

AUBTM-12 bluetooth module

External Commands

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REVISION HISTORY

Revision Number	Release Date	Authors	Reason of Revisions	Review Date	Reviewers
00.01		Jie Liu	Initial Draft		
00.02	4/32007	Jie Liu	Add RING command		

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1. Introduction

1.1 Background

AUBTM-12 is a Bluetooth v1.2 module with A2DP/AVRCP/HANDSFREE/HEADSET/OPP profiles. The module is intended to be integrated into another HOST system which requires Bluetooth functions. The HOST system could send commands to AUBTM-12 through a UART. AUBTM-12 will parse the commands and execute proper functions, e.g. connect to another Bluetooth device, initiate a phone call.

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1.2 Purpose

The purpose of this document is to define the protocol between the HOST system and AUBTM-12 through the UART connection.

The protocol heavily depends on the AT commands of 3GPP 27.007[1] and 27.005 GSM[1] recommendations. Most of the commands are the same with the GSM standard, with several special commands defined by AUSTAR technology.

1.3 Scope

This document is largely concerned with the following contents:

1. the package structure of protocol,
2. the definition of each command sent by the HOST system and its corresponding function.
3. The definition of each response sent by AUBTM-12 and its corresponding meaning.

1.4 Constraint and Limitation

- ✧ All operations should stick to local laws and regulations.

1.5 Acronyms and Abbreviations

Table 1-1 Acronyms and Definitions

Acronym	Definition
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Acronym	Definition

1.6 Terms

Table 1-2 Glossary of Terms

Term	Definition
HOST	The system which integrate AUBTM-12
UART	universal asynchronous receiver/transmitter
Bluetooth	
Profile	
A2DP	
AVRCP	
HANDSFREE	
HEADSET	
OPP	
SPP	
Bluetooth address	
Pin code	

1.7 Document Organization

1.8 Document Location

2. Protocol Overview

2.1 General

For the exchange of the commands and unsolicited results codes, the format, syntax and procedures of 3GPP 27.007 [1] shall be taken as reference. The following rules specifically apply for this protocol.

- Only one command (or unsolicited result code) per command line needs to be expected.
- The HOST, by default, shall not echo the command characters.
- The HOST shall always transmit result codes using verbose format.
- The characters below shall be used for AT commands and result codes formatting:

<cr> corresponds to the *carriage return (0/13)* as stated in [6]

<lf> corresponds to the *line feed (0/10)* as stated in [6]

- The format of an AT command from the HF to the AG shall be:

<AT command><cr><lf>

- The format of the OK code from the AG to the HF shall be:

<cr><lf>OK<cr><lf>

- The format of the generic ERROR code from the AG to the HF shall be:

<cr><lf>ERROR<cr><lf>

- The format of an unsolicited result code from the AG to the HF shall be:

<cr><lf><result code><cr><lf>

2.2 Message Format

The GSM 07.07 [1] format and syntax rules shall be taken as the reference for these commands.

2.3 Commands Definition

2.3.1 Overview of supported commands

Table 2-1 Command Code Definition

Code	Definition	Details
AT+INQ	Inquiry for mobile phones nearby	Refer to 2.4.1
AT+CON	Connect to a mobile phone	Refer to 2.4.2
AT+DCON	Disconnect with a mobile phone	Refer to 2.4.3
ATD	Dial a number through the mobile phone	Refer to 2.4.4
AT+CUP	Hang up a call	Refer to 2.4.5
ATA	Answer a call	Refer to 2.4.6
AT+NAME	Set Bluetooth name	Refer to 2.4.7
AT+PIN	Set Bluetooth PIN code	Refer to 2.4.8
+RING	Notify a incoming call	Refer to 2.4.9

2.4 Message Definition

2.4.1 AT+INQ Inquiry for mobile phones nearby

AT+INQ=?	Response OK
Execute command AT+INQ	Response +INQ:<Bluetooth address>,<name>[,<Bluetooth address>,<name>] OK/ERROR Parameter <Bluetooth address> format: xx:xx:xx:xx:xx:xx, “ x” is from 0 to F <name> the name of the device Example: <cr><lf>+INQ:00:12:39:00:34:35,” Tom’ s Mobile” ,00:13:45:46:99:23,” Jerry” <cr><lf>

2.4.2 AT+CON Connect to a mobile phone

AT+CON=?	Response OK
Execute command AT+CON=<Bluetooth address>,<profile>	Parameter <Bluetooth address> format: xx:xx:xx:xx:xx:xx, “ x” is from 0 to F <profile> “ 0” =handsfree “ 1” =headset “ 2” =spp “ 3” =opp Response +CON:<n> Parameter <n> “ 1” =success “ 0” =fail OK/ERROR Example:

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2.4.3 AT+DCON Disconnect with a mobile phone

AT+DCON=?	Response OK
Execute command AT+DCON	Response OK/ERROR

2.4.4 ATD Dial a number through the mobile phone

ATD=?	Response OK
Execute command ATDdd..dd	Parameter dd..dd the phone number to dial Response OK/ERROR Example:

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2.4.5 AT+CUP Hang up a call

AT+CUP=?	Response OK
Execute command AT+CUP	Response OK/ERROR Example:

2.4.6 ATA Answer a call

ATA=?	Response OK
Execute command ATA	Response OK/ERROR Example:

2.4.7 AT+NAME Set Bluetooth name

AT+NAME=?	Response
-----------	----------

	OK
Execute command AT+NAME=<name>	Parameter <name> the device name to return when other Bluetooth devices inquiry for name. The maxim length of name is characters. Response OK/ERROR Example:

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2.4.8 AT+PIN Set Bluetooth PIN code

AT+PIN=?	Response OK
Execute command AT+PIN=<pin>	Parameter <pin> The pin code to return when other Bluetooth devices pair with. The maxim length of pin code is 16 digits. Response OK/ERROR Example:

2.4.9 +RING Notify a incoming call (unsolicited)

Execute command +RING=<call number>,<caller ID>	Parameter <call number> The number of the incoming call. It may contains digits from 0-9 and ' + ' . <caller ID>the display name of the caller. For some mobile phone, it may not send the caller ID and in that case this is optional. Response
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	<p>none</p> <p>Example:</p> <p>+RING=+8657185122538,AUSTAR</p> <p>+RING=+8657185027136</p>
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3. Process Definition

3.1 *Connection Handshake*

4. References

[1] 3GPP 27.007 v6.8.0 now supersedes and replaces ETS 300 916, “ Digital cellular telecommunications system (Phase 2+); AT command set for GSM Mobile Equipment (ME) (GSM 07.07 version 7.5.0)” <http://www.3gpp.org/ftp/Specs/html-info/27007.htm>

[2] “ GSM 02.30 (version 7.1.0): Digital cellular telecommunications system (Phase 2+); Man-Machine Interface (MMI) of the Mobile Station (MS)”

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