>OK<CR><LF>
parameter	<X> the user entered Mobile Node AAA SPI integer value between (0-4294967295) <Y> 0: not save the change to NV memory 1: save the change to NV memory	
example	AT$QCMIPMASPI?	$QCMIPMASPI: 2,1 OK
	AT$QCMIPMASPI=1234,0	OK
note	CE MUST return “ERROR” for any other AT$QCMIPMASPI string.	

4.1.13 $QCMIPMHSPI: Set Mobile Node Home Agent SPI integer value

description	Set Mobile Node Home Agent SPI integer value the change to NV memory	
format	AT$QCMIPMHSPI?	<CR><LF>$QCMIPMHSPI: <X>,<Y> <CR><LF><CR><LF>OK<CR><LF>
	AT$QCMIPMHSPI=<X>,<Y>	<CR><LF><CR><LF>OK<CR><LF>
parameter	<X> the user entered Mobile Node Home Agent SPI integer value between (0-4294967295) <Y> 0: not save the change to NV memory 1: save the change to NV memory	
example	AT$QCMIPMHSPI?	$QCMIPMHSPI: 3,1 OK
	AT$QCMIPMHSPI=1234,0	OK
note	CE MUST return “ERROR” for any other AT$QCMIPMHSPI string.	

4.1.14 $QCMIPPHA: Set Primary Home Agent IP Address

description	Set Primary Home Agent IP Address	
format	AT$QCMIPPHA?	<CR><LF>$QCMIPPHA: <X>,<Y> <CR><LF><CR><LF>OK<CR><LF>
	AT$QCMIPPHA =”<X>”,<Y>	<CR><LF><CR><LF>OK<CR><LF>
parameter	<X> the Primary Home Agent IP Address string MUST be enclosed between double quotes. Valid values for X are ((0-255).(0-255).(0-255).(0-255)) <Y> 0: not save the change to NV memory 1: save the change to NV memory	
example	AT$QCMIPPHA?	$QCMIPPHA:192.168.1.10,0 OK
	AT$QCMIPPHA=”192.168.1.10”,0	OK
note	CE MUST return “ERROR” for any other AT$QCMIPPHA string.	

4.1.15 $QCMIPSHA: Set secondary Home Agent IP Address

description	Set secondary Home Agent IP Address	
format	AT$QCMIPSHA?	<CR><LF>$QCMIPSHA: <X>,<Y> <CR><LF><CR><LF>OK<CR><LF>
	AT$QCMIPSHA =”<X>”,<Y>	<CR><LF><CR><LF>OK<CR><LF>

parameter	<X> the Secondary Home Agent IP Address string MUST be enclosed between double quotes. Valid values for X are ((0-255).(0-255).(0-255).(0-255)). <Y> 0: NOT save the change to NV memory 1: save the change to NV memory	
example	AT$QCMIPSHA?	$QCMIPSHA: 192.168.1.10,0 OK
	AT$QCMIPSHA=“192.168.1.10”,0	OK
note	CE MUST return “ERROR” for any other AT$QCMIPSHA string.	

4.1.16 $QCMIPHA: Set Home Agent IP Address

description	Set Home Agent IP Address the change to NV memory	
format	AT$QCMIPHA?	<CR><LF>$QCMIPHA: <X>,<Y> <CR><LF><CR><LF>OK<CR><LF>
	AT$QCMIPHA =”<X>”,<Y>	<CR><LF><CR><LF>OK<CR><LF>
parameter	<X> the Home Agent IP Address string MUST be enclosed between double quotes. Valid values for X are ((0-255).(0-255).(0-255).(0-255)). <Y> 0: NOT save the change to NV memory 1: save the change to NV memory	
example	AT$QCMIPHA?	$QCMIPHA: 192.168.1.1,0 OK
	AT$ QCMIPHA=”192.168.1.10”,0	OK
note	CE MUST return “ERROR” for any other AT$QCMIPHA string. CE MUST use the IP Address in NV memory after the MIP session has deregistered or expired if Y is set to 0	

5 Sprint Specific AT Commands

5.1 CDMA AT Commands

5.1.1 ATD: Make a packet data call

description	Make a packet data call	
format	ATD<number>	<CR><LF><CR><LF>OK<CR><LF>
example	ATD#777	OK

note	CE MUST ignore any <number> and establish a packet data call. Note: in the past only #777, which is configured in a NV item, would cause the device to establish a packet data connection. As Sprint no longer allows any other type of data connection with our devices, this requirement will in effect disable the ability to use the device as a modem or fax

5.1.2 $MDN: Return the 10 digit mobile directory number

description	Return the 10 digit mobile directory number	
format	AT$MDN?	<CR><LF>$MDN: <value><CR><LF> <CR><LF>OK<CR><LF>
parameter	<value> The 10 digit mobile directory number	
example	AT$MDN?	$MDN: 1111111111 OK
note	CE MUST return "ERROR" for any other AT$MDN string	

5.1.3 $MSID: Return Mobile Station ID

description	Return Mobile Station ID	
format	AT$MSID?	<CR><LF>$MSID: <value><CR><LF> <CR><LF>OK<CR><LF>
parameter	<value> the 10 digit mobile directory number	
example	AT$MSID?	$MSID: 0966661668 OK
note	CE MUST return "ERROR" for any other AT$MSID string.	

5.1.4 $MIPERR: Return the last MIP error code received by the device

description	Return the last MIP error code received by the device	
format	AT$MIPERR?	<CR><LF>$MIPEER: <value><CR><LF> <CR><LF>OK<CR><LF>
parameter	<value> the last MIP error code	
example	AT$MIPERR?	$MIPERR: 0 OK
note	CE MUST return "ERROR" for any other AT$MIPERR string.	

5.1.5 $ERI: Return the current Enhanced Roaming Indicator value

description	Return the current Enhanced Roaming Indicator value	
format	AT$ERI?	<CR><LF>$ERI: <value><CR><LF> <CR><LF>OK<CR><LF>
parameter	<value> decimal as defined in the Sprint Enhanced Roaming Indicators document [9]	

example	AT$ERI?	$ERI: 0 OK
note	CE MUST return “ERROR” for any other AT$ ERI string	

5.1.6 $ROAM: Set the device mode

description	Set the device mode	
format	AT$ROAM=<N>	<CR><LF>OK<CR><LF>
	AT$ROAM=?	<CR><LF>$ROAM: <N><CR><LF> <CR><LF>OK<CR><LF>
parameter	<N> 0:set the device to Sprint only mode 1:set the device to automatic mode	
example	AT$ROAM=1	OK
	AT$ROAM?	$ROAM: 1 OK
note	CE MUST return "ERROR" for any other AT$ROAM string CE MUST set the default value of AT$ROAM to the value defined in the Sprint PRI Template Program Release Instructions and factory default template [6]	

5.1.7 $RMGUARD: Set roam guard(Not implemented)

description	Set roam guard	
format	AT$RMGUARD=<N>	<CR><LF>OK<CR><LF>
	AT$RMGUARD=?	<CR><LF>$RMGUARD: <N><CR><LF> <CR><LF>OK<CR><LF>
parameter	<N> 1:set roam guard to never ask 2:set roam guard to always ask	
example	AT$RMGUARD=1	OK
	AT$RMGUARD=?	$RMGUARD: 1 OK
note	CE MUST return "ERROR" for any other AT$RMGUARD string CE MUST set the default value of AT$RMGUARD to the value defined in the Sprint PRI Template Program Release Instructions and factory default template [6]	

5.2 OMA-DM commands

5.2.1 +OMADM: Disable/Enable OMA-DM capabilities

description	Disable/Enable OMA-DM capabilities, save the OMA-DM setting through power cycles	
format	AT+OMADM=<N>	<CR><LF>OK<CR><LF>

	AT+OMADM=?	<CR><LF>+OMADM: <N><CR><LF> <CR><LF>OK<CR><LF>
parameter	<N> 0:disable OMA-DM capabilities, ignore network initiated OMA-DM WAP Push messages. If the user attempts a client initiated OMA-DM session when OMA-DM is disabled, the CE MUST perform a client initiated OMA-DM session but will not enable OMA-DM capabilities 1:enable OMA-DM capabilities 2:launch a client initiated OMA-DM session Note: if OMA-DM is currently disabled this AT command will launch a client initiated OMA-DM session but will not enable OMA-DM capabilities	
example	AT+OMADM=1	OK
	AT+OMADM=?	+OMADM: 1 OK
note	CE MUST ignore network initiated OMA-DM WAP Push messages when OMA-DM is disabled CE MUST set the default value of AT+OMADM to 1	

5.2.2 +OMALOG: Disable/Enable OMA-DM client logging

description	Disable/Enable OMA-DM client logging	
format	AT+OMALOG=<N>	<CR><LF>OK<CR><LF>
	AT+OMALOG=?	<CR><LF>+OMALOG: <N><CR><LF> <CR><LF>OK<CR><LF>
parameter	<N> 0:disable OMA-DM client logging 1:enable OMA-DM client logging. CE MUST write the complete OMA-DM XML transactions to a single file in the EFS for later retrieval when OMA-DM client logging is turned on	
example	AT+OMALOG=1	OK
	AT+OMALOG=?	+OMALOG: 1 OK
note	CE MUST return "ERROR" for any other AT+OMALOG string CE MUST set the default value of AT+OMADM to 0	

5.2.3 +FUMO: Disable/Enable FUMO capabilities

description	Disable/Enable FUMO capabilities	
format	AT+FUMO=<N>	<CR><LF>OK<CR><LF>
	AT+FUMO=?	<CR><LF>+FUMO: <N><CR><LF> <CR><LF>OK<CR><LF>
parameter	<N>	

	0:disable FUMO capabilities 1:enable FUMO capabilities 2:perform a client initiated FUMO session, but will not enable FUMO capabilities	
example	AT+FUMO=1	OK
	AT+FUMO=?	+FUMO: 1 OK
note	CE MUST set the default value of AT+FUMO to 1 CE MUST return "ERROR" for any other AT+FUMO string	

5.2.4 +PRL: Get CDMA PRL version of the device

description	Get CDMA PRL version of the device	
format	AT+PRL?	<CR><LF>+ PRL: <VERSION><CR><LF> <CR><LF>OK<CR><LF>
	AT+PRL=<N>	<CR><LF>OK<CR><LF>
	AT+PRL=?	<CR><LF>+PRL: <N><CR><LF> <CR><LF>OK<CR><LF>
parameter	<N> 0: disable PRL update capabilities 1: enable PRL update capabilities. 2: perform a client initiated PRL update 3: set the device to check for PRL updates every 45 days 4: set the device to check for PRL updates every 90 days.	
example	AT+PRL=1	OK
	AT+PRL=?	+PRL: 1 OK
note	CE MUST set the default value of AT+PRL to 1 CE MUST return "ERROR" for any other AT+PRL string	

5.3 Device reset commands

5.3.1 $RTN: Set the device to factory defaults

description	Set the device to factory defaults	
format	AT$RTN=<N>	<CR><LF>OK<CR><LF>
parameter	<N> the device MSL	
example	AT$RTN=000000	OK
note	CE MUST set the device to factory defaults and power cycle the device if the correct MSL is entered CE MUST return "ERROR" if the MSL is not correct and not power cycle the device	

	CE MUST return "ERROR" for any other AT$RTN string

5.3.2 $RESET: Initiate a device power cycle

description	Initiate a device power cycle	
format	AT$RESET	<CR><LF>OK<CR><LF>
example	AT$RESET	OK
note	CE MUST support "AT$RESET" which will immediately initiate a device power cycle	

5.4 LED commands

5.4.1 +LED: Disable/Enable all LEDs on the device(not supported)

description	Disable/Enable all LEDs on the device	
format	AT+LED=<N>	<CR><LF>OK<CR><LF>
	AT+LED?	<CR><LF>+LED: <N><CR><LF> <CR><LF>OK<CR><LF>
parameter	<N> 1:disable all LEDs on the device 2:enable all LEDs on the device	
example	AT+LED=1	OK
	AT+LED=?	+LED: 1 OK
note	for data only devices	

5.5 Debug commands

5.5.1 +SERVICE: Return the integer index of data service

description	Return the integer index of data service	
format	AT+SERVICE?	<CR><LF>+SERVICE: <value><CR><LF> <CR><LF>OK<CR><LF>
parameter	<value> 0: No Service 1: 1xRTT 2: EVDO Rev 0 3: EVDO Rev A 4: GPRS 5: UMTS 6: EDGE 7: WiMax 8: WiFi 9: LTE	

example	AT+SERVICE?	+SERVICE: 3 OK
note	This command will return either the service of the active data session or the service that will be attempted when a data session will be established.	

5.5.2 $1XRXPWR: Return CDMA 1X channel, Pilot, and immediate RSSI

description	Return the CDMA 1X channel, Pilot, and immediate RSSI measurements in dBm for each antenna on separate lines in the format	
format	AT$1XRXPWR?	<CR><LF>$1XRXPWR: <antenna>,<Channel>, <Pilot>,<RSSI><CR><LF><CR><LF>OK<CR><LF>
example	AT$1XRXPWR?	0,100,247,-85.5 OK
note	If the device does not support multiple antennas, only one value is returned. If the device supports multiple antennas, the primary antenna is listed first followed by additional antennas	

5.5.3 $DORXPWR: Return the EVDO channel, Pilot, and immediate RSSI

description	Return the EVDO channel, Pilot, and immediate RSSI measurements in dBm for each antenna on separate lines in the format	
format	AT$DORXPWR?	<CR><LF>$DORXPWR: <antenna>,<Channel>, <Pilot>,<RSSI> <CR><LF><CR><LF>OK<CR><LF>
example	AT$DORXPWR?	0,100,247,-85.5 OK
note	If the device does not support multiple antennas, only one value is returned. If the device supports multiple antennas, the primary antenna is listed first followed by additional antennas	

5.5.4 $1XECIO: Return the CDMA 1X Channel, Pilot, and immediate Ec/Io

description	Return the CDMA 1X Channel, Pilot, and immediate Ec/Io measurements in dB for each antenna on separate lines in the format	
format	AT$1XECIO?	<CR><LF>$1XECIO: <antenna>,<Channel>, <Pilot>,<Ec/Io><CR><LF><CR><LF>OK<CR><LF>
example	AT$1XECIO?	0,50,247,-85.5 OK
note	If the device does not support multiple antennas, only one value is returned. If the device supports multiple antennas, the primary antenna is listed first followed by additional antennas	

5.5.5 $DOECIO: Return EVDO channel, Pilot, and immediate RSSI

description	return the EVDO channel, Pilot, and immediate RSSI measurements in dBm for each antenna on separate lines in the format	
format	AT$DOECIO?	<CR><LF>$DOECIO: <antenna>,<Channel>, <Pilot>,<RSSI><CR><LF><CR><LF>OK<CR><LF>
example	AT$DOECIO?	0,100,247,-2.4 OK
note	If the device does not support multiple antennas, only one value is returned. If the device supports multiple antennas, the primary antenna is listed first followed by additional antennas	

5.5.6 $DEBUG: Return the debug information

description	Return the debug information	
format	AT$DEBUG?	<CR><LF><CR><LF><Fieldname>:<value> <CR><LF><CR><LF>OK<CR><LF>
parameter		
example	AT$DEBUG?	1x Engineering State : Idle SO : 3 …. OK

5.6 Location commands(only support MC2718)

5.6.1 $LOCATION: Enable/Disable the location service

description	Enable/Disable the location service	
format	AT$LOCATION=<flag>	<CR><LF>OK<CR><LF>
	AT$LOCATION=?	<CR><LF><flag><CR><LF><CR><LF> OK<CR><LF>
example	AT$LOCATION=1	OK
	AT$LOCATION=?	1 OK
note	CE MUST support "AT$LOCATION=0" which will disable location services CE MUST support "AT$LOCATION=1" which will enable location services CE MUST support "AT$LOCATION=?" which will return the status of location services The command will return 0 if locations services are disabled and return 1 if location services are enabled	

5.6.2 $PDE: Set PDE Server IP and Port

description	Set PDE Server IP and Port

format	AT$PDE=<IP>,<port>	<CR><LF>OK<CR><LF>
example	AT$ PDE=192.168.1.1,6000	OK
note	IP is the IPv4 address in dotted decimal format (<0-255>.<0-255>.<0-255>.<0-255>) Port is the numeric port (0-65535) for the PDE server	

5.6.3 $GETLOCATION: Get the device current location in the specified format

description	Get the device current location in the specified format	
format	AT$GETLOCATION	<CR><LF>MM/DD/YYYY, HH:MM:SS, ±DD.dddddd, ±DDD.dddddd, ±nnnn,nnnnnn, nnn, ±DDD.dd, nn<CR><LF>
example	AT$GETLOCATION	09/24/2009, 21:43:57, 39.012345, -104.012345, +312, 1234567, 1234567, 40, 359.93, 13
parameter	See table 3-1	
note	CE MUST support "AT$GETLOCATION" which will return the device current location in the specified format CE MUST return the text "UNK" for any parameter which isn't known in the AT+GETLOCATION return string CE MUST return "ERROR" if the location position is not able to be retrieved. CE will include the case where location services are turned off and the user issues the AT+GETLOCATION command	

Table 3-1 Location Field Description

Field	Format	Example	Comment
Date samp-GMT	MM/DD/YYYY	09/24/2009	
24 hour time stamp-GMT	HH:MM:SS	21:43:57	
Latitude in decimal degrees	+/-DD.dddddd	39.012345	Latitude North =+ Latitude South =-; Max of 90.000000 degrees; Latitude *180/2^25;
Longitude in decimal degrees	+/-DDD.dddddd	-104.0125345	Longitude East is +, Longitude West is -; Max of 180.000000 degrees Longitude*360/10^26
Elevation in meters	+/-nnnn	+321	In meters above [+]or below [-] sea level with reference to the WGS-84 reference Ellipsoid
HEPE in meters	nnnnnn	123654	Inter valued,negative not allowed HEPE=SQRT((LOC_UNCRTNTY_A* LOC_UNCRTNTY_A))+ (LOC_UNCRTNTY_P*

			LOC_UNCRTNTY_P))
Speed in meters per second	nnn	40	Inter valued,negative not allowed
Bearing in decimal degrees	=/-DDD.dd	359.93	In positive decimal degrees;negatives not allowed Bearing = Heading*360/2^10
#satellites used in location fix	nn	13	Inter valued,negative not allowed

5.6.4 $LOCMODE: Set the GPS location mode

description	Set the GPS location mode	
format	AT$LOCMODE=<mode>	<CR><LF>OK<CR><LF>
	AT$LOCMODE=?	<CR><LF><mode><CR><LF> <CR><LF>OK<CR><LF>
example	AT$LOCATION=4	OK
	AT$LOCMODE=?	4 OK
note	Once the next AT$ LOCMODE has been executed the device needs to return to the default location mode CE MUST reset the location acquisition mode after a location acquisition request has been executed, regardless of the execution was successful or not CE MUST return "ERROR" for any other AT$LOCMODE string	

<mode> Parameter:

"AT$LOCMODE=1" to set the GPS location fix to MS-Assisted using the following values.

Sessin Type	Single Shot Fix
Operational mode	MS-Assisted
PDE IP Address and Port	Current device stored values
Quality of Service	16
Number of Fixes	1
Time Between Fixes	1

"AT$LOCMODE=2" to set the GPS location fix to MS-Based using the following values.

Sessin Type	Tracking
Operational mode	MS-Based
PDE IP Address and Port	Current device stored values
Quality of Service	16
Number of Fixes	9999
Time Between Fixes	1

"AT$LOCMODE=3" to set the GPS location fix to AFLT using the following values.

Sessin Type	Single Shot Fix
Operational mode	MS-Assisted
PDE IP Address and Port	Current device stored values
Quality of Service	0
Number of Fixes	1
Time Between Fixes	1

"AT$LOCMODE=4" to set the GPS location fix to Autonomous using the following values.

Sessin Type	Tracking
Operational mode	Autonomous GPS
Quality of Service	255
Number of Fixes	9999
Time Between Fixes	1

"AT$LOCMODE=?" Return the current value of the location mode

Return value	Meaning
1	MS-Assisted
2	MS-Based
3	AFLT
4	Autonomous

5.6.5 $NMEA: Enable/Disable the NMEA 183 standard stream

description	Enable /Disable the NMEA 183 standard stream	
format	AT$NMEA=<flag>	<CR><LF>OK<CR><LF>
	AT$NMEA=?	<CR><LF><flag><CR><LF> <CR><LF>OK<CR><LF>
example	AT$NMEA=1	OK
	AT$NMEA＝?	1 OK
note	CE MUST support "AT$NMEA=0" which will enable the NMEA 183 standard stream CE MUST support "AT$NMEA=1" which will disable the NMEA 183 standard stream CE MUST support "AT$NMEA=?" which will return the NMEA 183 standard stream setting CE will return 0 if the stream is off and 1 if the stream is on. CE MUST only return the following NEMA 183 sentences: $GPGGA, $GPGSA, $GPGSV, $GPRMC, $GPVTG	

FCC Regulations:

●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.

●This device has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiated radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

-Reorient or relocate the receiving antenna.
-Increase the separation between the equipment and receiver.
-Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
-Consult the dealer or an experienced radio/TV technician for help.

Changes or modifications not expressly approved by the party responsible for compliance could void the user‘s authority to operate the equipment.

●The antenna(s) used for this transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

RF Exposure Information

This device meets the government’s requirements for exposure to radio waves.
This device is designed and manufactured not to exceed the emission limits for exposure to radio frequency (RF) energy set by the Federal Communications Commission of the U.S. Government.

●This device complies with FCC radiation exposure limits set forth for an uncontrolled environment. In order to avoid the possibility of exceeding the FCC radio frequency exposure limits, human proximity to the antenna shall not be less than 20cm (8 inches) during normal operation.

When the module is installed in the host device, the FCC ID label must be visible through a window on the final device or it must be visible when an access panel, door or cover is easily re-moved. If not, a second label must be placed on the outside of the final device that contains the following text: “Contains FCC ID: Q78-MC2718”