A76XX Series_Audio_Application Note

LTE Module
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Version History

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<td>V1.00</td>
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Scope

Based on module AT command manual, this document will introduce Audio application process. Developers could understand and develop application quickly and efficiently based on this document. This document applies to A1803S Series, A1603 Series, A1601 Series and A1802 Series.
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1 Introduction

1.1 Purpose of the document

Based on module AT command manual, this document will introduce Audio application process. Developers could understand and develop application quickly and efficiently based on this document. This document gives the usage of A76XX TTS functions, Audio file playback functions and record functions. User can get useful information about these functions quickly through this document.

The functions are provided in AT command format, and they are designed for customers to design their audio applications easily. User can access these Audio AT commands through UART/USB interface which communicates with A76XX module. Now Chinese and English languages can be supported in TTS functions. And Audio file playback support to play WAV and AMR files. On the other hand, the record file are saved as WAV files.

1.2 Related documents


1.3 Conventions and abbreviations

In this document, the GSM engines are referred to as following term:
AMR (Adaptive Multi-Rate);
TTS (Text to Speech);

1.4 The process of Using Audio AT Commands
1.4.1 The process of TTS function

- Power on the module
- AT+CTTSPARAM=1,3,0,1,1 (set TTS parameters)
- TTS data write file or not
  - Yes: Save wav file with 3td to show path and filename, do not save with just tow parameters.
  - No: AT+CTTS=1,” 6B228FCE4F7F” (play UCS2 text)
  - AT+CTTS=1,” 6B228FCE4F7F”,” C:/123” (play UCS2 text and save to C:/123.wav)
- Stop actively by AT+CTTS=0
- URC:” +CTTS: 0” (TTS play end)

1.4.2 The process of audio file playback function
1.4.3 The process of record function

Support file type: AMR, WAV; Support file storage: C:\(file system), D:\(SD card). 2th parameter is playing mode(0: local, 1: remote). Last parameter is the number of cycles.

Stop actively by AT+CCMXPLAY

AT+CCMXPLAY=" C:/3034.amr",0,1 (play AMR file)

AT+CCMXSTOP (stop audio file playing)

URC:" +AUDIOSTATE: audio play stop" (audio file play end)
1.5 Error Handling

1.5.1 Executing Audio AT Commands Fails

When executing Audio AT commands, if ERROR response is received from the module, please check whether the version is supporting it when executing.
# ATCommands for Audio

## 2.1 Overview of AT Commands for Audio

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
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<tbody>
<tr>
<td>AT+CTTS</td>
<td>TTS operation</td>
</tr>
<tr>
<td>AT+CTTSPARAM</td>
<td>Set TTS parameters</td>
</tr>
<tr>
<td>AT+CDTAM</td>
<td>Set local or remote audio play</td>
</tr>
<tr>
<td>AT+CCMXPLAY</td>
<td>Play an audio file</td>
</tr>
<tr>
<td>AT+CCMXSTOP</td>
<td>Stop playing audio file</td>
</tr>
<tr>
<td>AT+CREC</td>
<td>Record WAV audio file</td>
</tr>
</tbody>
</table>
3 AudioExamples

3.1 TTS Function

3.1.1 Set TTS parameters

//Example of TTS parameters setting
\nAT+CTTSPARAM=?        \n+CTTSPARAM:(0-2),(0-3),(0-3),(0-2),(0-2) \nOK
AT+CTTSPARAM=1,3,0,1,1 \nOK
AT+CTTSPARAM?
+CTTSPARAM:1,3,0,1,1 \nOK

3.1.2 Playing UCS2 text or ASCII text

//Example of TTS play
AT+CTTS=1,"6B228FCE4F7F75288BED97F3540862107CFB7EDF" \n+CTTS: \nOK
+CTTS: 0
AT+CTTS=2,"1234567890" \n+CTTS: \nOK
+CTTS: 0 \n
3.1.3 Playing UCS2 text or ASCII text and saving to WAV file

//Example of TTS play
AT+CTTS=4,"6B228FCE4F7F75288BED97F3540862107CFB7EDF","C:/123"
+CTTS:
OK
+CTTS: 0
AT+CTTS=3,"123456789012345678","D:/123"
+CTTS:
OK
+CTTS: 0

3.1.4 TS remote playback

//Example of TTS play to the remote
AT+CDTAM=1
OK
ATD199XXXXXXXX;
OK
AT+CTTS=1,"6B228FCE4F7F75288BED97F3540862107CFB7EDF"
+CTTS:
OK
+CTTS: 0

3.1.5 Playing UCS2 text or ASCII text and saving to WAV file

//Example of TTS play
AT+CTTS=1,"6B228FCE4F7F75288BED97F3540862107CFB7EDF"
+CTTS:
OK
3.2 Audio Function

3.2.1 Play AMR file and WAV file

//Example of Audio file playback
AT+CFTRANRX="C:/3034.amr",24742 >

OK

AT+CCMXPLAY="C:/3034.amr",0,3
+CCMXPLAY:

OK
+AUDIOSTATE: audio play

+AUDIOSTATE: audio play stop
AT+CCMXPLAY="C:/recording.wav",0,0
+CCMXPLAY:

OK
+AUDIOSTATE: audio play

+AUDIOSTATE: audio play stop

3.2.2 Play audio file to the remote

//Example of Audio file playback
ATD199XXXXXXXX;
OK
AT+CCMXPLAY="C:/3034.amr",1,0
+CCMXPLAY:
3.2.3 Stop audio file playback

//Example of Audio file playback
AT+CCMXPLAY="C:/3034.amr",1,0  //play "C:/3034.amr" to the remote
+CCMXPLAY:
OK
+AUDIOSTATE: audio play  //start playback
AT+CCMXSTOP  //stop file playback
+CCMXSTOP:
OK
+AUDIOSTATE: audio play stop

3.3 Record Function

3.3.1 Local recording

//Example of recording
AT+CREC=1,"C:/recording.wav"  //start recording and save to "C:/recording.wav"
+CREC: 1
OK
+CREC: file full  //recording time is about 40s and recording end

3.3.2 Remote recording

//Example of recording
ATD199XXXXXXXX;  //start call and stay on call
OK
### AT+CREC=2,"C:/recording.wav"  
+CREC: 2

OK

+CREC: file full  
//recording time is about 80s and recording end

---

### 3.3.3 Stop recording

//Example of recording

**AT+CREC=1,"C:/recording.wav"**  
+CREC: 1

OK

**AT+CREC=0**  
+CREC: 0

OK
## 4 Appendix

### 4.1 Summary of Error Codes

<table>
<thead>
<tr>
<th>Code of &lt;errcode&gt;</th>
<th>Meaning</th>
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</thead>
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<tr>
<td>0</td>
<td>Success</td>
</tr>
<tr>
<td>2</td>
<td>Unknown error</td>
</tr>
<tr>
<td>3</td>
<td>Busy</td>
</tr>
<tr>
<td>7</td>
<td>File not exists or any other memory error</td>
</tr>
<tr>
<td>8</td>
<td>Invalid parameter</td>
</tr>
<tr>
<td>9</td>
<td>Operation rejected by server</td>
</tr>
<tr>
<td>11</td>
<td>State error</td>
</tr>
<tr>
<td>17</td>
<td>File error, file not exist or other error.</td>
</tr>
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