User Manual
Firmware: a20-SARX-ATC

LM746 / LM747

a20-SARX-ATC

1. Introduction:

a20-SARX-ATC is an embedded firmware running on LM Bluetooth modules which are based on BlueCore® 5-MM processor or CSR8670 from CSR®. It implements the Bluetooth profiles stack include the A2DP, AVRCP, HFP and HSP. The advanced codec, aptX, is enabled and the AAC is an option.

The host interface to a20-SARX-ATC firmware is done through the UART interfaces. The host processor can control a20-SARX-ATC by using ASCII commands via UART interface. With these ASCII commands, the host can access the Bluetooth functionalities without involving the Bluetooth protocol stack. The ASCII commands are rather like a application interface of a20-SARX-ATC.

2. General Protocol:

The AT Commands with their response are in ASCII text format and case-insensitive. The AT Command syntax begins with the text "AT" followed by the Profile Identifier, the Command Character and the Parameters. The command line shall be ended with a carriage return (\r). The syntax is shown below:

A	T	Profile Identifier (optional)	Command Character (optional)	Parameter (optional)	\r (0x0D)

∗	System Control
-	A2DP/AVRCP profile command
+	HFP profile
null	SPP profile (not implemented)
#	PBAP profile
(	Reserve
)	Reserve
.	Reserve
/	Reserve
,	Reserve

A typical AT Command example is "atp1234\r", which is used to set the Bluetooth PIN-CODE. The AT command transaction is shown in below. It can include three phases, the Command phase, the Response phase and the Report phase. The Command phase usually is initiated by host processor who will send the AT command to a20-SARX-ATC. In the Response phase, when a20-SARX-ATC accept the AT command, it will reply the response immediately. The host can, then,

send next command once it get the response of last command. a20-SARX-ATC will introduce Report phase if the command require a report. The latency time of the report phase depends on the type of command. Most of the report are reply in very short latency time while some of others, such as Discovery, may need longer time to complete.
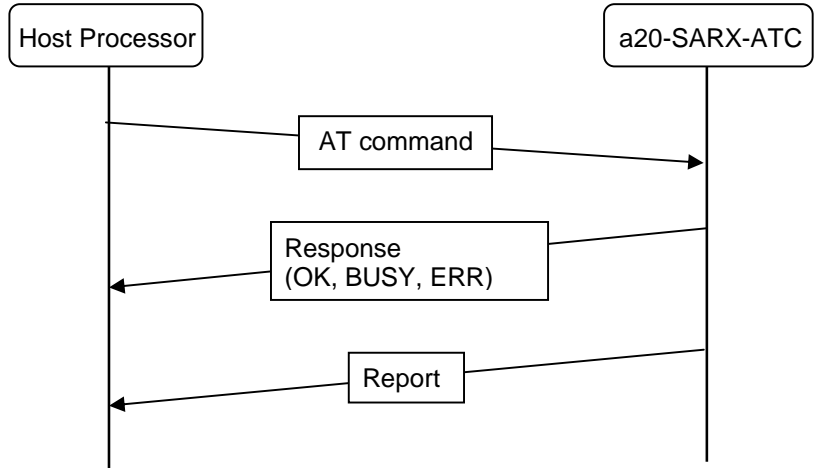
Some events occurred during the communications will be indicated as the Event. The Event is usually asynchronous to the AT command. The typical examples of the Event are Paired, Connect, and Disconnect. The Event can be presented by a20-SARX-ATC to the host at any timing. Sometime, the Event is the consequence of previous AT command. The host may expect the Event as part of the control flow.
All the Response, Report and Event include carriage return (\r) and line feed (\n).

Note: A simple 'AT' command without any argument to a20-SARX-ATC is treated as health check. The a20-SARX-ATC will simply response 'OK' to the host.

2.1 Classes of AT Command
In order to support profiles of different applications, the AT Commands are classified of different Classes by Profile Identifiers. The are:

∗	System Control command, the generic commands to configure the BC5-MM based Bluetooth module.
-	A2DP/AVRCP profile command for stereo audio transporting and playback control application.
+	HFP profile command for mono headset (mobile phone) application.
null	SPP profile command for serial port application.
#	PBAP profile command for phone book access application.
(	Reserved
)	Reserved
.	Reserved
/	Reserved
,	Reserved

2.2 Types of Response
There are three types of Response defined to indicate the processing status of AT Command by a20-SARX-ATC. They are:

OK	a20-SARX-ATC accept the incoming AT Command and will perform the requested function.

BUSY	a20-SARX-ATC is busy and reject the incoming AT Command. The host need to re-send the AT Command.
ERR	The ERR indicates that the AT Command can not be carried out*.

Note: The causes of ERR can be introduced by syntax error of AT Command or non-applicable operating state for the incoming command.

2.3 Report

If the incoming AT command requests certain information from a20-SARX-ATC. It will provide the requested results in the Report that sent to host.

The syntax of Report begins with the key word 'REP:' and then followed by the processing results that correspond to the AT command. The contents of each type of Report will be described with corresponding AT Command in the following sections.

REP:	Profile Identifier	Command Character	Parameter (optional)	\r (0x0D)	\n (0x0A)

2.4 Event

Event occurred at any timing during the communication such as Pairing successfully, connected, disconnected,…..and so on. These are usually asynchronous to the transaction of AT Commands. Therefore, it is usually initiated by a20-SARX-ATC to notify the host about situation of existing Bluetooth link.

The syntax of Event begins with the key word 'IND:' and then followed by the related messages from a20-SARX-ATC.

IND:	Profile Identifier	Attribute Character	Parameter (optional)	\r (0x0D)	\n (0x0A)

Contents:

3. System Control Command Set:

The System Control command set include the AT commands that are common to the Bluetooth module. The control settings are effective to all profiles.

3.1 Enter Pairing mode
This command set module to enter pairing mode. That is, the Discoverable state.

Syntax
AT∗P{conn}\r

Descriptions
{conn} =None, To enter Pairing mode
= ?, To inquire the number of paired devices.
= 0, To exit pairing mode

Response	
OK\r\n	The command is accepted and counting the number of paired devices.

Report	
REP:*P{number}\r\n	{number} = The number of paired devices.

The pairing activity can induce one of the following Events:

Event	Descriptions
IND:*P{result}\r\n	{result} =1, Pairiing successfully
	{result} =0, Pairing failed
IND:∗C{link}\r\n	{link} = 0, HFP link has been connected.
	= 1, A2DP link has been connected.
	= 2, SPP link has been connected.
	= 3, iAP link has been connected.
	= 4, PBAP link has been connected.
IND:*N\r\n	Pin code required.

3.2 Get the list of paired device names
To use this command to get the list of all paired device names.

Syntax
AT∗F\r

Descriptions
No parameter is required.

Response	
OK\r\n	The command is accepted and starting to get the all paired device names in record.
ERR\r\n	There is no paired device in the record. The AT∗P command should be used first to

	force the a20-SARX-ATC enter Pairing mode.

Report	
REP:*F={name}\r\n	{name} = Hex string originated from remote Bluetooth device. The paired device names, the Max size of each name is 16 characters
	Please be aware the Hex bytes string can be ASCII or UTF-8 code.

3.3 Reply The Pin Code

This command is used to reply Event IND:*N for the PIN code requested by remote Bluetooth device.

Syntax
AT*N {PIN code}\r
Descriptions
{PIN code} = Bluetooth PIN code in ASCII format
Response
OK\r\n

The pairing activity can induce one of the following Events:

Event	Descriptions
IND:*P{result}\r\n	{result} =1, Pairiing successfully =0, Pairing failed

IND:*C{link}\r\n	{link} = 0, HFP link has been connected.
	          = 1, A2DP link has been connected.
	          = 2, SPP link has been connected.
	          = 3, iAP link has been connected.
	          = 4, PBAP link has been connected.

3.4 Connect to Remote Device

This command ask a20-SARX-ATC to initiate the connection to remote device. It will try to connect to the last connected device or the specified remote device in the paired devices list for both A2DP and HFP profiles.

Syntax	
AT*C{conn}\r	
Descriptions	
{conn} =None,Connect to the last connected device =Number, This can be a ASCII character of 1~8, which is an index to the list of paired device names.	
Response	
OK\r\n	The command is accepted and starting to connect to the last connected remote device

	or the specified remote device in the paired devices list.
ERR\r\n	There is no paired device in the record. The AT∗P command should be used first to force the a20-SARX-ATC enter Pairing mode.

The connecting activity can induce one of the following Events:

Event	Descriptions
IND:∗B\r\n	Connecting to the last connected remote device for both A2DP and HFP profiles.
IND:∗C{link}\r\n	{link} = 0, HFP link has been connected. = 1, A2DP link has been connected. = 2, SPP link has been connected. = 3, iAP link has been connected. = 4, PBAP link has been connected.
IND:∗U{link}\r\n	{link} = 0, HFP connecting failed. = 1, A2DP connecting failed. = 2, SPP connecting failed. = 3, iAP connecting failed. = 4, PBAP connecting failed.

3.5 To Drop Bluetooth Connection
This command will force a20-SARX-ATC to drop Bluetooth connection.

Syntax
AT∗D {conn}\r
Descriptions
{conn} = 1, Disconnect the Bluetooth link. = 2, Disconnect the Bluetooth link and clear all the authorized devices.
Response
OK\r\n

The consequence of drop link activity can induce the following Event:

Event	Descriptions
IND:∗Z{link}\r\n	{link} = 0, HFP link has been disconnected. = 1, A2DP link has been disconnected. = 2, SPP link has been disconnected. = 3, iAP link has been disconnected. = 4, PBAP link has been disconnected.

3.6 Set PIO for Output
This command set the specified PIO for output.

Syntax
AT∗O{PIO number}{value}\r

Descriptions
{PIO number} = This can be a ASCII character of 0,1,2,3,4,B or C. where B means PIO11 and C means PIO12. {value} = The desired output value for PIO. It can be 1 or 0.

Response
OK\r\n

3.7 Read Input Value from PIO
This command read the input value from the specified PIO.

Syntax
AT∗I{PIO number}\r

Descriptions
{PIO number} = This can be a ASCII character of 0,1,2,3,4,B or C. where B means PIO11 and C means PIO12.

Response
OK\r\n

Report	
REP:∗I {value}\r\n	{value} = The input value of the specified PIO. It can be ASCII '0' or '1'

3.8 Baud Rate Control
This command is used for changing the baud rate of UART interface.

Syntax
AT∗L{baud rate}\r

Descriptions
{baud rate} = * set to 1,200bps; # set to 2,400bps; 0 set to 4,800bps 1 set to 9,600bps; 2 set to 19,200bps (Default); 3 set to 38,400bps 4 set to 57,600bps; 5 set to 115,200bps; 6 set to 230.4Kbps 7 set to 460.8Kbps; 8 set to 921.6Kbps; ? To inquire the current setting

Response
OK\r\n

Report	
REP:∗L{baud rate}\r\n	{baud rate} = The current baud rate setting.

3.9 Set Stop bit
This command is used for changing the Stop bit setting of UART interface

Syntax
AT∗K{stop bit}\r

Descriptions
{stop bit} = 0 set to one Stop bit (Default);   1 set to two Stop bits;   ? To inquire the current setting

Response
OK\r\n

Report	
REP:∗K{stop bit}\r\n	{stop bit} = The current stop bit setting.

3.10 Set Parity bit

This command is used for changing the Parity bit setting of UART interface

Syntax
AT∗M{parity bit}\r

Descriptions
{parity bit} = 0 set to none Parity bit (Default);   1 set to Odd Parity bits;   2 set to Even Parity bits;   ? To inquire the current setting

Response
OK\r\n

Report	
REP:∗M{parity bit}\r\n	{parity bit} = The current parity bit setting.

3.11 Deep Sleep Mode

This command is only valid when Bluetooth link is disconnected. It will set the deep sleep timer and start down counting. The Bluetooth module will fall into deep sleep mode when the timer is expired. The timer can be restarted by any activity at UART or PIO4. The Deep Sleep mode can be terminated by any activity at UART or PIO4.

Syntax
AT∗G{timer}\r

Descriptions

{timer} = the value between 60 – 65536 (seconds). The tolerance is +/- 2 seconds.
     = 0, disable the Deep Sleep timer.(default)
    If < 60, Not supported, set to zero.
    ? To inquire the current setting

Response
OK\r\n

Report	
REP:∗G{timer}\r\n	{timer} = The current sleep timer setting.

3.12 Get Current Bluetooth State

This command get the current Bluetooth link state.

Syntax	
AT∗S\r	
Descriptions	
No parameter is required.	
Response	
OK\r\n	
Report	
REP:∗S{value}\r\n	{value}= 0, The Bluetooth is ready to accept command.
	= 1, The Bluetooth is in Pairing state.
	= 2, The Bluetooth is in Connecting state.
	= 3, The Bluetooth is in Connected state

3.13 Bluetooth Link Dropped Indication

The Bluetooth link can be dropped due to unexpected events such as out of range, disconnected requested from remote device. The Event 'No Carrier' will be indicated to host.

The unexpected link dropped can induce the following Event 'No Carrier':

Event	Descriptions
IND:∗Z{link}\r\n	{link} = 0, HFP link has been disconnected.
	= 1, A2DP link has been disconnected.
	= 2, SPP link has been disconnected.
	= 3, iAP link has been disconnected.
	= 4, PBAP link has been disconnected.

3.14 Get the local BD address

This command will display the local BD address.

Syntax	
AT∗B?\r	
Descriptions	
No parameter required	
Report	
REP:∗B {addr}\r\n	{addr} = The local BD address

3.15 To Enable/Disable Local Echo

To use this command to enable/disable the echo characters to host.

Syntax
AT∗E{control}\r

Descriptions

{control} = 0, To disable the local echo.
       = 1, To enable the local echo (Default)..
       = ?, To inquire the current setting.

Response
OK\r\n

Report	
REP:∗E{control}\r\n	{control} = The current local echo setting.

3.16 To Set The Local Name

To use this command to set the local Bluetooth Friendly name.

Syntax
AT∗A{control}\r

Descriptions
{control} = XXXX…..X, characters in ASCII code. Maximum 16 characters are allowed.   = ?, To inquire the current local name.

Response
OK\r\n

Report	
REP:∗A{name}\r\n	{name}=Current local name This report is response to AT∗A?\r command.

3.17 Inquiring Firmware Version Number

This command retrieves the information of current firmware version.

Syntax
AT∗V\r

Descriptions
No parameter required

Response
VERSION: v{X.XX} {the name of firmware version}

3.18 DFU operation

To initiate the firmware upgrade procedure via UART interface.

Syntax	
ATU=Upgrade	
Descriptions	
No parameter required	
Response	
Are you sure(y/n)?	'Y' to kick off the DFU operation

3.19 Reset and Factory Settings

Reset to default setting and reboot the A2D-ATC.

Syntax
AT*R{option}\r
Descriptions
{option} = 1, Restart the module.   2, Restore the default settings, clear pairing records and then restart the module. The default settings are: Default local name: a20-SARX-ATC-[model name] Baudrate: 19200 Stop Bit: 1 Set Parity Bit: 0 Deep Sleep Mode: 0 Local Echo: Enable Flow Control: 0 SPP Enable: 0 "+++" check: 1
Response
OK\r\n

3.20 To Enable/Disable SPP (generic and Wireless iAP)

To use this command to enable/disable SPP profile.

Syntax
AT∗J{option}\r
Descriptions

{option} = 0. Disable SPP profile.
            1, Enable SPP profile.(UUID for generic)
            ?, Inquire the current SPP enable/disable state

Response
OK\r\n
ERR\r\n : 1. Command error.   2. The SPP was enabled (or disabled) already and this command is redundant. The SPP setting is remained the same.

4. A2DP Command Set:

The A2DP command set include the AT commands that control the music transportation (A2DP) as well as the playback operations (AVRCP).

4.1 Volume Control

This command set the music volume up/down. The volume step from 1 to 15.

Syntax
AT-V{control}\r

Descriptions

{control} = '+', volume up one step.
  = '-', volume down one step.
  = [number], set volume level, [number] shall be between 0 and 15

Response
OK\r\n

Report	
REP:-V{volume}\r\n	{volume} = The current local volume setting, whose value is between 0 to 15.

4.2 Get Current Audio Volume

This command read the current audio volume.

Syntax
AT-X\r

Descriptions
No parameter is required.

Report	
REP:-X{volume}\r\n	{volume} = The current local volume setting, whose value is between 0 to 15.

4.3 Get Current A2DP State

This command get the current A2DP State. This command is useful when the host needs to know if the audio streaming is running on.

Syntax
AT-S\r

Descriptions
No parameter is required.

Report	

REP:-S{value}\r\n	{value}= 0, The A2DP/AVRCP is not ready because the Bluetooth link is not established.
	  = 1, The A2DP/AVRCP is ready to accept playback control command.
	  = 2, The A2DP streaming is running on (playing music) and ready to accept playback control command.

4.4 Playback Control

This command set the music playback controls.

Syntax
AT−B{control}\r

Descriptions

{control} = 0, To end the Forward/Backward repeat.
           , Stop
       = 1, Play/Pause.
       = 2, Backward.
       = 3, Forward.
       = 4, To start Backward Repeat.
       = 5, To start Forward Repeat.
       = 6, To end Backward Repeat.
       = 7, To end Forward Repeat.

Response
OK\r\n

4.5 Mute Indication

When a20-SARX-ATC carry out the Playback Control command, the A2DP streaming will be stopped accordingly. That will induce the Event 'Mute' and the Event 'Unmute'.

The playback control activity can induce the following Event:

Event	Descriptions
IND:−M{stream}\r\n	{stream} = 1, Mute due to Forward/Backward operation. The A2DP streaming was stopped. = 0, Un-mute due to Forward/Backward operation was ended, The A2DP streaming was resumed.

4.6 Media Attribution Indication

If AVRCP support version 1.3 or later, media playing might induce the Events 'Attribution1', 'Attribution2' and 'Attribution3'

Event	Descriptions

IND:− A{attribution}\r\n	{attribution} = 1, information string of media tag 'Title', its format is UTF8.
	       = 2, information string of media tag 'Artist', its format is UTF8.
	       = 3, information string of media tag 'Album', its format is UTF8.
	       = 4, information string of media tag 'Number', its format is UTF8.
	       = 5, information string of media tag 'Total Number', its format is UTF8.
	       = 6, information string of media tag 'Genre', its format is UTF8.
	       = 7, information string of media tag 'Playing Time', its format is UTF8.

4.7 Media Codec Indication

During A2DP streaming, it might induce the Events 'Codec1', 'Codec2' or 'Codec3' to indicate the current A2DP codec

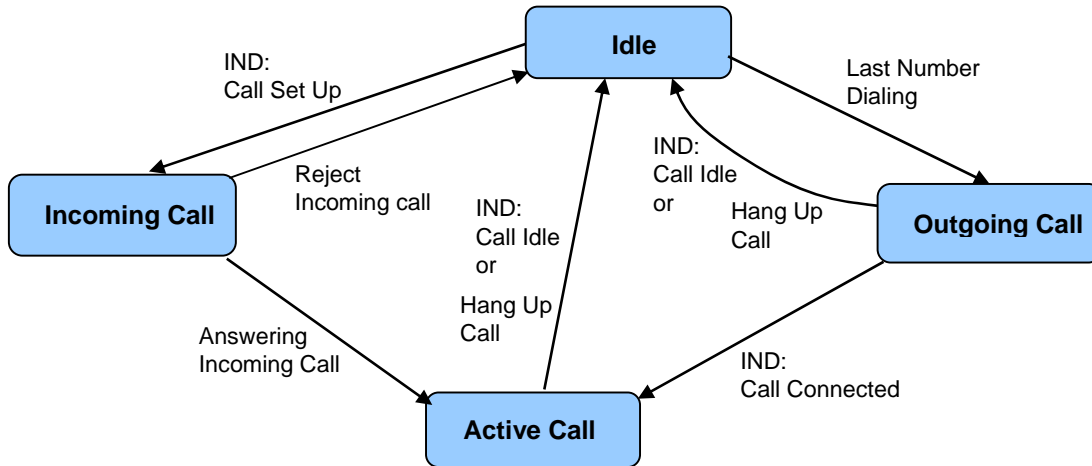| Event	Descriptions
IND:−C{codec}\r\n	{codec} = 1, current a2dp codec is SBC. = 2, current a2dp codec is AAC. = 3, current a2dp codec is aptX.

4.8 A2DP Sampling Rate Indication

When the A2DP connection is established, it will report the sampling rate that for the A2DP streaming.

Event	Descriptions
IND:-S[sampling rate]\r\n	[sampling rate] = The sampling rate in ASCII string format. example: IND:-S44100Hz

5. HFP/HSP Command Set:

The HFP/HSP command set include the AT commands that control the hand free/headset function. The following diagram shows the state transitions of HFP/HSP operations and the associated Event and Commands. Please note that Command should be sent at proper state otherwise will cause response of error.

5.1 Answer Incoming Call

This command is used for answering the incoming call.

Syntax	
AT+A\r	
Descriptions	
No Parameter required	
Response	
OK\r\n	Command accepted and will perform the answering.
ERR\r\n	The HFP/HSP is not in Incoming Call state.

The answering activity can induce the following Event 'Call Connected':

Event	Descriptions
IND:+C\r\n	Call Connected that indicates the call is built up.

5.2 Reject Incoming Call

This command will reject the incoming call.

Syntax	
AT+R\r	
Descriptions	
No Parameter required	

Response	
OK\r\n	Command accepted and will reject the incoming call.
ERR\r\n	The HFP/HSP is not in Incoming Call state.

5.3 Hang Up Call
This command will hang up the active call (or outgoing call).

Syntax	
AT+H\r	
Descriptions	
No Parameter required	
Response	
OK\r\n	Command accepted and will hang up the call.
ERR\r\n	The HFP/HSP is not in proper state (none of Incoming Call, Outgoing Call, Active Call)

The hanging up activity can induce the following Event 'Call Idle':

Event	Descriptions
IND:+I\r\n	Call Idle that indicate the call is ended and the line is back to idle.

5.4 Last Number Dialing
This command will issue the Last Number Dialing request to mobile phone.

Syntax	
AT+L\r	
Descriptions	
No Parameter required	
Response	
OK\r\n	Command accepted and will issue the Last Number Dialing request to remote device.
ERR\r\n	The HFP/HSP is not in idle state.

5.5 Specified Number Dailing
This command will issue the dialing request to mobile phone with specified telephone number.

Syntax	
AT+D{number}\r	
Descriptions	
{number} = Specified dialing number in ASCII code, the Max size of the dialing number is 20 digits.	
Example: AT+D13800138000\r, the dialing number is 13800138000.	

If HFP is at 'Outgoing Call' state, this command will cause the HFP to transmit DTMF tone signals to mobile phone. The DTMF tone signals can be correspond to the ASCII code of 0-9, #,∗.

Response	
OK\r\n	Command accepted and will issue the Number Dialing request to remote device.
ERR\r\n	The HFP/HSP is not in idle state.

5.6 Toggle Call Transfer
This command will toggle the transfer of the call between a20-SARX-ATC and remote device.

Syntax	
AT+T\r	

Descriptions	
No Parameter required	

Response	
OK\r\n	Command accepted and will send the Call Transfer request to remote device.
ERR\r\n	The HFP/HSP is not in proper state (none of Incoming Call, Outgoing Call, Active Call)

The toggle Call transferring activity can induce the following Event 'Audio Stream':

Event	Descriptions
IND:+B{stream}\r\n	{stream} = 0, The audio streaming was stopped because the call was transferred to remote device. = 1, The audio streaming is resumed because the call was transferred back to a20-SARX-ATC.

5.7 Volume Control
This command set the audio volume up/down. The volume step from 1 to 15.

Syntax	
AT+V{control}\r	

Descriptions	
{control} = '+', volume up one step. = '-', volume down one step. = [number], set volume level, [number] shall be between 0 and 15	

Response	
OK\r\n	

Report	
REP:+V{volume}\r\n	{volume} = The current local volume setting, whose value is between 0 to 15.

5.8 Get Current Audio Volume

This command read the current audio volume.

Syntax
AT+X\r

Descriptions
No parameter is required.

Response
OK\r\n

Report	
REP:+X{volume}\r\n	{volume} = The current local volume setting, whose value is between 1 to 15.

5.9 Get Current HFP/HSP State

This command get the current HFP/HSP State. The information of current state is useful for the host's reference when issuing the AT Command to a20-SARX-ATC.

Syntax
AT+S\r

Descriptions
No parameter is required.

Report	
REP:+S{value}\r\n	{value}= 0, The HSP/HFP is not ready because the Bluetooth link is not established. = 1, The HSP/HFP is in Idle state and ready = 2, The HSP/HFP is in Incoming Call state. = 3, The HSP/HFP is in Outgoing Call state. = 4, The HSP/HFP is in Active Call state.

5.10 Volume Changed

This Event would be initiated if the remote device changes the audio volume.

Event	Descriptions
IND:+V{volume}\r\n	{volume} = The current volume after the change. Its value is between 0 to 15.

5.11 Call Set Up

This Event would be initiated if there is a incoming call.

Event	Descriptions
IND:+S\r\n	This Event indicates that there is a incoming call.

5.12 Call Connected
This Event indicated that the call was built up.

Event	Descriptions
IND:+C\r\n	This Event indicates that the Call is connected and audio streaming is started.

5.13 Caller number
This Event indicated that the call was displayed caller number if there is a incoming call .

Event	Descriptions
IND:+N{number}\r\n	{number} = Caller number.

5.14 Call Idle
This Event would be indicated that the call was disconnected by remote device.

Event	Descriptions
IND:+I\r\n	This Event indicates that the call was hang up and back to idle state.

5.15 Outgoing Call
This Event would be indicated that there is an outgoing made by the remote device.

Event	Descriptions
IND:+O\r\n	This Event would be indicated that there is an outgoing made by the remote device.

5.16 Get The Telephone Operator's Name or the GSM signal strength
Using this command to get the current Telephone Operator's name.

Syntax	
AT+Y{inquiry}\r	
Descriptions	
{inquiry} = 1, Get the Telephone Operator's Name. 　　　　= 2, Get the GSM signal strength.	
Response	
OK\r\n	
Report	
REP:+Y{inquiry}(value)\r\n	{inquiry} = 1, Get the Telephone Operator's Name. 　　　　　= 2, Get the GSM signal strength. {value} = ASCII characters string of Telephone operator's name 　　　　= Integer word of GSM signal strength Note: The GSM signal strength is only available when there was a call

	had been made while the Bluetooth connection is established.

6. SPP Command Set:

The SPP application has two operating modes, the Data mode and the Command mode. In Data mode, the UART interface becomes transparent to the host processor and remote Bluetooth device. That is, the host processor can exchange data with remote Bluetooth device directly. As this manner, the a20-SARX-ATC can no longer receive any AT command from the host until the escape sequence "+++" is received. Upon the presence of escape sequence, the a20-SARX-ATC will switch the UART interface back to the Command mode which allows it to receive and response to the AT command.

The ATO command can set the a20-SARX-ATC entering the Data mode.

6.1 Escape Sequence

The Escape Sequence will switch the UART interface back to the Command mode.

Syntax
+++
Descriptions
None parameter required
Response
OK\r\n

6.2 Switch to the Data mode

The command switches the UART interface from Command Mode to Data Mode.

Syntax
ATO\r
Descriptions
No parameter required.
Response
OK\r\n

6.3 To set the Flow Control

The flow control signals (The CTS/RTS) of UART interface can be enabled or disabled by this command. With the flow control enabled, the data can only be exchanged when CTS/RTS is in logic low level. This setting will cause reboot of a20-SARX-ATC.

Syntax
ATC{ctrl}\r
Descriptions
{ctrl} = '0', Disable flow control.
= '1', Enable flow control.
= '?', inquire the current setting

Response	
OK\r\n	

Report	
REP:C{ctrl}\r\n	{ctrl} = '0', Disable flow control. = '1', Enable flow control.

6.4 Get RSSI value

Inquire the RSSI with value at Online Command mode when SPP is connected.

Syntax	
ATH\r	

Descriptions	
No parameter required.	

Report	
REP:H{value}\r\n	{value} = RSSI value.

6.5 Disable/Enable escape sequence "+++"

The command switches the UART interface from Command Mode to Data Mode. If the baud rate is higher than 230.4K, please disable the feature.

Syntax	
ATX{ctrl}\r	

Descriptions	

{ctrl} = '0', Disable escape sequence feature.
       = '1', Enable escape sequence feature.
       = '?', inquire the current setting	

Response	
OK\r\n	

Report	
REP:X{ctrl}\r\n	{ctrl} = '0', Disable escape sequence feature. = '1', Enable escape sequence feature.

7. PBAP Command Set:

The PBAP is dedicated to client side function which read the phone book from server side (mobile phone).

7.1 Pull Phone Book

To pull phone book from the mobile phone. The download data will be in VCard2.1 format.

Syntax
AT#B{control}\r
Descriptions
{control} = '1', To pull phone book from the phone's SIM card   = '2', To pull phone book from the phone's internal memory.
Response
OK\r\n

7.2 Pull Call History

To pull call history from the mobile phone. The download data will be in VCard2.1 format.

Syntax
AT#H\r
Descriptions

{control} = '1', To pull phone book from the phone's Received calls
       = '2', To pull phone book from the phone's Missed calls.
 	
       = '3', To pull phone book from the phone's Dialed calls.

Response
OK\r\n