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FIBOCOM_L610_AT_Commands_User_Manual_Audio

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Application type

No.	Type	Note
1	L610 Series	NA

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Versions

Version	Author	Assessor	Approver	Update ate	Remarks
V1.0.0	Wang Yuxing	Long Zhongyou	Long Zhongyou	2020-02-07	Initial version

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1 AUDIO Command

1.1 AUDIO Introduction

This section describes the Audio features, which includes the following configuration items:

Path: Selection of microphone and speaker to be used.

Gain: Control of volume levels for rings, voice, etc.

Algorithm: Activation of audio algorithms (echo cancellation, noise suppression and sidetone).

Audio Control of Path, Gain and Algorithms is available by these two different modes sets of commands. It is advised to select the audio mode according to the application needs.

Note:

Command about setting external codec and mic gain are not currently supported,

include: +MATONE +MMICG +GTCODECN +MAI2SY +GTAUDMODE + PCMMODE + GTPCMCFG

1.2 AUDIO Commands

1.2.1+CRSL, Call Ringer level

Description

This command handles the selection of the incoming call ringer sound level on the current speaker of the Module. The new value remains after power cycle.

Syntax

Command	Response/Action
+CRSL=<level>	OK or: +CME ERROR: <err>
+CRSL?	+CRSL: <level> OK
+CRSL=?	+CRSL: (list of supported <level>s) OK

Attributes

Pin Restricted	Persistent	Sync Mode	Execute Immediately	Time of duration
No	Yes	Yes	Yes	<1s

Defined Values

Reference 3GPP TS 27.007

<level>: 0-7 Manufacturer-specific volume range.

The default value is 4.

1.2.2+CLVL, Loudspeaker Volume

Description

This command sets the volume of the internal loudspeaker of the Module.

Note:

In this command, the new value remains after power cycle.The +CLVL command can be used even when the SIM is not inserted.

Syntax

Command	Response/Action
+CLVL=<level>	OK or: +CME ERROR: <err>
+CLVL?	+CLVL: <level> OK
+CLVL=?	+CLVL: (list of supported <level>s) OK

Attributes

Pin Restricted	Persistent	Sync Mode	Execute Immediately	Time of duration
No	Yes	Yes	Yes	<1s

Defined Values

Reference 3GPP TS 27.007

<level>: 0-7 Manufacturer-specific volume range.

0 is lowest volume (not mute).

The default value is 6.

1.2.3+CMUT, Mute/Unmute Microphone and Speaker Path

Description

This command is used to mute/unmute the currently active Microphone and Speaker path by overriding the current mute state. The CMUT setting should take effect only for the current call or for the next call once the command setting was typed in idle mode.

Syntax

Command	Response/Action
+CMUT=<state>	OK or: +CME ERROR: <err>
+CMUT?	+CMUT: <state> OK
+CMUT=?	+CMUT: (list of supported <state>s) OK

Attributes

Pin Restricted	Persistent	Sync Mode	Execute Immediately	Time of duration
No	NO	Yes	Yes	<1s

Defined Values

Reference 3GPP TS 27.007

<state> 0 Unmute microphone and speaker path (default value)

1 Mute microphone path, Unmute speaker path

2 Unmute microphone, mute speaker path

3 Mute microphone path, mute speaker path

1.2.4+CALM, Alert Sound Mode

Description

This command handles the selection of the Module's alert sound mode. The value of the command is saved after a power cycle.

Note:

Selecting the ring mode with this command retrieves the current alert volume level setting.

Syntax

Command	Response/Action
+CALM=<callmode>,<smsmode>	OK or: +CME ERROR: <err>
+CALM?	+CALM: <callmode>,<smsmode> OK
+CALM=?	+CALM: (list of supported <callmode>s), (list of supported <smsmode>s) OK

Attributes

Pin Restricted	Persistent	Sync Mode	Execute Immediately	Time of duration
No	Yes	Yes	Yes	<1s

Defined Values

Reference 3GPP TS 27.007

<callmode> Alert sound mode of the Module.

0 new call play tone(default)

1 new call Silent mode (ring prevented)

<smsmode>

0 new sms play tone(default)

1 new sms Silent mode (ring prevented)

1.2.5+VTD, Tone Duration

Description

This command handles the selection of tone duration. An integer <n> defines the length of tones emitted as a result of the +VTS command. This command does not affect the D (dial) command. In this command, the new value is saved after power down.

Note1:

In GSM, the tone duration value can be modified depending on the specific network

Note2:.

In GSM/UMTS the value of tone duration is preset and cannot be altered(27.007-e50)

Syntax

Command	Response/Action
+VTD=<n>	OK or: +CME ERROR: <err>
+VTD?	+VTD: <n> OK
+VTD=?	+VTD: (list of supported <n>s) OK

Attributes

Pin Restricted	Persistent	Sync Mode	Execute Immediately	Time of duration
No	Yes	Yes	Yes	<1s

Defined Values

Reference 3GPP TS 27.007

<n> Defines the length of tones emitted by the +VTS command.

1-10 100mS to 1S adjustable.

1.2.6+VTS, Command-Specific Tone Duration

Description

This command transmits a string of DTMF tones when a voice call is active. DTMF tones may be used, for

example, when announcing the start of a recording period.The duration does not erase the VTD duration

Note1:

In GSM, the tone duration value can be modified depending on the specific network.

If the active call is dropped in the middle of playing a DTMF tone, the following unsolicited message transfers to TE: +VTS: "Call termination stopped DTMF tones transmission".

Note2:

The duration defined by +VTS is specific to the DTMF string in this command only. It does not erase the duration defined by the +VTD command, and is erased when the Module is powered down.If <duration> is not defined, the +VTD value is used.

Syntax

Command	Response/Action
+VTS=<DTMF>[,<duration>]	OK or: +CME ERROR: <err>
+VTS?	N/A
+VTS=?	+VTS: (list of supported <DTMF>s),(list of supported <durations>s) OK

Attributes

Pin Restricted	Persistent	Sync Mode	Execute Immediately	Time of duration
No	Yes	Yes	Yes	<1s

Defined Values

Reference 3GPP TS 27.007

<DTMF> String of ASCII characters (0-9, #,*,A-D)

String length is up to 32 characters long.

<duration> A DTMF tone of different duration from that set by the +VTD command.if no set ,module will Use value from VTD

1-10 100mS to 1S adjustable..

1.2.7+VTA, Set play DTMF type

Description

This command enable/disable play DTMF tone at local side when send DTMF to the network by VTS.

Syntax

Command	Response/Action
+VTA=<para>	OK or: +CME ERROR: <err>
+VTA?	+VTA: <para> OK
+VTA=?	+VTA: (list of supported <para>s) OK

Attributes

Pin Restricted	Persistent	Sync Mode	Execute Immediately	Time of duration
No	Yes	Yes	Yes	<1s

Defined Values

<para>

0：Disable play DTMF tone at local side

1：Enable play DTMF tone at local side (Default value)

1.2.8+MAVOL, Volume Setting

Description

This command enables you to determine a volume level for a particular feature via a particular accessory. The gain levels are saved in NVM. Therefore, upon power up, the path active (mic, speaker and alert speaker) will have these saved gain levels.

Note:

The SMS MT volume is adjusted using the +MAVOL command with type "ring". The RING value is related to the SMS alert, the MT call, and so on.

Syntax

Command	Response/Action
+MAVOL=<accy>,<feature>,<vol>	OK or: +CME ERROR: <err>
+MAVOL?	(Current path volume) +MAVOL: <accy>,<feature1>,<vol> +MAVOL: <accy>,<feature2>,<vol> +MAVOL: <accy>,<feature4>,<vol> +MAVOL: <accy>,<feature8>,<vol> OK
+MAVOL=?	+MAVOL: (list of supported <accy>s),(list of supported <feature>s),(list of supported <vol>s) OK

Attributes

Pin Restricted	Persistent	Sync Mode	Execute Immediately	Time of duration
No	Yes	Yes	Yes	<1s

Defined Values

<accy>

1 1st channel SPK+/SPK-

<feature>

1 Voice

2 Tone

3 1 and 2

4 Midi

5 1 and 4

6 2 and 4

7 1 and 2 and 4

<vol> Volume level 0-7

1.2.9+MATONE, Start or Stop the tone play

Description

This command can play tone and stop play.

Syntax

Command	Response/Action
+MATONE=<state>,<tone_id>,<nof_play_times>,<mix_factor>	OK or: +CME ERROR: <err>
+MATONE?	+MATONE: <result>,<aud_ret_code> OK
+MATONE=?	+MATONE: <state>,<tone_id>,<nof_play_times>,<mix_factor> OK

Attributes

Pin Restricted	Persistent	Sync Mode	Execute Immediately	Time of duration
No	Yes	Yes	Yes	<1s

Defined Values

<state>

0 : stop

When state=0,<tone_id>=0,<nof_play_times>=0,<mix_factor>=0,means the tone is stop

1 : start

<tone_id> integer indicating the audio tone ID and may be:

0.AUDEV_TONE_DTMF_0

1.AUDEV_TONE_DTMF_1

2.AUDEV_TONE_DTMF_2

3.AUDEV_TONE_DTMF_3

4.AUDEV_TONE_DTMF_4

5.AUDEV_TONE_DTMF_5

6.AUDEV_TONE_DTMF_6

7.AUDEV_TONE_DTMF_7

8.AUDEV_TONE_DTMF_8

9.AUDEV_TONE_DTMF_9

10.AUDEV_TONE_DTMF_A

11.AUDEV_TONE_DTMF_B

12.AUDEV_TONE_DTMF_C

13.AUDEV_TONE_DTMF_D

14.AUDEV_TONE_DTMF_SHARP

15.AUDEV_TONE_DTMF_STAR

16.AUDEV_TONE_DIAL

17.AUDEV_TONE_SUBSCRIBER_BUSY

18.AUDEV_TONE_RADIO_PATHACKNOWLEDGEMENT

19.AUDEV_TONE_CALL_DROPPED

20.AUDEV_TONE_SPECIAL_INFORMATIONormation

21.AUDEV_TONE_CALL_WAITING

22.AUDEV_TONE_RINGING

<nof_play_times> Integer indicating the amount of tone repetitions; range 0 .. 32767 (0x7FFF); 0 means repeats for ever; for other values a response is returned when the tone generation is finished. See further DWD Audio driver interface specification.

<mix_factor> <mix_factor> integer indicating the kind of volume for tone generation; range 1 .. 7

<result> integer indicating the overall result of the command, may be:

0: RESULT_OK

1: RESULT_PARAM_OUT_OF_RANGE

2: RESULT_DRV_NOT_SUPPORTED

3: RESULT_AUD_RESOURCE_NOT_AVAI L

4: RESULT OTHER ERROR

<aud_ret_code> integer value indicating the return code of the audio driver function call and may be:

0: aud_rc_ok

1: aud_rc_resource_in_use

2: aud_rc_resource_conflict

3: aud_rc_handle_not_used

4: aud_rc_no_hw_support

5: aud_rc_sharing_violation

6: aud_rc_parameter_out_of_range

7: aud_rc_audio_driver_disabled

8: aud_rc_missing_dsp_resou rces

10: aud_rc_format_not_supported

11: aud_rc_no_playback

12: aud_rc_unknown_position

13: aud_rc_request_error

14: aud_rc_syntax_error

15: aud_rc_tone_error

16: aud_rc_storage_problems

17: aud_rc_performance_problems

18: aud_rc_ram_buffer_used

19: aud_rc_suspend_resume_error

20: aud_rc_info

1.2.10 +MMICG, Microphone Gain Value

Description

This command handles the selection of microphone gain values of MIC. The new value remains after power cycle.

Syntax

Command	Response/Action
+MMICG=<gain>	OK or: +CME ERROR: <err>
+MMICG?	+MMICG: <gain> OK
+MMICG=?	+MMICG: (list of supported <gain>s) OK

Attributes

Pin Restricted	Persistent	Sync Mode	Execute Immediately	Time of duration
No	Yes	Yes	Yes	<1s

Defined Values

<gain> Microphone gain values:

0-15 0 is lowest gain value (not mute);

The default value is 10.

1.2.11 +GTCODECN, CODEC Chip Selection

Description

This command is used for configuring the internal CODEC and external CODEC, internal CODEC is built-in, the chip model is ALC5621, external CODEC supports CS42L73 and ALC5621, the parameters can be saved if power is off, and the changes takes effect when it is restarted. The default value is 2 for L8xx,H35x and H38x,the default value is 0 for H33x.

Note:

This command is valid after set AT+GTSET="DIGITPLAY",1 for L8xx,H35x and H38x.Module will into audio demo mode.

Syntax

Command	Response/Action
+GTCODECN=<choice>	OK or: +CME ERROR: <err>
+GTCODECN?	+GTCODECN: <choice> OK
+GTCODECN=?	+GTCODECN: (list of supported <choice>s) OK

Attributes

Pin Restricted	Persistent	Sync Mode	Execute Immediately	Time of duration
No	Yes	Yes	No	<1s

Defined Values

<choice>

0 choose the codec comes with the module, model number is ALC5621

1 choose external codec, the module number is ALC5621

2 choose external codec, the module number is CS42L73 (default value)

1.2.12 +MAI2SY, Set Digital Audio to Transmit Parameters

Description

This command is used for setting digital audio to transmit the parameters, including master mode and slave mode, transmission mode, sampling rate and word width.

Syntax

Command	Response/Action
+MAI2SY=<master>,<tran_mode>,<sample>,<width>	OK or: +CME ERROR: <err>
+MAI2SY?	If +GTCODECN choose chip ALC5621, it return +MAI2SY: <master>,<tran_mode>,<sample>,<width> OK
+MAI2SY=?	+MAI2SY: (range of <master>s),(range of <tran_mode>s),(range of <sample>s),(range of <width>s) OK

Attributes

Pin Restricted	Persistent	Sync Mode	Execute Immediately	Time of duration
No	Yes	Yes	Yes	<1s

Defined Values

<master> Set data transmission to master mode or slave mode

0: module is in master mode, external CODEC is in slave mode

1: module is in slave mode, external CODEC is in master mode

<tran_mode> Data Transimisson Mode

0: I2S mode

1: PCM mode

<sample> Sampling rate

0: 8k

1: 16k

2: 24K

3: 32K

4: 44.1K

<width> Word width:

0: 16BIT

1: 24BIT

2: 32BIT

1.2.13 +GTAUDMODE, Switch Audio Scenario

Description

This command is to set the audio mode.It must set before play call.

Syntax

Command	Response/Action
+GTAUDMODE=<mode>	OK or: +CME ERROR: <err>
+GTAUDMODE?	+GTAUDMODE: <mode> OK or: +GTAUDMODE: 0 OK
+GTAUDMODE=?	+GTAUDMODE: (1-5) OK

Attributes

Pin Restricted	Persistent	Sync Mode	Execute Immediately	Time of duration
No	Yes	Yes	Yes	<1s

Defined Values

<mode>

1: Handset mode

2: Earphone mode

3: Speakerphone mode

4: I2S Bluetooth mode

5: PCM Bluetooth mode

1.2.14 +PCMMODE, Set PCM Frame Synchronization Signal Mode

Description

This command is used to set the pcm frame synchronization signal mode.

Syntax

Command	Response/Action
+PCMMODE=<mode>	OK or: +CME ERROR: <err>
+PCMMODE?	+PCMMODE: <mode> OK
+PCMMODE=?	+PCMMODE: (0-3) OK

Attributes

Pin Restricted	Persistent	Sync Mode	Execute Immediately	Time of duration
No	Yes	Yes	Yes	<1s

Defined Values

<mode>

0 I2S PCM RX synchronization signal is falling edge valid.

I2S PCM RX synchronization signal is 2 clock cycle.

I2S PCM TX synchronization signal is falling edge valid.

I2S PCM TX synchronization signal is 2 clock cycle. (default value)

1 I2S PCM RX synchronization signal is rising edge valid.

I2S PCM RX synchronization signal is 1 clock cycle.

I2S PCM TX synchronization signal is rising edge valid.

I2S PCM TX synchronization signal is 1 clock cycle.

2 I2S PCM RX synchronization signal is falling edge valid.

I2S PCM RX synchronization signal is 1 clock cycle.

I2S PCM TX synchronization signal is falling edge valid.

I2S PCM TX synchronization signal is 1 clock cycle.

3 I2S PCM RX synchronization signal is rising edge valid.

I2S PCM RX synchronization signal is 2 clock cycle.

I2S PCM TX synchronization signal is rising edge valid.

I2S PCM TX synchronization signal is 2 clock cycle.

1.2.15 +GTPCMCFG, Set PCM Register

Description

This command is used to set the pcm frame synchronization signal register.

Syntax

Command	Response/Action
+GTPCMCFG =<mode>,<reg1>,<reg2>,…[regn]	OK or: +CME ERROR: <err>
+GTPCMCFG?	+GTPCMCFG: 0:<reg1>,<reg2>,…,<regn> 1:<reg1>,<reg2>,…,<regn> … OK or: ERROR
+GTPCMCFG =?	+GTPCMCFG: 0:(list of supported <reg1>s), (list of supported <reg2>s),…, (list of supported <regn>s) 1:(list of supported <reg1>s), (list of supported <reg2>s),…, (list of supported <regn>s) … OK

Attributes

Pin Restricted	Persistent	Sync Mode	Execute Immediately	Time of duration
No	Yes	Yes	Yes	<1s

Defined Values

<mode>

0 I2SY 的 PCM RXCONF profile

1 I2SY 的 PCM RXCONF profile

<regn>

When <mode> = 0，<regn> register：

<reg1> I2SY PCM RXCONF edge

<reg2> I2SY PCM RXCONF wa_delay

<reg3> I2SY PCM RXCONF wa_polarity

<reg4> I2SY PCM RXCONF frame_period

<reg5> I2SY PCM RXCONF sample_width

<reg6> I2SY PCM RXCONF data_alignment

<reg7> I2SY PCM RXCONF reserved

<reg8> I2SY PCM RXCONF clk1_out

<reg9> I2SY PCM RXCONF clk1_cont

<reg10> I2SY PCM RXCONF wa1_len

When <mode> = 1，<regn> register：

<reg1> I2SY PCM TXCONF edge

<reg2> I2SY PCM TXCONF wa_delay

<reg3> I2SY PCM TXCONF wa_polarity

<reg4> I2SY PCM TXCONF frame_period

<reg5> I2SY PCM TXCONF sample_width

<reg6> I2SY PCM TXCONF data_alignment

<reg7> I2SY PCM TXCONF mono

<reg8> I2SY PCM TXCONF mute_l

<reg9> I2SY PCM TXCONF mute_r

<reg10> I2SY PCM TXCONF clk0_out

<reg11> I2SY PCM TXCONF clk0_cont

<reg12> I2SY PCM TXCONF wa0_len