BLEDK3 Command Set

(v1.11)

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1. General Description

BLEDK3 provides UART communication interface with MCU. This document describes how MCU communicates with **BLEDK3** and the behavior of **BLEDK3**.

2. MCU Interface

2.1 Pin definition

Name	Type	Description	BM70 Pin Define
UART_TXD (Mandatory)	Output		HCI_TXD
UART_RXD (Mandatory)	Input		HCI_RXD
UART_TX_IND (Optional)	Output	**BLEDK3** inform Host MCU that UART data will be transmitted out after few us (Setting by UI Tool, default 5ms)	P0_2
UART_RX_IND (Optional)	Input	Host MCU inform **BLEDK3** that UART data will be transmitted out after few us	Configurable
UART_RTS (Optional)	Output	UART Flow Control High: UART flow stop Low: UART flow Go	P3_6
UART_CTS (Optional)	Input	UART Flow Control High: UART flow stop Low: UART flow Go	P0_0

2.2 UART Protocol

The UART protocol is shown as below diagram.

<table>
<tr><td></td><td colspan="2">HEAD</td><td>MID</td><td>DATA</td><td>CRC</td></tr>
<tr><td></td><td>START</td><td>LENGTH</td><td>OP Code</td><td>PARAMETER</td><td>CHKSUM</td></tr>
<tr><td>BYTE NO</td><td>0</td><td>1 ~ 2</td><td>3</td><td>4 ~ XX</td><td>Length + 3</td></tr>
<tr><td>SIZE (BYTE)</td><td>1</td><td>2</td><td>1</td><td>0 ~</td><td>1</td></tr>
<tr><td>VALUE</td><td>0xAA</td><td>1 ~</td><td>Command/Event</td><td>Command/Event parameter</td><td>Check sum</td></tr>
<tr><td></td><td>SINC WORD</td><td colspan="3">Check sum to be calculated</td><td></td></tr>
<tr><td></td><td></td><td></td><td colspan="2">TARGET LENGTH</td><td></td></tr>
</table>

Check sum rule: Summation of every byte after START WORD(LENGTH, COM.ID, COM PARAM, CHK SUM) is 0xXX00

e.g.

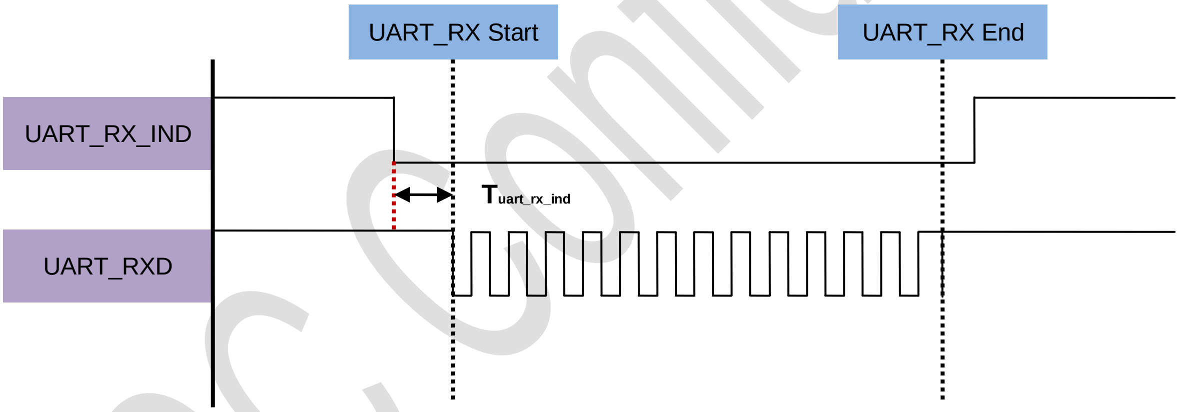
	START	LENGTH(H)	LENGTH(L)	OP CODE	PARAMETER	CHKSUM
BYTE NO	0	1	2	3	4	5
VALUE	0xAA	0x00	0x02	0x01	0x00	0xFD

2.3 UART Configuration

- Baud Rate Setting: 2400bps~921600bps
- Flow Control Setting: Enabled/Disabled

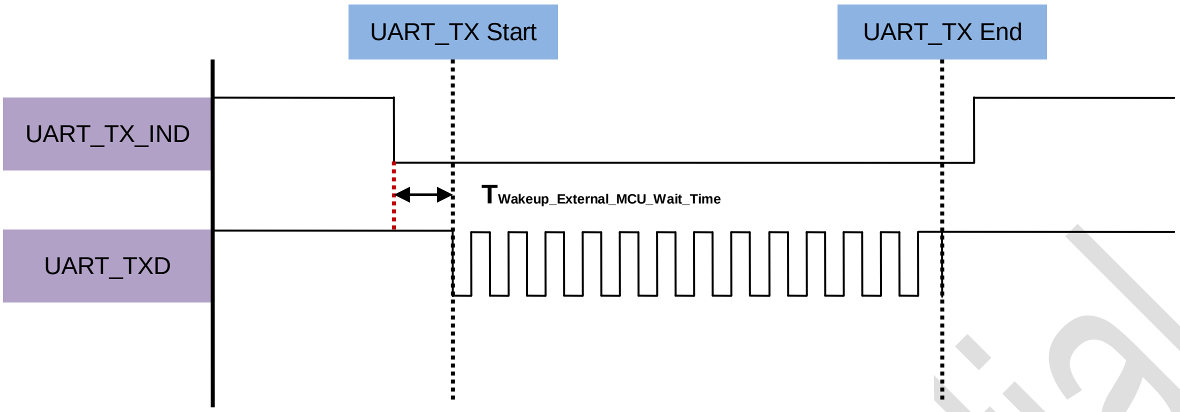
2.4 UART data exchange for low power mode

- Signal of UART_TX_IND and UART_RX_IND are required to guarantee the correction of UART data.



* $T_{uart\_rx\_ind}$: > 2ms

Fig 3.5.1 Host_MCU indicate **BLEDK3** UART data timing diagram


UART_TX Start
UART_TX End
UART_TX_IND
UART_TXD
T Wakeup_External_MCU_Wait_Time

*$T_{Wakeup\_External\_MCU\_Wait\_Time}$: The time before UART TXD send (set by UI). Wake up MCU to receive data.

Fig 3.5.2 **BLEDK3** indicate Host_MCU UART data timing diagram

2.5 UART flow control

- CTS / RTS signal flow control scheme.
- UART flow control scheme can be configured by UI setting.
- If UART_CTS sets flow stop while data transmission, **BLEDK3** will stop transmit, and that won't transmit more than two bytes after flow stop.

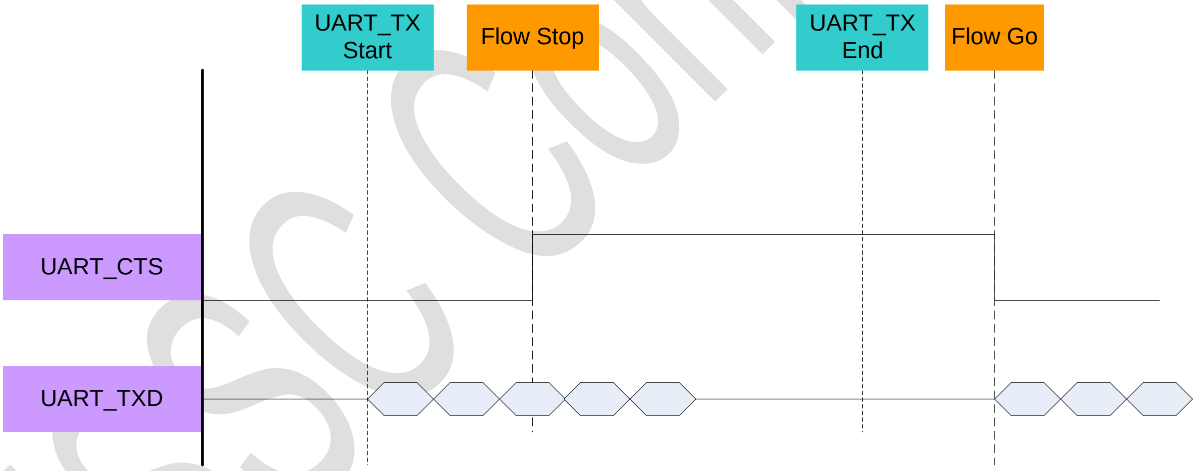

UART_TX
Start
Flow Stop
UART_TX
End
Flow Go
UART_CTS
UART_TXD

Fig 3.6.1 Host_MCU indicate **BLEDK3** UART flow control timing diagram

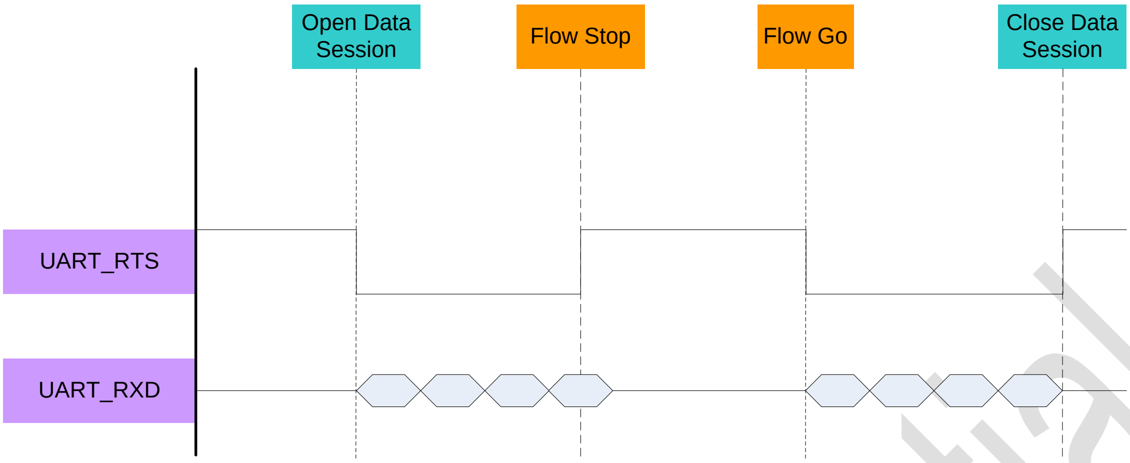

Open Data Session
Flow Stop
Flow Go
Close Data Session
UART_RTS
UART_RXD

Fig 3.6.2 **BLEDK3** indicate Host_MCU UART flow control timing diagram

2.6 UART packet error handle

BLEDK3 will reply Command_Compete with UART_Check_Sum_Error (0xFF) status if received UART packets with Check Sum error.

3. Command Op Code Definition

Command Type	Op Code	Command	Return Event	Auto Pattern	Manual Pattern
Common	0x01	Read_Local_Information	Command_Complete	F	
	0x02	Reset	BLEDK3_Status_Report	N/A	
	0x03	Read_BLEDK3_Status	BLEDK3_Status_Report	N/A	
	0x04	Read_ADC_Value	Command_Complete	N/A	
	0x05	Into_Power_Down_Mode	Command_Complete	N/A	
	0x06	Debug_Command	Command_Complete	N/A	
	0x07	Read_Device_Name	Command_Complete	F	
	0x08	Write_Device_Name	Command_Complete	F	I
	0x09	Erase_all_Paired_Device_Information	Command_Complete	F	I
	0x0A	Read_Pairing_Mode_Setting	Command_Complete	F	
	0x0B	Write_Pairing_Mode_Setting	Command_Complete	F	I
	0x0C	Read_All_Paired_Device_Information	Command_Complete	F	
	0x0D	Delete_Paired_Device	Command_Complete	F	I
	0x0E	GPIO_Control	Command_Complete	N/A	
	0x0F	PWM_Control	Command_Complete	N/A	
GAP	0x10	Read_RSSI_Value	Command_Complete	N/A	CM
	0x11	Write_Adv_Data	Command_Complete	F	I
	0x12	Write_Scan_Res_Data	Command_Complete	F	I
	0x13	Set_Advertising_Parameter	Command_Complete	F	I
	0x15	Set_Scan_Parameters	Command_Complete	N/A	I
	0x16	Set_Scan_Enable	Command_Complete Advertising_Report	N/A	I
	0x17	LE_Create_Connection	LE_Connection_Complete	N/A	I
	0x18	LE_Create_Connection_Cancel	Command_Complete LE_Connection_Complete	N/A	
	0x19	Connection_Parameter_Update_Req	Command_Complete Connection_Parameter_Update_Notify	N/A	CM
	0x1B	Disconnect	Disconnection_Complete	N/A	CM
	0x1C	Invisible_Setting	Command_Complete	N/A	I

	0x1F	Read_Remote_Device_Name	Command_Complete	N/A	CM
GATT Client	0x30	Discover_All_Primary_Services	Discover_All_Primary_Services_Res Command_Complete	N/A	CM
	0x31	Discover_Specific_Primary_Service_Characteristics_and_Descriptor	Discover_Specific_Primary_Service_Characteristics_Res Discover_All_Characteristic_Descriptors_Res Command_Complete	N/A	CM
	0x32	Read_Characteristic_Value	Command_Complete	N/A	CM
	0x33	Read_Using_Characteristic_UUID	Command_Complete	N/A	CM
	0x34	Write_Characteristic_Value	Command_Complete	N/A	CM
	0x35	Enable_Transparent	Command_Complete	N/A	CM
GATT Server	0x38	Send_Characteristic_Value	Command_Complete	N/A	CM
	0x39	Update_Characteristic_Value	Command_Complete	N/A	
	0x3A	Read_Local_Characteristic_Value	Command_Complete	N/A	
	0x3B	Read_Local_All_Primary_Services	Discover_All_Primary_Services_Res Command_Complete	N/A	
	0x3C	Read_Local_Specific_Primary_Service	Discover_Specific_Primary_Service_Characteristics_Res Discover_All_Characteristic_Descriptors_Res Command_Complete	N/A	
GATT Transparent	0x3F	Send_Transparent_Data	Command_Complete	N/A	CM
Pairing	0x40	Passkey_Entry_Res	Command_Complete	CP	CP
	0x41	Passkey_Confirm_Res	Command_Complete	CP	CP
	0X42	Pairing_Request	Command_Complete	N/A	CM
Common_2	0x52	Leave_Configure_Mode	Command_Complete	F	N/A

*I: Available in Idle Mode

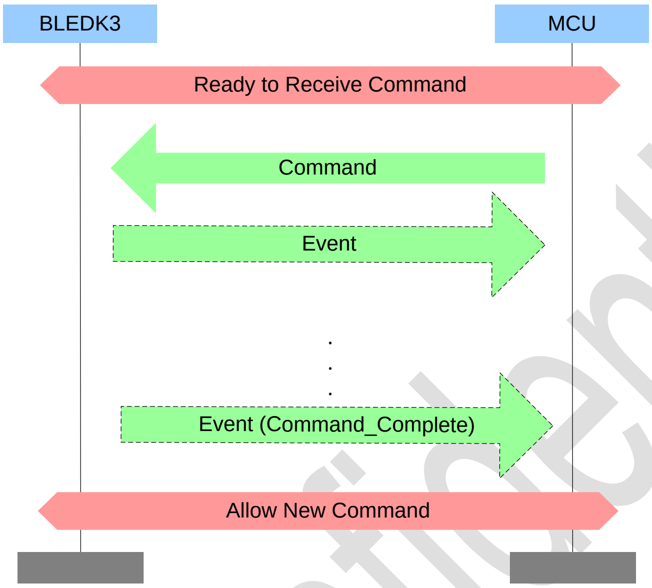
*CP: Available in Connected Mode with Pairing Procedure.

*F: Available in Configure Mode

*CM: Available in Physical Link Establish or Connected Mode with Manual Pattern

3.1 Rules of MCU Command Assign

Most of command request sending by MCU will be replied by Command_Commplete event. Another new command request is allowed for MCU by receiving Command_Complete event.



There are some exceptions that no Command_Complete event is sent by the **BLEDK3** to indicate that this command has been completed. Following are the exception commands:

- Read_BLEDK3_Status: The BLEDK3_Status_Report event indicates that this command has been completed.
- LE_Create_Link: The LE_Connection_Complete event indicates that this connection establishment has been completed. If **BLEDK3** can't achieve the connection establishment, then the LE_Connection_Complete event won't be sent to MCU. MCU can send LE_Create_Link_Cancel command to stop the action.
- Reset: MCU can know that the command has been completed by getting BLEDK3_Status_Report event.
- Disconnect: The Disconnect_Complete event indicates that this command has been completed.

Besides some command request are allowed for MCU without waiting Command_Complete event after last command request was sending. Those commands are listed as below:

- LE_Create_Link_Cancel
- Disconnect

- Reset

3.2 Common_1 Commands

Common group commands are used to configure **BLEDK3** or control of **BLEDK3**. **BLEDK3** replies Command_Complete event to notify the command process result after dealing with the commands.

3.2.1 Read_Local_Information (0x01)

Command	Op Code	Command Parameters	Return Parameters
Read_Local_Information	0x01	None	Status, Version, BD_ADDR

Description:

This command is used to read local information of **BLEDK3**.

Return Parameters:

Status: *Length: 1 Byte*

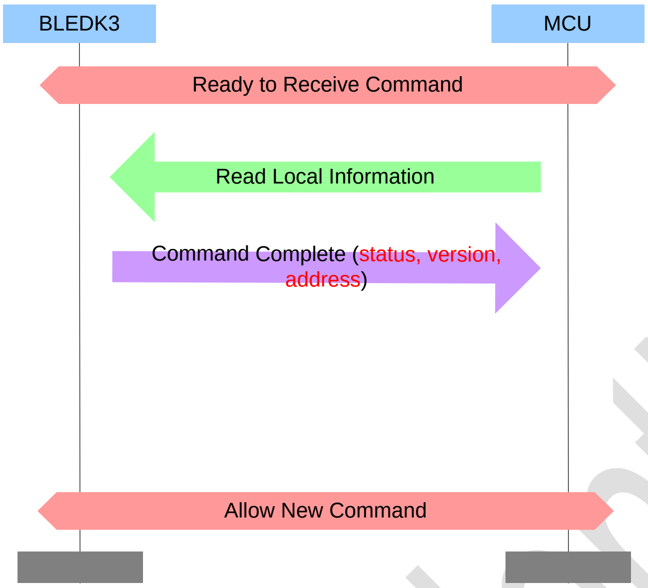
Value	Parameter Description
0x00	Command succeeded
0x01 – 0xFF	Command failed. See listing of Error Codes.

Version: *Length: 4 Bytes*

Value	Parameter Description
0xXXXXXXXX	Version information of **BLEDK3**

BD_ADDR: *Length: 6 Bytes*

Value	Parameter Description
0xXXXXXXXXXXXX	Bluetooth address of **BLEDK3**


BLEDK3
MCU
Ready to Receive Command
Read Local Information
Command Complete (status, version, address)
Allow New Command

[Return to Command Table]

3.2.2 Reset (0x02)

Command	Op Code	Command Parameters	Return Parameters
Reset	0x02	None	

Description:

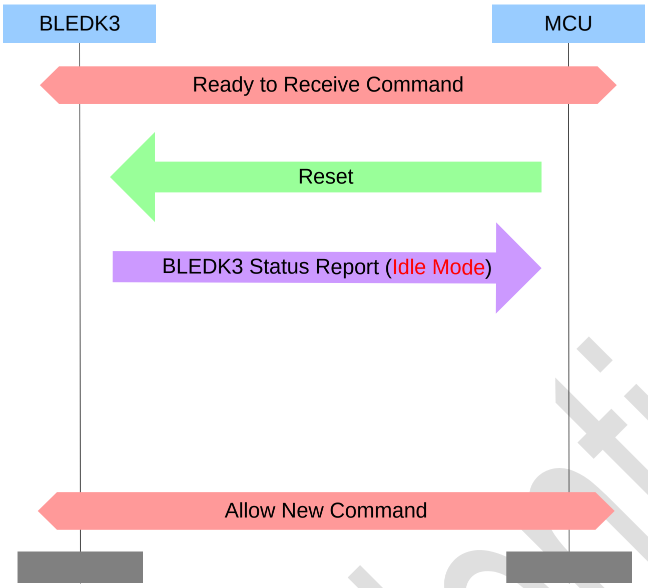
This command is used to reset **BLEDK3.**

Command Parameters:

None

Return Parameters:

None


BLEDK3
MCU
Ready to Receive Command
Reset
BLEDK3 Status Report (Idle Mode)
Allow New Command

[Return to Command Table]

3.2.3 Read_BLEDK3_Status (0x03)

Command	Op Code	Command Parameters	Return Parameters
Read_BLEDK3_Status	0x03	None	

Description:

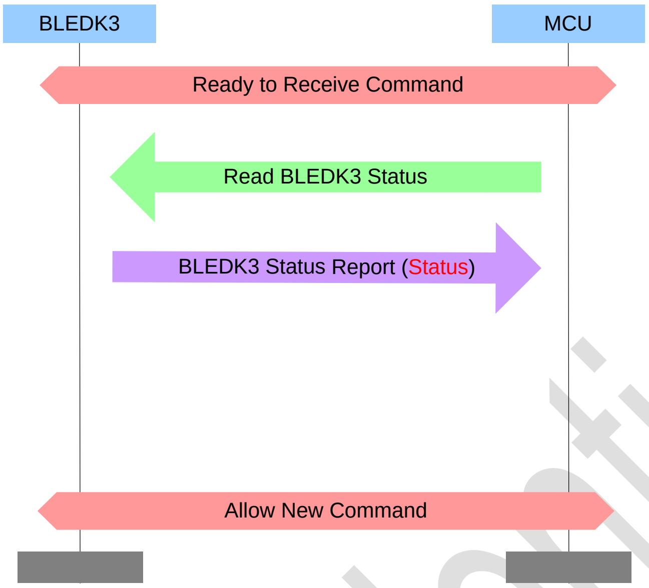
This command is used to read status of **BLEDK3**. And the status of **BLEDK3** will be informed by “BLEDK3_Status_Report” event.

Command Parameters:

None

Return Parameters:

None


BLEDK3
MCU
Ready to Receive Command
Read BLEDK3 Status
BLEDK3 Status Report (Status)
Allow New Command

[Return to Command Table]

3.2.4 Read_ADC_Value (0x04)

Command	Op Code	Command Parameters	Return Parameters
Read_ADC_Value	0x04	Channel	Status, Unit, Value

Description:

This command is used to read SAR value from **BLEDK3**.

Command Parameters:

Channel: *Length: 1 Byte*

Value	Parameter Description
0x00	Channel 0
0x01	Channel 1
0x02	Channel 2
0x03	Channel 3
0x04	Channel 4
0x05	Channel 5
0x06	Channel 6
0x07	Channel 7
0x08	Channel 8
0x09	Channel 9
0x0a	Channel 10

0x0b	Channel 11
0x0c	Channel 12
0x0d	Channel 13
0x0e	Channel 14
0x0f	Channel 15
0x10	Battery voltage
0x11	Temperature value

Return Parameters:

Status: *Length: 1 Byte*

Value	Parameter Description
0x00	Command succeeded
0x01 – 0xFF	Command failed. See listing of Error Codes.

Unit: *Length: 1 Byte*

Value	Parameter Description
0x00	ADC Value
0x01	0.1V
0x02	0.05V
0x03	0.025V
0x04-0xFF	Reserved

Value: *Length: 2 Byte*

Value	Parameter Description
0xXXXX	Voltage

[Return to Command Table]

3.2.5 Into_Power_Down_Mode (0x05)

Command	Op Code	Command Parameters	Return Parameters
Into_Power_Down_Mode	0x05	NONE	

Description:

This command is used to drive **BLEDK3** into power down mode directly. **BLEDK3** will into power down mode after Command_Complete is replied.

This command is valid while **BLEDK3** is in Idle Mode only.

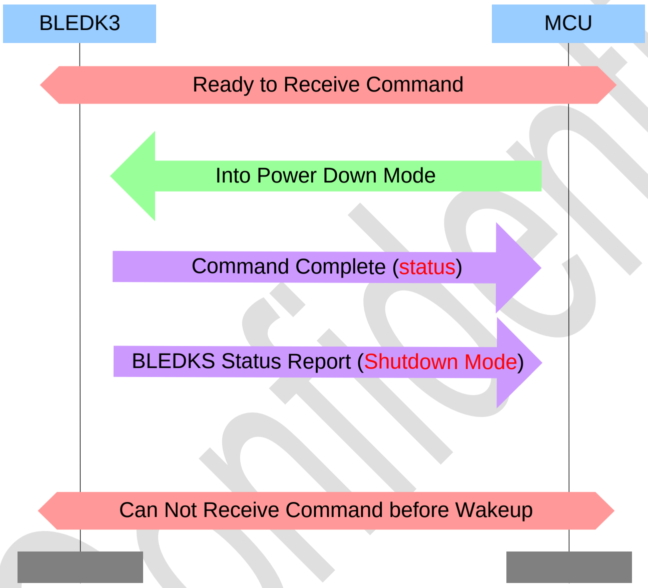
Command Parameters:

None

Return Parameters:

Status: *Length: 1 Byte*

Value	Parameter Description
0x00	Command succeeded
0x01 – 0xFF	Command failed. See listing of Error Codes.


BLEDK3
MCU
Ready to Receive Command
Into Power Down Mode
Command Complete (status)
BLEDKS Status Report (Shutdown Mode)
Can Not Receive Command before Wakeup

[Return to Command Table]

3.2.6 Debug_Command (0x06)

Command	Op Code	Command Parameters	Return Parameters
Write_Device_Name	0x06	Debug_Op_Code, Para_1, Para_2,…Para_N	Status, Debug_OP_Code, Data

Description:

This command is used to write device name of **BLEDK3**.

Command Parameters:

Debug_Op_Code: *Length: 1 Byte*

Value	Parameter Description
0xXX	0x01: Read_Memory

	0x02: Write_Memory 0x03: Read_eFlash 0x04: Write_eFlash

PARA_1: *Length: 1 Byte*

Value	Parameter Description
0xXX	Read_Memory: Length of memory read. Write_Memory: Length of memory write. Read_ eFlash: Length of eFlash read. Write_ eFlash: Length of eFlash write.

PARA_2: *Length: 1 Byte*

Value	Parameter Description
0xXX	Read_Memory: High byte address of memory read. Write_Memory: High byte address of memory write. Read_eFlash: High byte address of eFlash read. Write_eFlash: High byte address of eFlash write.

PARA_3: *Length: 1 Byte*

Value	Parameter Description
0xXX	Read_Memory: Low byte address of memory read. Write_Memory: Low byte address of memory write. Read_eFlash: Low byte address of eFlash read. Write_eFlash: Low byte address of eFlash write.

PARA_4: *Length: 1 Byte*

Value	Parameter Description
0xXX	Write_Memory: 1st data of memory write. Write_eFlash: 1st data of eFlash write.

PARA_N: *Length: 1 Byte*

Value	Parameter Description
0xXX	Write_Memory: Data of memory write. Write_eFlash: Data of eFlash write.

Return Parameters:

Status: *Length: 1 Byte*

Value	Parameter Description
0x00	Command succeeded
0x01 – 0xFF	Command failed. See listing of Error Codes.

Debug_OP_Code: *Length: 1 Byte*

Value	Parameter Description

0xXX	0x01: Read_Memory 0x02: Write_Memory 0x03: Read_eFlash 0x04: Write_eFlash

Data: *Length: N Byte*

Value	Parameter Description
0xXXXX	Returned read memory or eFlash data

[Return to Command Table]

3.2.7 Read_Device_Name (0x07)

Command	Op Code	Command Parameters	Return Parameters
Read_Device_Name	0x07		Status, Device_Name

Description:

This command is used to read device name of **BLEDK3**.

Command Parameters:

None

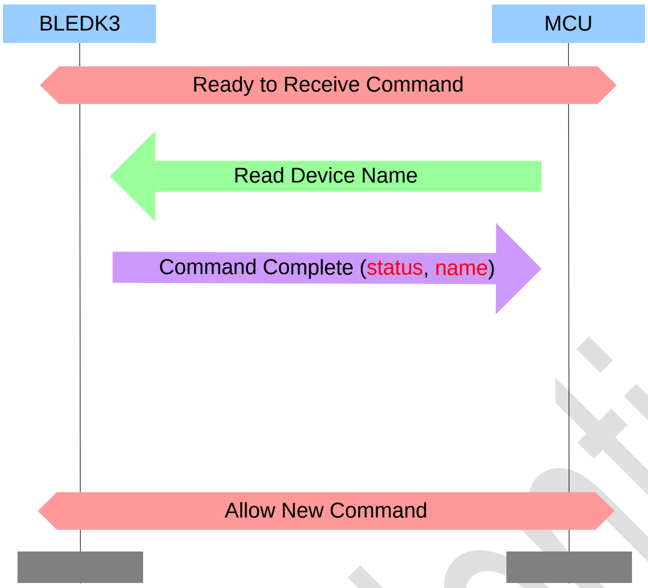
Return Parameters:

Status: *Length: 1 Byte*

Value	Parameter Description
0x00	Command succeeded
0x01 – 0xFF	Command failed. See listing of Error Codes.

Device_Name: *Length: XX Bytes*

Value	Parameter Description
0xXX	Device name of **BLEDK3**


BLEDK3
MCU
Ready to Receive Command
Read Device Name
Command Complete (status, name)
Allow New Command

[Return to Command Table]

3.2.8 Write_Device_Name (0x08)

Command	Op Code	Command Parameters	Return Parameters
Write_Device_Name	0x08	Reserved, Device_Name	Status

Description:

This command is used to write device name of **BLEDK3**.

Command Parameters:

RESERVED: *Length: 1 Byte*

Value	Parameter Description
0x00	Reserved for future used

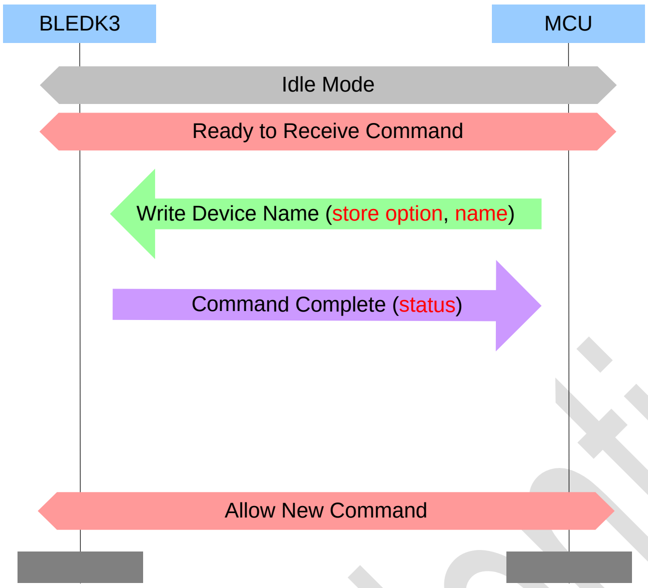
Device_Name: *Length: XX Bytes*

Value	Parameter Description
0xXX	Device name of **BLEDK3**

Return Parameters:

Status: *Length: 1 Byte*

Value	Parameter Description
0x00	Command succeeded
0x01 – 0xFF	Command failed. See listing of Error Codes.


BLEDK3
MCU
Idle Mode
Ready to Receive Command
Write Device Name (store option, name)
Command Complete (status)
Allow New Command

[Return to Command Table]

3.2.9 Erase_All_Paired_Device_Information (0x09)

Command	Op Code	Command Parameters	Return Parameters
Erase_All_Paired_Device_Information	0x09		Status

Description:

This command is used to erase all of the paired device information saved in **BLEDK3** and it is valid while **BLEDK3** is in Idle Mode or Configure Mode

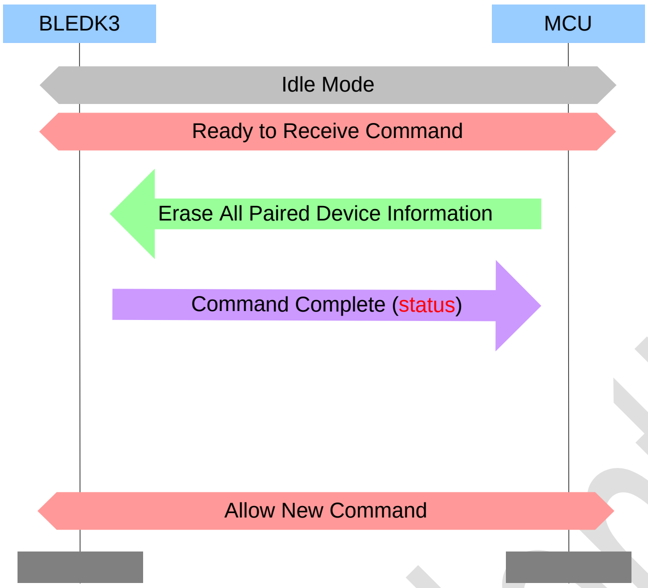
Command Parameters:

None

Return Parameters:

Status: *Length: 1 Byte*

Value	Parameter Description
0x00	Command succeeded
0x01 – 0xFF	Command failed. See listing of Error Codes.


BLEDK3
MCU
Idle Mode
Ready to Receive Command
Erase All Paired Device Information
Command Complete (status)
Allow New Command

[Return to Command Table]

3.2.10 Read_Pairing_Mode_Setting (0x0A)

Command	Op Code	Command Parameters	Return Parameters
Read_Pairing_Mode_Setting	0x0A		Status, IO_Capability

Description:

This command is used to read pairing mode setting of **BLEDK3**.

Command Parameters:

None

Return Parameters:

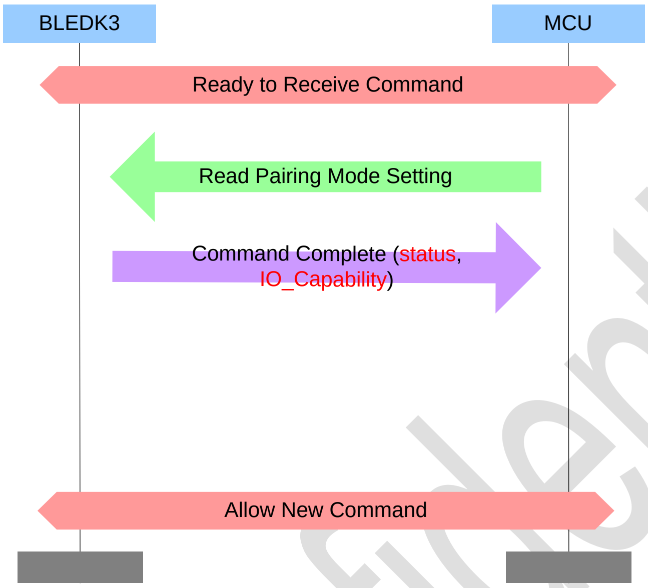
Status: *Length: 1 Byte*

Value	Parameter Description
0x00	Command succeeded
0x01 – 0xFF	Command failed. See listing of Error Codes.

IO_Capability: *Length: 1 Byte*

Value	Parameter Description
0x00	DisplayOnly
0x01	DisplayYesNo

0x02	KeyboardOnly
0x03	NoInputNoOutput
0x04	KeyboardDisplay


BLEDK3
MCU
Ready to Receive Command
Read Pairing Mode Setting
Command Complete (status, IO_Capability)
Allow New Command

[Return to Command Table]

3.2.11 Write_Pairing_Mode_Setting (0x0B)

Command	Op Code	Command Parameters	Return Parameters
Write_Pairing_Mode_Setting	0x0B	Reserved, IO_Capability	Status

Description:

This command is used to write pairing mode setting of **BLEDK3** and it is valid while **BLEDK3** is in Idle Mode or Configure Mode.

Command Parameters:

Reserved: *Length: 1 Byte*

Value	Parameter Description
0x00	Reserved for future used

IO_Capability: *Length: 1 Byte*

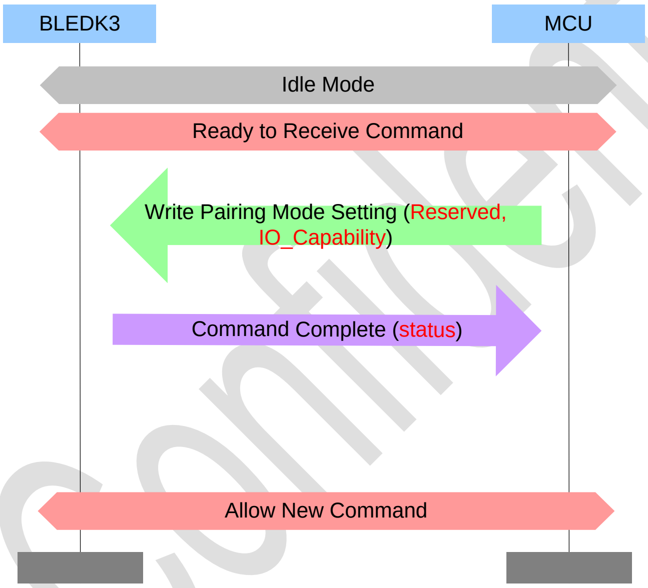
Value	Parameter Description
0x00	DisplayOnly
0x01	DisplayYesNo

0x02	KeyboardOnly
0x03	NoInputNoOutput
0x04	KeyboardDisplay

Return Parameters:

Status: *Length: 1 Byte*

Value	Parameter Description
0x00	Command succeeded
0x01 – 0xFF	Command failed. See listing of Error Codes.


BLEDK3
MCU
Idle Mode
Ready to Receive Command
Write Pairing Mode Setting (Reserved, IO_Capability)
Command Complete (status)
Allow New Command

[Return to Command Table]

3.2.12 Read_All_Paired_Device_Information (0x0C)

Command	Op Code	Command Parameters	Return Parameters
Read_All_Paired_Device_Information	0x0C		Status, Num_Of_Paired_Device, Device_List

Description:

This command is used to read all paired devices information of **BLEDK3** and it is valid while **BLEDK3** is in Idle Mode or Configure Mode.

Command Parameters:

None

Return Parameters:

Status: *Length: 1 Byte*

Value	Parameter Description
0x00	Command succeeded
0x01 – 0xFF	Command failed. See listing of Error Codes.

Num_Of_Paired_Device: *Length: 1 Byte*

Value	Parameter Description
0xXX	Number of paired devices

Device_List: Max to 8 sets

Device_Index: *Length: 1 Byte*

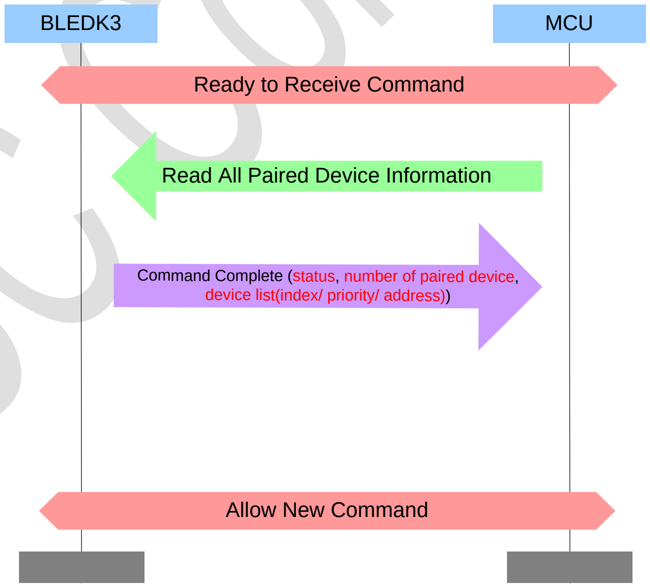
Value	Parameter Description
0xXX	Paired device index

Prioroty: *Length: 1 Byte*

Value	Parameter Description
0xXX	Link priority(0x01: Latest linked device)

Device_Address: *Length: 6 Bytes*

Value	Parameter Description
0xXXXXXXXXXXXX	Paired device Bluetooth address


BLEDK3
MCU
Ready to Receive Command
Read All Paired Device Information
Command Complete (status, number of paired device, device list(index/ priority/ address))
Allow New Command

[Return to Command Table]

3.2.13 Delete_Paired_Device (0x0D)

Command	Op Code	Command Parameters	Return Parameters

Delete_Paired_Device	0x0D	Device_Index	Status

Description:

This command is used to delete paired device from **BLEDK3** and it is valid while **BLEDK3** is in Idle Mode or Configure Mode.

Command Parameters:

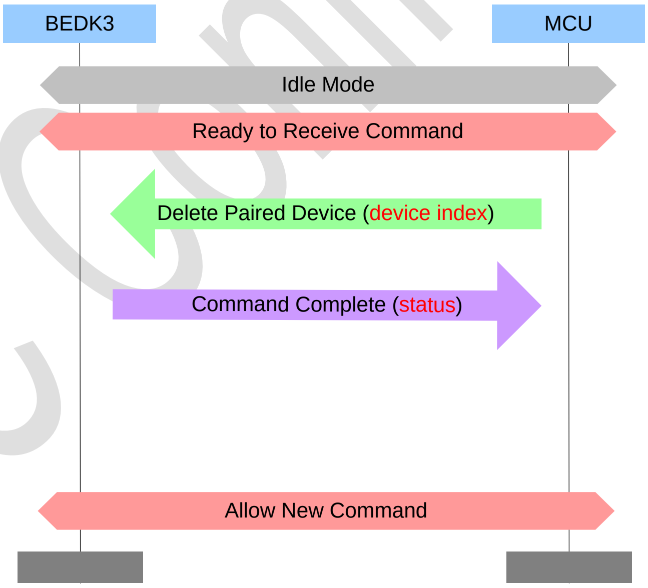
Device_Index: *Length: 1 Byte*

Value	Parameter Description
0xXX	The range of device index is from 0 to 7.

Return Parameters:

Status: *Length: 1 Byte*

Value	Parameter Description
0x00	Command succeeded
0x01 – 0xFF	Command failed. See listing of Error Codes.


BEDK3
MCU
Idle Mode
Ready to Receive Command
Delete Paired Device (device index)
Command Complete (status)
Allow New Command

[Return to Command Table]

3.2.14 GPIO_Conrtol (0x0E)

Command	Op Code	Command Parameters	Return Parameters
GPIO_Control	0x0E	P0OE_Value, P1OE_Value, P2OE_Value, P3OE_Value, P0_Output_Value,	Status, P0_Valid_Ctrl_GPIO, P1_Valid_Ctrl_GPIO,

	P1_Output_Value, P2_Output_Value, P3_Output_Value P0_Output_Value_Mask, P1_Output_Value_Mask, P2_Output_Value_Mask, P3_Output_Value_Mask	P2_Valid_Ctrl_GPIO, P3_Valid_Ctrl_GPIO, P0_Read_Value, P1_Read_Value, P2_Read_Value, P3_Read_Value,

Description:

This command is used to control Configurable GPIOs of **BLEDK3**. The controlled configurable GPIOs should not be configured to any function by UI tool.

The valid configurable GPIOs of **BM70** are P00, P07, P10, P31, P32, P33, P34, and P36.

Command Parameters:

P0OE_VALUE: *Length: 1 Byte*

Value	Parameter Description
0bXXXXXXXX	0: Set GPIO to be input 1: Set GPIO to be output

P1OE_VALUE: *Length: 1 Byte*

Value	Parameter Description
0bXXXXXXXX	0: Set GPIO to be input 1: Set GPIO to be output

P2OE_VALUE: *Length: 1 Byte*

Value	Parameter Description
0bXXXXXXXX	0: Set GPIO to be input 1: Set GPIO to be output

P3OE_VALUE: *Length: 1 Byte*

Value	Parameter Description
0bXXXXXXXX	0: Set GPIO to be input 1: Set GPIO to be output

P0_OUTPUT_VALUE: *Length: 1 Byte*

Value	Parameter Description
0xXX	Port 0 output value. This parameter is available when P0OE set to output enable

P1_OUTPUT_VALUE: *Length: 1 Byte*

Value	Parameter Description

0xXX	Port 1 output value. This parameter is available when P1OE set to output enable

P2_OUTPUT_VALUE: *Length: 1 Byte*

Value	Parameter Description
0xXX	Port 2 output value. This parameter is available when P2OE set to output enable

P3_OUTPUT_VALUE: *Length: 1 Byte*

Value	Parameter Description
0xXX	Port 3 output value. This parameter is available when P3OE set to output enable

P0_OUTPUT_VALUE_MASK: *Length: 1 Byte*

Value	Parameter Description
0xXX	Port 0 output value mask

P1_OUTPUT_VALUE_MASK: *Length: 1 Byte*

Value	Parameter Description
0xXX	Port 1 output value mask

P2_OUTPUT_VALUE_MASK: *Length: 1 Byte*

Value	Parameter Description
0xXX	Port 2 output value mask

P3_OUTPUT_VALUE_MASK: *Length: 1 Byte*

Value	Parameter Description
0xXX	Port 3 output value mask

Return Parameters:

Status: *Length: 1 Byte*

Value	Parameter Description
0x00	Command succeeded
0x01 – 0xFF	Command failed. See listing of Error Codes.

P0_VALID_CTRL_GPIO: *Length: 1 Byte*

Value	Parameter Description
0xXX	Port 0 value

P1_VALID_CTRL_GPIO: *Length: 1 Byte*

Value	Parameter Description
0xXX	Port 1 value

P2_VALID_CTRL_GPIO: *Length: 1 Byte*

Value	Parameter Description

0xXX	Port 2 value

P3_VALID_CTRL_GPIO: *Length: 1 Byte*

Value	Parameter Description
0xXX	Port 3 value

P0_READ_VALUE: *Length: N Byte*

Value	Parameter Description
0xXX	Port 0 value

P1_READ_VALUE: *Length: N Byte*

Value	Parameter Description
0xXX	Port 1 value

P2_READ_VALUE: *Length: N Byte*

Value	Parameter Description
0xXX	Port 2 value

P3_READ_VALUE: *Length: N Byte*

Value	Parameter Description
0xXX	Port 3 value

[Return to Command Table]

3.2.15 PWM_Control (0x0F)

Command	Op Code	Command Parameters	Return Parameters
PWM_Control	0x0F	Channel, PWM_Enable, Clock_Source, Top_Value, Compare_Value, Output_Inverse	Status

Description:

This command is used to control PWM of **BLEDK3**.

The minimum Top_value is 0x0001 and the maximum Top_value is 0xFFFF. The Compare_value range is 0x0000 to 0xFFFF and Compare_value must smaller than Top_value.

Command Parameters:

Channel: *Length: 1 Byte*

Value	Parameter Description
0x00	Channel 1
0x01	Channel 2
0x02	Channel 3

0x03	Channel 4

PWM_Enable: *Length: 1 Byte*

Value	Parameter Description
0x00	PWM disable
0x01	PWM enable

Clock_Source: *Length: 1 Byte*

Value	Parameter Description
0x00	32 KHz
0x01	1024 KHz
0x02	16 MHz

Top_Value: *Length: 2 Byte*

Value	Parameter Description
0xXXXX	Top value

Compare_Value: *Length: 2 Byte*

Value	Parameter Description
0xXXXX	Compare value

Output_Inverse: *Length: 1 Byte*

Value	Parameter Description
0x00	Normal output
0x01	Inverse output

Return Parameters:

Status: *Length: 1 Byte*

Value	Parameter Description
0x00	Command succeeded
0x01 – 0xFF	Command failed. See listing of Error Codes.

[Return to Command Table]

3.3 GAP Commands

The GAP group commands are used to manage **BLEDK3** Bluetooth connection related capability. For most commands, **BLEDK3** replies the Command_Complete event to notify the result of command process.

3.3.1 Read_RSSI_Value (0x10)

Command	Op Code	Command Parameters	Return Parameters
Read_RSSI_Value	0x10	Connection_Handle	Status, RSSI_Value

Description:

This command is used to read RSSI value for peer connection.

This command is valid while Bluetooth link is successfully established between **BLEDK3** and remote host.

Command Parameters:

Connection_Handle: *Length: 2 Bytes*

Value	Parameter Description
0xXXXX	Connection Handle

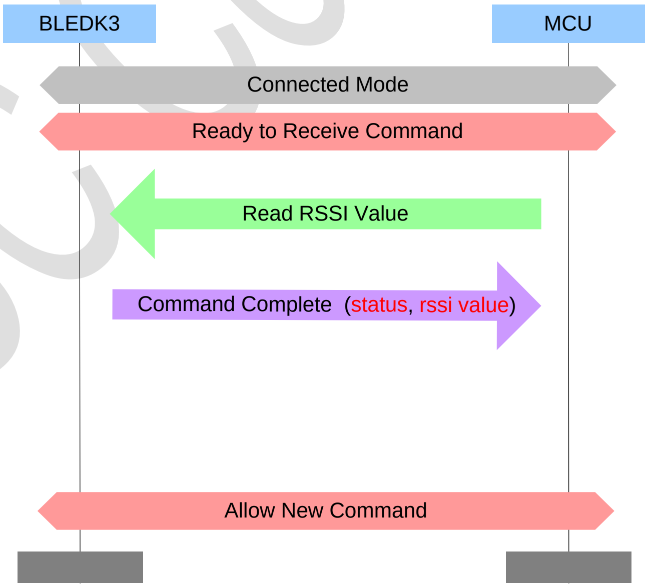
Return Parameters:

Status: *Length: 1 Byte*

Value	Parameter Description
0x00	Command succeeded
0x01 – 0xFF	Command failed. See listing of Error Codes.

RSSI_Value: *Length: 1 Byte*

Value	Parameter Description
0xXX	RSSI Value


BLEDK3
MCU
Connected Mode
Ready to Receive Command
Read RSSI Value
Command Complete (status, rssi value)
Allow New Command

[Return to Command Table]

3.3.2 Write_Adv_Data (0x11)

Command	Op Code	Command Parameters	Return Parameters
Write_Adv_Data	0x11	Store_Option, Advertising_Data	Status

Description:

This command is used to update the advertise data.

This command is valid while **BLEDK3** is in Idle Mode or Configure Mode.

Command Parameters:

Store_Option: *Length: 1 Byte*

Value	Parameter Description
0x00	Advertising Data won't be stored
0x80	Beacon Data won't be stored

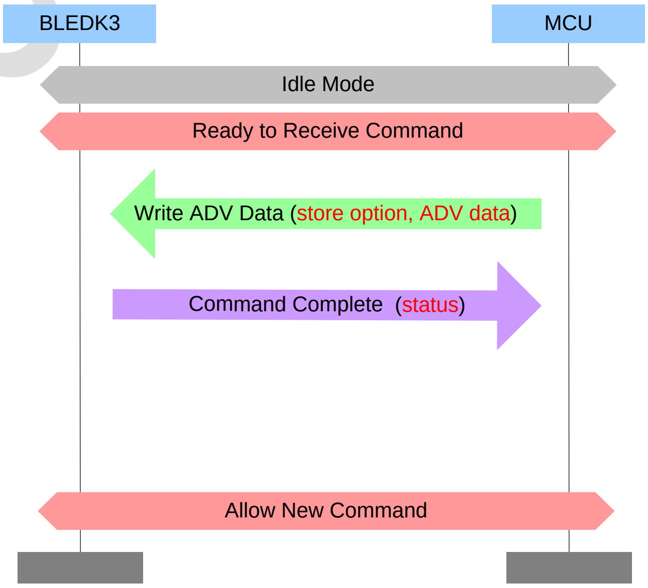
Advertising_Data *Length: 1 to 31 Bytes*

Value	Parameter Description
0xXX	Advertising Data/Beacon Data

Return Parameters:

Status: *Length: 1 Byte*

Value	Parameter Description
0x00	Command succeeded
0x01 – 0xFF	Command failed. See listing of Error Codes.


BLEDK3
MCU
Idle Mode
Ready to Receive Command
Write ADV Data (store option, ADV data)
Command Complete (status)
Allow New Command

[Return to Command Table]

3.3.3 Write_Scan_Res_Data (0x12)

Command	Op Code	Command Parameters	Return Parameters
Write_Scan_Res_Data	0x12	Reserved, Scan_Res_Data	Status

Description:

This command is used to update the Scan_Res data.

This command is valid while **BLEDK3** is in Idle Mode or Configure Mode.

Command Parameters:

Reserved: *Length: 1 Byte*

Value	Parameter Description
0x00	Reserved for future used

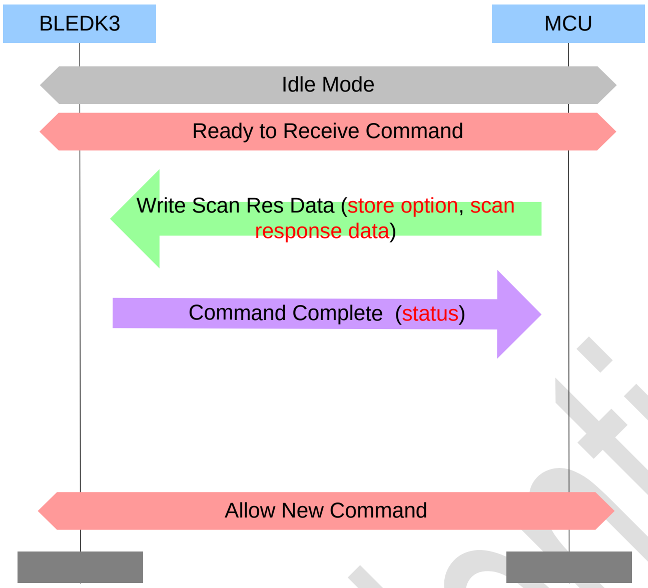
Scan_Res_Data *Length: 1 to 31 Bytes*

Value	Parameter Description
0xXX	Scan Response Data

Return Parameters:

Status: *Length: 1 Byte*

Value	Parameter Description
0x00	Command succeeded
0x01 – 0xFF	Command failed. See listing of Error Codes.


BLEDK3
MCU
Idle Mode
Ready to Receive Command
Write Scan Res Data (store option, scan response data)
Command Complete (status)
Allow New Command

[Return to Command Table]

3.3.4 Set_Advertising_Parameter (0x13)

Command	Op Code	Command Parameters	Return Parameters
Advertising_Mode_Setting	0x13	Advertising_Interval Advertising_Type, Direct_Address_Type, Direct_Address,	Status

Description:

This command is used to set advertising parameters and it is valid while **BLEDK3** is in Idle Mode or Configure Mode.

Command Parameters:

Advertising_Interval: *Length: 2 Bytes*

Value	Parameter Description
0xXXXX	Advertising interval for non-directed advertising. Range: 0x0020 to 0x4000 Default: N = 0x0800 (1.28 second) Time = N * 0.625 msec Time Range: 20 ms to 10.24 sec

Advertising_Type: *Length: 1 Byte*

Value	Parameter Description

0x00	Connectable undirected advertising. It is used to make **BLEDK3** into standby mode.
0x01	Connectable directed advertising. It is used to make **BLEDK3** into link back mode.
0x02	Scannable undirected advertising. It is used to make **BLEDK3** into broadcast mode. And it will reply advertising packet only for the observer passive scanning or active scanning to receive advertising events.
0x03	Non connectable undirected advertising. It is used to make **BLEDK3** into broadcast mode.
0x04	Proprietary Beacon Setting

Direct_Address_Type: *Length: 1 Byte*

Value	Parameter Description
0x00	Public Device Address
0x01	Random Device Address

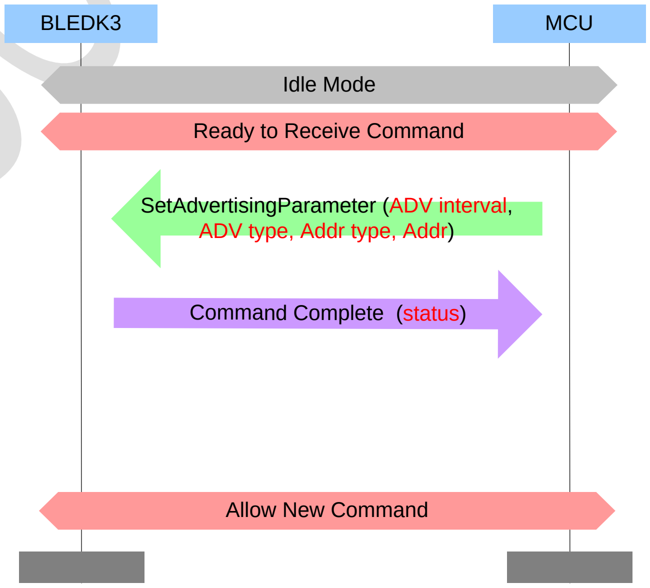
Direct_Address: *Length: 6 Bytes*

Value	Parameter Description
0xXXXXXXXXXXXX	Public Device Address or Random Device Address of the device to be connected

Return Parameters:

Status: *Length: 1 Byte*

Value	Parameter Description
0x00	Command succeeded
0x01 – 0xFF	Command failed. See listing of Error Codes.


BLEDK3
MCU
Idle Mode
Ready to Receive Command
SetAdvertisingParameter (ADV interval, ADV type, Addr type, Addr)
Command Complete (status)
Allow New Command

[Return to Command Table]

3.3.5 Set_Scan_Parameter (0x15)

Command	Op Code	Command Parameters	Return Parameters
Set_Scan_Parameters	0x15	Scan_Interval, Scan_Window Scan_Type	Status

Description:

This command is used to set scan parameters, start scanning and whether **BLEDK3** shall filter duplicate advertising reports to MCU. It is valid while **BLEDK3** is in Idle Mode only.

Command Parameters:

Scan_Interval *Length: 2 Byte*

Value	Parameter Description
0xXXXX	This is defined as the time interval from when the Controller started its last **BLEDK3** scan until it begins the subsequent **BLEDK3** scan. Range: 0x0004 to 0x4000 Default: 0x0010 (10 ms) Time = N * 0.625 msec Time Range: 2.5 msec to 10.24 seconds

Scan_Window *Length: 2 Byte*

Value	Parameter Description
0xXXXX	The duration of the LE scan. Scan_Window shall be less than or equal to Scan_Interval. Range: 0x0004 to 0x4000 Default: 0x0010 (10 ms) Time = N * 0.625 msec Time Range: 2.5 msec to 10240 msec

Scan_Type *Length: 1 Byte*

Value	Parameter Description
0x00	Passive Scanning. No SCAN_REQ packets shall be sent. (**default**)
0x01	Active scanning. SCAN_REQ packets may be sent.

Return Parameters:

Status: *Length: 1 Byte*

Value	Parameter Description
0x00	Command succeeded
0x01 – 0xFF	Command failed. See listing of Error Codes.

[Return to Command Table]

3.3.6 Set_Scan_Enable (0x16)

Command	Op Code	Command Parameters	Return Parameters
Discover_Peripheral	0x16	Scan_Enable, Filter_Duplicates	Status

Description:

This command is used to cancel discover peripheral and it is valid while **BLEDK3** is in Idle Mode only.

Command Parameters:

Scan_Enable: *Length: 1 Byte*

Value	Parameter Description
0x00	Scanning disabled
0x01	Scanning enabled

Filter_Duplicate: *Length: 1 Byte*

Value	Parameter Description
0x00	Duplicate filtering disabled.
0x01	Duplicate filtering enabled.

Return Parameters:

Status: *Length: 1 Byte*

Value	Parameter Description
0x00	Command succeeded
0x01 – 0xFF	Command failed. See listing of Error Codes.

[Return to Command Table]

3.3.7 LE_Create_Connection (0x17)

Command	Op Code	Command Parameters	Return Parameters
Create_Connection	0x17	Filter_Policy, Peer_Address_Type, Peer_Address,	

Description:

This command is used to create a connection to a connectable advertiser and it is valid while **BLEDK3** is in Idle Mode only.

Command Parameters:

Filter_Policy: *Length: 1 Byte*

Value	Parameter Description
0x00	White list is not used to determine which advertiser to connect to. Peer_Address_Type and Peer_Address shall be used.
0x01	White list is used to determine which advertiser to connect to. Peer_Address_Type and Peer_Address shall be ignored.

Peer_Address_Type: *Length: 1 Byte*

Value	Parameter Description
0x00	Public Device Address
0x01	Random Device Address

Peer_Address: *Length: 6 Bytes*

Value	Parameter Description
0xXXXXXXXXXXXX	Public Device Address or Random Device Address of the device to be connected

Return Parameters:

None

Note: No Command_Complete event is sent by the **BLEDK3** to indicate that this command has been completed. Instead, the LE_Connection_Complete event indicates that this command has been completed.

[Return to Command Table]

3.3.8 LE_Create_Connection_Cancel (0x18)

Command	Op Code	Command Parameters	Return Parameters
LE_Create_Connection_Cancel	0x18	NONE	Status

Description:

This command is used to cancel the LE_Create_Connection command. This command shall only be issued after the LE_Create_Connection command has been issued (Under Connecting Mode).

Command Parameters:

None

Status: *Length: 1 Byte*

Value	Parameter Description
0x00	Command succeeded
0x01 – 0xFF	Command failed. See listing of Error Codes.

[Return to Command Table]

3.3.9 Connection_Parameter_Update_Req (0x19)

Command	Op Code	Command Parameters	Return Parameters
Connection_Parameter_Update_Req	0x19	Connection_Handle Conn_Interval, Conn_Latency, Supervision_Timeout	Status

Description:

This command is used to change connection parameters of a connection. This command is valid while Bluetooth link is successfully established between **BLEDK3** and remote host.

Command Parameters:

Connection_Handle: *Length: 1 Byte*

Value	Parameter Description
0xXX	Connection Handle

Conn_Interval: *Length: 2 Bytes*

Value	Parameter Description
0xXXXX	Minimum value for the connection event interval. This shall be less than or equal to Conn_Interval_Max. Range: 0x0006 to 0x0C80 Time = N * 1.25 msec Time Range: 7.5 msec to 4 seconds.

Conn_Latency: *Length: 2 Bytes*

Value	Parameter Description
0xXXXX	Slave latency for the connection in number of connection events. Range: 0x0000 to 0x01F4

Supervision_Timeout: *Length: 2 Bytes*

Value	Parameter Description
0xXXXX	Supervision timeout for the LE Link

	Range: 0x000A to 0x0C80 Time = N * 10 msec Time Range: 100 msec to 32 seconds

Return Parameters:

Status: *Length: 1 Byte*

Value	Parameter Description
0x00	Command succeeded
0x01 – 0xFF	Command failed. See listing of Error Codes.

[Return to Command Table]

3.3.10 Disconnect (0x1B)

Command	Op Code	Command Parameters	Return Parameters
Disconnect	0x1B	Reserved	

Description:

This command is used to terminate a connection. This command is valid while Bluetooth link is successfully established between **BLEDK3** and remote host..

Command Parameters:

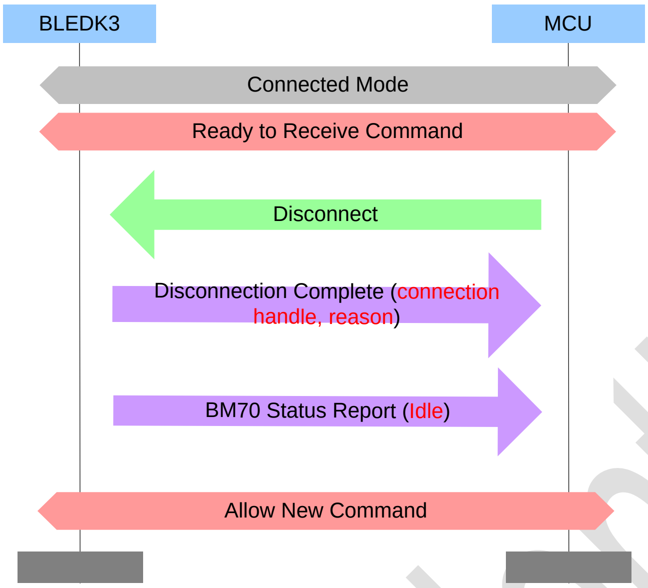
Reserved: *Length: 1 Byte*

Value	Parameter Description
0x00	Always set this byte to 0

Return Parameters:

None

Note: No Command_Complete event is sent by the **BLEDK3** to indicate that this command has been completed. Instead, the Disconnection_Complete event indicates that this command has been completed.


BLEDK3
MCU
Connected Mode
Ready to Receive Command
Disconnect
Disconnection Complete (connection handle, reason)
BM70 Status Report (Idle)
Allow New Command

[Return to Command Table]

3.3.11 Invisible_Setting (0x1C)

Command	Op Code	Command Parameters	Return Parameters
Invisible_Setting	0x1C	Mode	Status

Description:

This command is used to configure invisible setting of **BLEDK3** and it is valid while **BLEDK3** is in Idle Mode only.

Command Parameters:

Mode: *Length: 1 Byte*

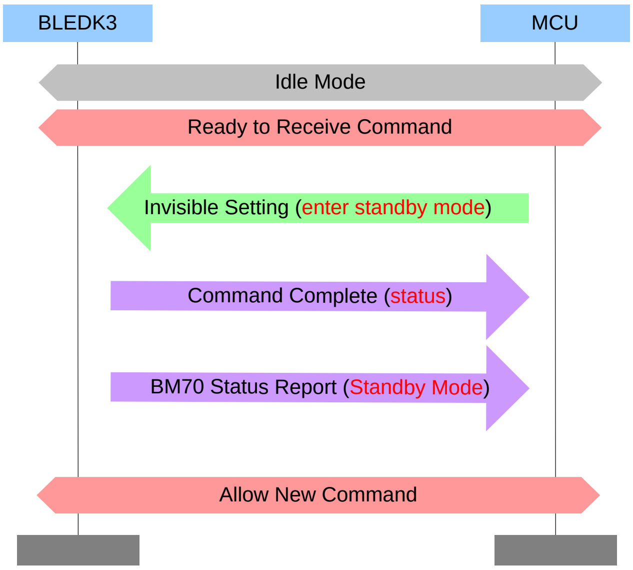
Value	Parameter Description
0x00	Leave Standby Mode
0x01	Enter Standby Mode
0x02	Enter Standby Mode and only connectable for trust device
0x81	Enter Standby Mode with Beacon Enabled
0x82	Enter Standby Mode with Beacon Enabled and only connectable for trust device

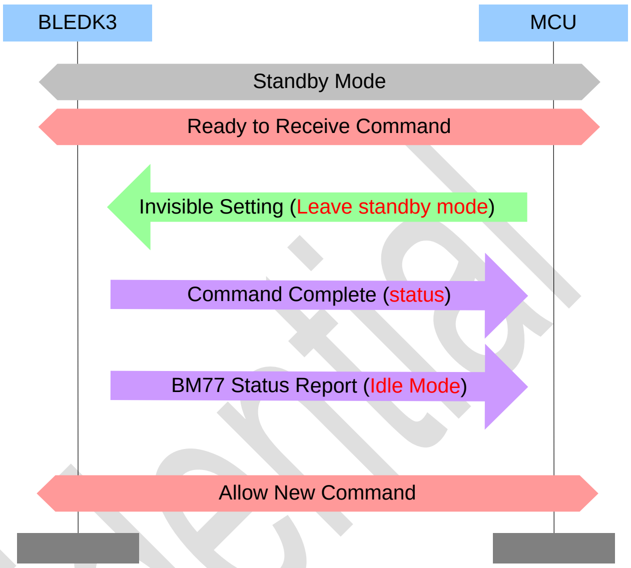
Return Parameters:

Status: *Length: 1 Byte*

Value	Parameter Description

0x00	Command succeeded
0x01 – 0xFF	Command failed. See listing of Error Codes.


BLEDK3
MCU
Idle Mode
Ready to Receive Command
Invisible Setting (enter standby mode)
Command Complete (status)
BM70 Status Report (Standby Mode)
Allow New Command


BLEDK3
MCU
Standby Mode
Ready to Receive Command
Invisible Setting (Leave standby mode)
Command Complete (status)
BM77 Status Report (Idle Mode)
Allow New Command

[Return to Command Table]

3.3.12 Read_Remote_Device_Name (0x1F)

Command	Op Code	Command Parameters	Return Parameters
Read_Remote_Device_Name	0x1F	Connection_Handle	Status, Device_Name

Description:

This command is used to read remote device name. This command is valid while Bluetooth link is successfully established between **BLEDK3** and remote host.

Command Parameters:

Connection_Handle: *Length: 1 Byte*

Value	Parameter Description
0xXX	Connection Handle

Return Parameters:

Status: *Length: 1 Byte*

Value	Parameter Description
0x00	Command succeeded
0x01 – 0xFF	Command failed. See listing of Error Codes.

Device_Name: *Length: XX Bytes*

Value	Parameter Description
0xXX	Remote Device Name

[Return to Command Table]

3.4 GATT Client Commands

GATT client group commands are used for GATT client procedure.

3.4.1 Discover_All_Primary_Services (0x30)

Command	Op Code	Command Parameters	Return Parameters
Discover_All_Primary_Services	0x30	Connection_Handle	Status

Description:

This command is used to discovery all primary services on a server.

Command Parameters:

Connection_Handle: *Length: 1 Byte*

Value	Parameter Description
0xXX	Connection Handle

Return Parameters:

Status: *Length: 1 Byte*

Value	Parameter Description
0x00	Command succeeded
0x01 – 0xFF	Command failed. See listing of Error Codes.

[Return to Command Table]

3.4.2 Discover_Specific_Primary_Service_Characteristics (0x31)

Command	Op Code	Command Parameters	Return Parameters
Discover_Specific_Primary_Service_Characteristics	0x31	Connection_Handle, Service_UUID	Status

Description:

This command is used to find all the characteristic declarations and characteristic descriptor’s Attribute handles and Attribute Types within a service definition on a server when only the service handle range is known.

Command Parameters:

Connection_Handle: *Length: 1 Byte*

Value	Parameter Description
0xXX	Connection Handle

Service_UUID: *Length: 2 or 16 Bytes*

Value	Parameter Description
0xXX	16-bit Bluetooth UUID or 128-bit UUID

Return Parameters:

Status: *Length: 1 Byte*

Value	Parameter Description
0x00	Command succeeded
0x01 – 0xFF	Command failed. See listing of Error Codes.

[Return to Command Table]

3.4.3 Read_Characteristic_Value (0x32)

Command	Op Code	Command Parameters	Return Parameters
Read_Characteristic_Value	0x32	Connection_Handle, Characteristic_Value_Handle	Status, Characteristic_Value

Description:

This command is used to read a Characteristic Value from a server.

Command Parameters:

Connection_Handle: *Length: 1 Byte*

Value	Parameter Description
0xXX	Connection Handle

Characteristic_Value_Handle: *Length: 2 Bytes*

Value	Parameter Description
0xXXXX	Characteristic Value Handle

Return Parameters:

Status: *Length: 1 Byte*

Value	Parameter Description
0x00	Command succeeded
0x01 – 0xFF	Command failed. See listing of Error Codes.

Characteristic_Value: *Length: 1 to 20 Bytes*

Value	Parameter Description
0xXX	Characteristic Value

[Return to Command Table]

3.4.4 Read_Using_Characteristic_UUID (0x33)

Command	Op Code	Command Parameters	Return Parameters
Read_Using_Characteristic_UUID	0x33	Connection_Handle, Characteristic_UUID	Status, Characteristic_Value_Handle, Characteristic_Value

Description:

This command is used to read a Characteristic Value from a server when the client only knows the characteristic UUID and does not know the handle of the characteristic.

Command Parameters:

Connection_Handle: *Length: 1 Byte*

Value	Parameter Description
0xXX	Connection Handle

Characteristic_UUID: *Length: 2 or16 Bytes*

Value	Parameter Description
0xXXXX..	Characteristic UUID

Return Parameters:

Status: *Length: 1 Byte*

Value	Parameter Description
0x00	Command succeeded
0x01 – 0xFF	Command failed. See listing of Error Codes.

Characteristic_Value_Handle: *Length: 2 Bytes*

Value	Parameter Description
0xXXXX	Characteristic Value Handle

Characteristic_Value: *Length: 1 to 20 Bytes*

Value	Parameter Description
0xXX	Characteristic Value

[Return to Command Table]

3.4.5 Write_Characteristic_Value (0x34)

Command	Op Code	Command Parameters	Return Parameters
Write_Characteristic_Value	0x34	Connection_Handle, Type, Characteristic_Value_Handle, Characteristic_Value	Status

Description:

This command is used to write a Characteristic Value to a server.

Command Parameters:

Connection_Handle: *Length: 1 Byte*

Value	Parameter Description
0xXX	Connection Handle

Type: *Length: 1 Byte*

Value	Parameter Description
0x00	With Response
0x01	Without Response

Characteristic_Value_Handle: *Length: 2 Bytes*

Value	Parameter Description
0xXXXX	Characteristic Value Handle

Characteristic_Value: *Length: 1 to 20 Bytes*

Value	Parameter Description
0xXX	Characteristic Value

Return Parameters:

Status: *Length: 1 Byte*

Value	Parameter Description
0x00	Command succeeded
0x01 – 0xFF	Command failed. See listing of Error Codes.

[Return to Command Table]

3.4.6 Enable_Transparent (0x35)

Command	*Op Code*	*Command Parameters*	*Return Parameters*
Enable_Transparent	0x35	Connection_Handle, Server_Transparent_Ctrl, Client_Transparent_Mode	Status

Description:

This command is used to enable ISSC_TRANS_TX service of **BLEDK3**.

Command Parameters:

Connection_Handle: *Length: 1 Byte*

Value	Parameter Description
0xXX	Connection Handle

Server_Transparent_Ctrl: *Length: 1 Byte*

Value	Parameter Description
0x00	Disable transparent data transmit of server. (Default)
0x01	Enable transparent data transmit of server.

Client_Transparent_Mode: *Length: 1 Byte*

Value	Parameter Description
0x00	Client send transparent data by Write_Req. (Default)
0x01	Client send transparent data by Write_Cmd.

Return Parameters:

Status: *Length: 1 Byte*

Value	Parameter Description
0x00	Command succeeded
0x01 – 0xFF	Command failed. See listing of Error Codes.

[Return to Command Table]

3.5 GATT Server Commands

3.5.1 Send_Characteristic_Value (0x38)

Command	Op Code	Command Parameters	Return Parameters
Send_Characteristic_Value	0x38	Characteristic_Value_Handle, Characteristic_Value	Status

Description:

This command is used to send characteristic value to GATT client.

Command Parameters:

Characteristic_Value_Handle: *Length: 2 Bytes*

Value	Parameter Description
0xXXXX	Characteristic Value Handle

Characteristic_Value: *Length: 1 to 20 Bytes*

Value	Parameter Description
0xXX	Characteristic Value

Return Parameters:

Status: *Length: 1 Byte*

Value	Parameter Description
0x00	Command succeeded
0x01 – 0xFF	Command failed. See listing of Error Codes.

[Return to Command Table]

3.5.2 Update_Characteristic_Value (0x39)

Command	Op Code	Command Parameters	Return Parameters
Update_Characteristic_Value	0x39	Characteristic_Value_Handle, Characteristic_Value	Status

Description:

This command is used to update existing characteristic value of **BLEDK3**.

Command Parameters:

Characteristic_Value_Handle: *Length: 2 Bytes*

Value	Parameter Description
0xXXXX	characteristic value handle

Characteristic_Value: *Length: 1 to 20 Bytes*

Value	Parameter Description
0xXX	characteristic value

Return Parameters:

Status: *Length: 1 Byte*

Value	Parameter Description
0x00	Command succeeded
0x01 – 0xFF	Command failed. See listing of Error Codes.

[Return to Command Table]

3.5.3 Read_Local_Characteristic_Value (0x3A)

Command	Op Code	Command Parameters	Return Parameters
Read_Local_Characteristic_Value	0x3A	Characteristic_Value_Handle	Status, Characteristic_Value

Description:

This command is used to read existing characteristic value of **BLEDK3**.

Command Parameters:

Characteristic_Value_Handle: *Length: 2 Bytes*

Value	Parameter Description
0xXXXX	characteristic value handle

Return Parameters:

Status: *Length: 1 Byte*

Value	Parameter Description
0x00	Command succeeded
0x01 – 0xFF	Command failed. See listing of Error Codes.

Characteristic_Value: *Length: XX Bytes*

Value	Parameter Description
0xXX	characteristic value

[Return to Command Table]

3.5.4 Read_Local_All_Primary_Service (0x3B)

Command	Op Code	Command Parameters	Return Parameters
Read_Local_All_Primary_Service	0x3B		Status

Description:

This command is used to read all primary service of **BLEDK3**.

Command Parameters:

None

Return Parameters:

Status: *Length: 1 Byte*

Value	Parameter Description
0x00	Command succeeded
0x01 – 0xFF	Command failed. See listing of Error Codes.

[Return to Command Table]

3.5.5 Read_Local_Specific_Primary_Service (0x3C)

Command	Op Code	Command Parameters	Return Parameters
Read_Local_Specific_Primary_Service	0x3C	Service_UUID	Status

Description:

This command is used to read specific primary service of **BLEDK3**.

Command Parameters:

Service_UUID: *Length: 2 or 16 Bytes*

Value	Parameter Description
0xXX	16-bit Bluetooth UUID or 128-bit UUID

Return Parameters:

Status: *Length: 1 Byte*

Value	Parameter Description
0x00	Command succeeded
0x01 – 0xFF	Command failed. See listing of Error Codes.

[Return to Command Table]

3.6 GATT Transparent Commands

3.6.1 Send_Transparent_Data (0x3F)

Command	*Op Code*	*Command Parameters*	*Return Parameters*
Send_Transparent_Data	0x3F	Connection_Handle, Transparent_Data	Status

Description:

This command is used to send transparent data by ISSC_TRANS_TX service.

Command Parameters:

Connection_Handle: *Length: 1 Byte*

Value	Parameter Description
0x00	Connection Handle

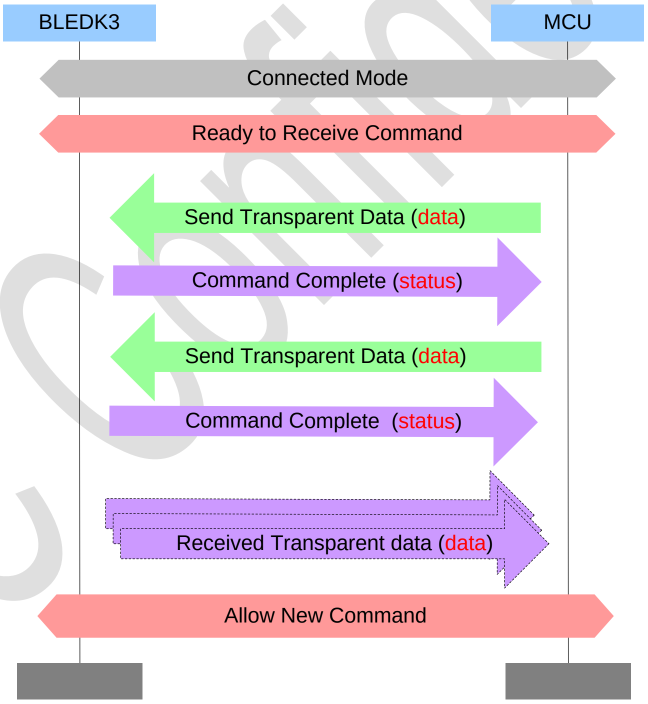
Transparent_Data: *Length: N Bytes*

Value	Parameter Description
0xXX	Transparent_Data. Maximum length of transparent data is 640 bytes

Return Parameters:

Status: *Length: 1 Byte*

Value	Parameter Description
0x00	Command succeeded
0x01 – 0xFF	Command failed. See listing of Error Codes.


BLEDK3
MCU
Connected Mode
Ready to Receive Command
Send Transparent Data (data)
Command Complete (status)
Send Transparent Data (data)
Command Complete (status)
Received Transparent data (data)
Allow New Command

[Return to Command Table]

3.7 Pairing Commands

3.7.1 Passkey_Entry_Res (0x40)

Command	Op Code	Command Parameters	Return Parameters
Passkey_Entry_Res	0x40	Connection_Handle Notification_Type, Entered_Passkey	Status

Description:

This command is used to response passkey entry request from **BLEDK3**.

Command Parameters:

Connection_Handle: *Length: 1 Byte*

Value	Parameter Description
0xXX	Connection Handle

Notification_Type: *Length: 1 Byte*

Value	Parameter Description
0x01	Passkey digit entered
0x02	Passkey digit erased
0x03	Passkey cleared
0x04	Passkey entry completed

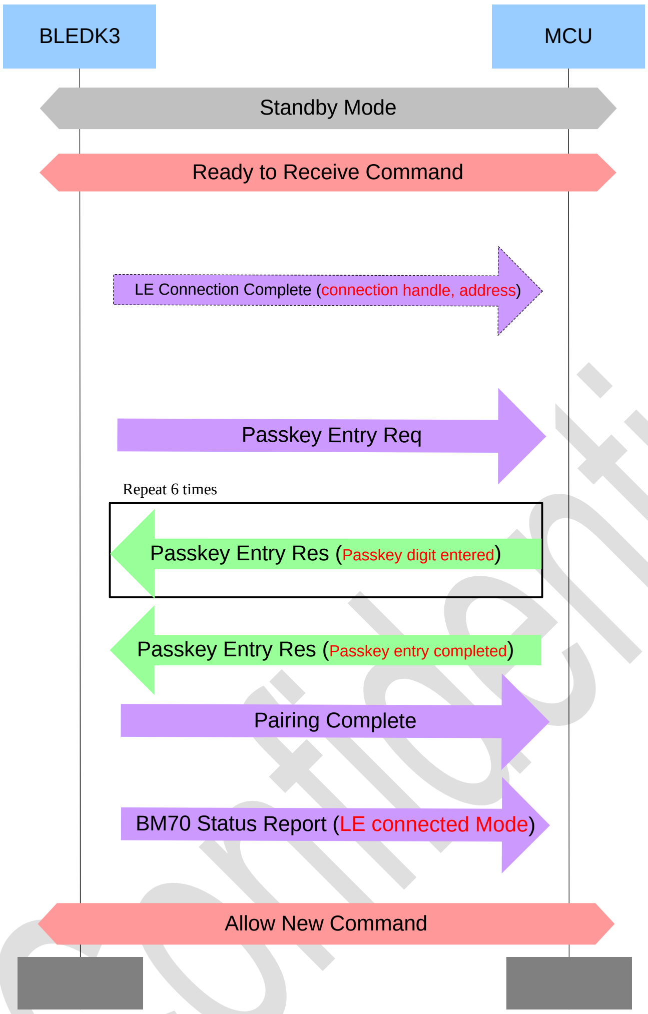
Entered_Passkey: *Length: 1 Byte*

Value	Parameter Description
0xXX	Entered Digital Passkey character. It is valid only while the Notification_type is 0x01. 0x30~0x39: "0" ~"9"

Return Parameters:

Status: *Length: 1 Byte*

Value	Parameter Description
0x00	Command succeeded
0x01 – 0xFF	Command failed. See listing of Error Codes.


BLEDK3
MCU
Standby Mode
Ready to Receive Command
LE Connection Complete (connection handle, address)
Passkey Entry Req
Repeat 6 times
Passkey Entry Res (Passkey digit entered)
Passkey Entry Res (Passkey entry completed)
Pairing Complete
BM70 Status Report (LE connected Mode)
Allow New Command

[Return to Command Table]

3.7.2 User_Confirm_Res (0x41)

Command	Op Code	Command Parameters	Return Parameters
User_Confirm_Res	0x41	Connection_Handle option	Status

Description:

This command is used to response passkey entry request from **BLEDK3**.

Command Parameters:

Connection_Handle: *Length: 1 Byte*

Value	Parameter Description
0xXX	Connection Handle

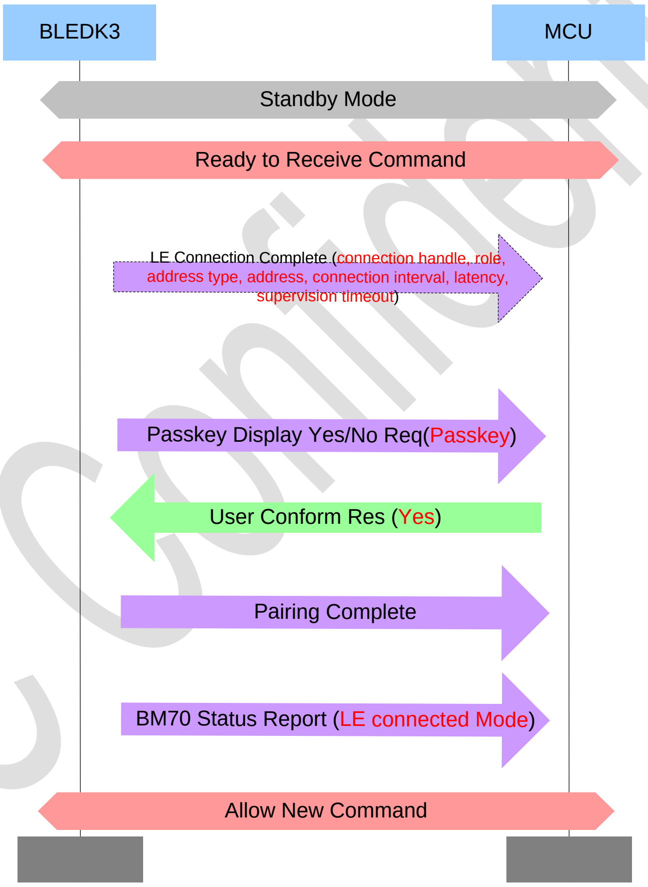
Notification_Type: *Length: 1 Byte*

Value	Parameter Description
0x00	Entered information is Yes
0x01	Entered information is No

Return Parameters:

Status: *Length: 1 Byte*

Value	Parameter Description
0x00	Command succeeded
0x01 – 0xFF	Command failed. See listing of Error Codes.


BLEDK3
MCU
Standby Mode
Ready to Receive Command
LE Connection Complete (connection handle, role, address type, address, connection interval, latency, supervision timeout)
Passkey Display Yes/No Req(Passkey)
User Conform Res (Yes)
Pairing Complete
BM70 Status Report (LE connected Mode)
Allow New Command

[Return to Command Table]

3.7.3 Pairing_Request (0x42)

Command	Op Code	Command Parameters	Return Parameters
Pairing_Request	0x42	Connection_Handle	Status

Description:

This command is used to initiate pairing procedure.

Command Parameters:

Connection_Handle: *Length: 1 Byte*

Value	Parameter Description
0xXX	Connection Handle

Return Parameters:

Status: *Length: 1 Byte*

Value	Parameter Description
0x00	Command succeeded
0x01 – 0xFF	Command failed. See listing of Error Codes.

[Return to Command Table]

3.8 Common_2 Commands

MCU sends the Common Command to **BLEDK3** for specific purpose. **BLEDK3** will reply the Command Complete event to notify the command process result.

3.8.1 Leave_Configure_Mode (0x52)

Command	Op Code	Command Parameters	Return Parameters
Leave_Configure_Mode	0x52	Option	Status

Description:

BLEDK3 will leave configure mode if “Leave_Configure_Mode” command is received.

Command Parameters:

Option: *Length: 1 Byte*

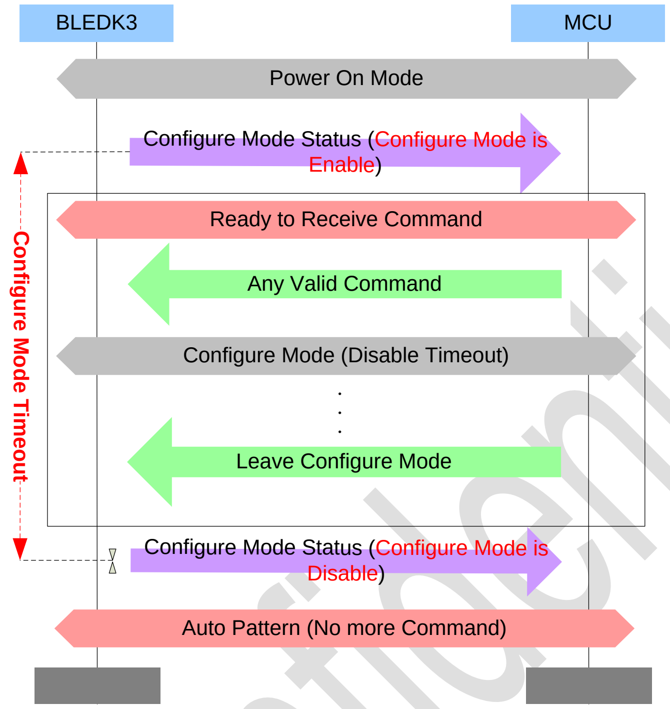
Value	Parameter Description
0x00	None
0x01	Disable configure mode forever

Return Parameters:

Status: *Length: 1 Byte*

Value	Parameter Description

0x00	Command succeeded
0x01 – 0xFF	Command failed. See listing of Error Codes.


BLEDK3
MCU
Power On Mode
Configure Mode Status (Configure Mode is Enable)
Configure Mode Timeout
Ready to Receive Command
Any Valid Command
Configure Mode (Disable Timeout)
Leave Configure Mode
Configure Mode Status (Configure Mode is Disable)
Auto Pattern (No more Command)

[Return to Command Table]

4. Event Op Code Definition

Event Type	Op Code	Event
Pairing	0x60	Passkey_Entry_Req
	0x61	Pairing_Complete
	0x62	Passkey_Confirm_Req
GAP	0x70	Advertising_Report
	0x71	LE_Connection_Complete
	0x72	Disonnection_Complete
	0x73	Connection_Parameter_Update_Notify
Common	0x80	Command_Complete
	0x81	BLEDK3_Status_Report
	0x8f	Configure_Mode_Status
GATT Client	0x90	Discover_All_Primary_Services_Res
	0x91	Discover_Specific_Primary_Service_Characteristics_Res
	0x92	Discover_All_Characteristic_Descriptors_Res
	0x93	Characteristic_Value_Received
GATT Server	0x98	Client_Write_Characteristic_Value
GATT Transparent	0x9a	Received_Transparent_Data

4.1 Pairing Event

4.1.1 Passkey_Entry_Req (0x60)

Event	OpCode	Event Parameters
Passkey_Entry_Req	0x60	Connection_Handle

Description:

This event is used to inform MCU that **BLEDK3** has received Passkey Request.

Event Parameters:

Connection_Handle: *Length: 1 Byte*

Value	Parameter Description
0xXX	Connection_Handle to be used to identify a connection between two Bluetooth devices

[Return to Event Table]

4.1.2 Pairing_Complete (0x61)

Event	OpCode	Event Parameters
Pairing_Complete	0x61	Connection_Handle Result

Description:

This event is used to inform MCU that **BLEDK3** pairing process has been finished.

Event Parameters:

Connection_Handle: *Length: 1 Byte*

Value	Parameter Description
0xXX	Connection_Handle to be used to identify a connection between two Bluetooth devices

Result: *Length: 1 Byte*

Value	Parameter Description
0x00	Pairing Complete
0x01	Pairing Fail
0x02	Pairing Timeout

[Return to Event Table]

4.1.3 Passkey_Confirm_Req (0x62)

Event	OpCode	Event Parameters
Passkey_Confirm_Req	0x62	Connection_Handle Displayed_Passkey

Description:

This event is used to inform MCU that **BLEDK3** has received user confirm request.

Event Parameters:

Connection_Handle: *Length: 1 Byte*

Value	Parameter Description
0xXX	Connection_Handle to be used to identify a connection between two Bluetooth devices

Displayed_Passkey: *Length: 1 Byte*

Value	Parameter Description
0xXX	Numeric for MCU to display

[Return to Event Table]

4.2 GAP Event

4.2.1 Advertising_Report (0x70)

Event	OpCode	Event Parameters
Advertising_Report	0x70	Event_Type, Address_Type, Address, Length, Data, RSSI

Description:

This event indicates that a Bluetooth device or multiple Bluetooth devices have responded to an active Scan or received some information during a passive scan.

Event Parameters:

Event_Type: *Length: 1 Byte*

Value	Parameter Description
0x00	Connectable undirected advertising (ADV_IND).
0x01	Connectable directed advertising (ADV_DIRECT_IND)
0x02	Scannable undirected advertising (ADV_SCAN_IND)
0x03	Non connectable undirected advertising (ADV_NONCONN_IND)
0x04	Scan Response (SCAN_RSP)

Address_Type: *Length: 1 Byte*

Value	Parameter Description
0x00	Public Device Address
0x01	Random Device Address

Address: *Length: 6 Bytes*

Value	Parameter Description
0xXXXXXXXXXXXX	Public Device Address or Random Device Address for each device which responded.

Length_Data: *Length: 1 Byte*

Value	Parameter Description
0x00~0x1F	Length of the Data[i] field for each device which responded

Data: *Length: Length_Data[i] Bytes*

Value	Parameter Description
0x00~0x1F	Length_Data[i] octets of advertising or scan response data

RSSI: *Length: 1 Byte*

Value	Parameter Description
N	Size: 1 Octet (signed integer) Range: -127 ≤ N ≤ +20 Units: dBm
127	RSSI is not available

[Return to Event Table]

4.2.2 LE_Connection_Complete (0x71)

Event	OpCode	Event Parameters
LE_Connection _Complete	0x71	Status, Connection_Handle, Role, Peer_Address_Type, Peer_Address, Conn_Interval, Conn_Latency, Supervision_Timeout,

Description:

This event is used to inform MCU that a LE connection has been created.

Event Parameters:

Status: *Length: 1 Byte*

Value	Parameter Description
0x00	Connection successfully completed.
0x01~0xff	Connection failed to complete.

Connection_Handle: *Length: 1 Byte*

Value	Parameter Description
0xXX	Connection_Handle to be used to identify a connection between two Bluetooth devices

Role: *Length: 1 Byte*

Value	Parameter Description
0x00	Connection is master
0x01	Connection is slave

Peer_Address_Type: *Length: 1 Byte*

Value	Parameter Description
0x00	Peer is using a Public Device Address
0x01	Peer is using a Random Device Address

0x02	Peer is paired device

Peer_Address: *Length: 6 Bytes*

Value	Parameter Description
0xXXXXXXXXXXXX	Public Device Address or Random Device Address of the peer device

Conn_Interval: *Length: 2 Bytes*

Value	Parameter Description
0xXXXX	Connection interval used on this connection. Range: 0x0006 to 0x0C80 Time = N * 1.25 msec Time Range: 7.5 msec to 4000 msec.

Conn_Latency: *Length: 2 Bytes*

Value	Parameter Description
0xXXXX	Connection latency for this connection. Range: 0x0006 to 0x0C80 Time = N * 1.25 msec Time Range: 7.5 msec to 4000 msec.

SuperVision_Timeout: *Length: 2 Bytes*

Value	Parameter Description
0xXXXX	Connection supervision timeout. Range: 0x000A to 0x0C80 Time = N * 10 msec Time Range: 100 msec to 32 seconds

[Return to Event Table]

4.2.3 Disconnection_Complete (0x72)

Event	OpCode	Event Parameters
Disonnection_Complete	0x72	Connection_Handle, Reason

Description:

This event is used to inform that the connection has been terminated.

Event Parameters:

Connection_Handle: *Length: 1 Byte*

Value	Parameter Description
0xXX	Connection_Handle to be used to identify a connection between two

	Bluetooth devices

Reason: *Length: 1 Byte*

Value	Parameter Description
0xXX	Disconnection reason. See listing of Error Codes.

[Return to Event Table]

4.2.4 Connection_Parameter_Update_Notify (0x73)

Event	OpCode	Event Parameters
Connection_Parameter_Update_Notify	0x73	Connection_Handle, Conn_Interval, Conn_Latency, Suprevision_Timeou

Description:

This event is used to inform that the connection parameter has been updated.

Event Parameters:

Connection_Handle: *Length: 1 Byte*

Value	Parameter Description
0xXX	Connection Handle

Conn_Interval: *Length: 2 Byte*

Value	Parameter Description
0xXXXX	Minimum value for the connection event interval. This shall be less than or equal to Conn_Interval_Max. Range: 0x0006 to 0x0C80 Time = N * 1.25 msec Time Range: 7.5 msec to 4 seconds.

Conn_Latency: *Length: 2 Bytes*

Value	Parameter Description
0xXXXX	Slave latency for the connection in number of connection events. Range: 0x0000 to 0x01F4

Supervision_Timeout: *Length: 2 Bytes*

Value	Parameter Description
0xXXXX	Supervision timeout for the LE Link Range: 0x000A to 0x0C80 Time = N * 10 msec Time Range: 100 msec to 32 seconds

[Return to Event Table]

4.3 Common Event

4.3.1 Command_Complete (0x80)

Event	OpCode	Event Parameters
Command_Complete	0x80	Command_OpCode, Return_Parameters

Description:

This event is used to response of commands.

Event Parameters:

Command_OpCode: *Length: 1 Byte*

Value	Parameter Description
0xXX	Opcode of the command which caused this event.

Return_Parameters *Length: Depends on Command*

Value	Parameter Description
0xXX	Opcode of the command which caused this event.

[Return to Event Table]

4.3.2 BLEDK3_Status_Report (0x81)

Event	OpCode	Event Parameters
BLEDK3_Status_Report	0x81	Status

Description:

This event is used to inform MCU status of **BLEDK3** while status is changed and response of "Read_BLEDK3_Status" command.

Event Parameters:

Status: *Length: 1 Byte*

Value	Parameter Description
0xXX	See listing of **BLEDK3** Status.

[Return to Event Table]

4.3.3 Configure_Mode_Status (0x8f)

Event	OpCode	Event Parameters
Configure_Mode_Status	0x8f	Status

Description:

This event is used to inform MCU Configure Mode status of **BLEDK3**.

Event Parameters:

Status: *Length: 1 Byte*

Value	Parameter Description
0x00	Configure Mode is Disabled.
0x01	Configure Mode is Enabled

[Return to Event Table]

4.4 GATT Client Event

4.4.1 Discover_All_Primary_Services_Res (0x90)

Event	OpCode	Event Parameters
Discover_All_Primary_Services_Res	0x90	Connection_Handle, Length, Attribute_Data

Description:

This event is used to response of “Discover_All_Primary_Services” command.

Event Parameters:

Connection_Handle: *Length: 1 Byte*

Value	Parameter Description
0xXX	Connection Handle

Length: *Length: 1 Byte*

Value	Parameter Description
0xXX	The size of each attribute data

Attribute_Data: *Length: 6 to 20 Bytes*

The Attribute Data field is comprised of a list of attribute data.

Start Group Handle	End Group Handle	Service UUID
2 Bytes	2 Bytes	(Length -4) Bytes

[Return to Event Table]

4.4.2 Discover_Specific_Primary_Service_Characteristics_Res (0x91)

Event	OpCode	Event Parameters
Discover_Specific_Primary	0x91	Connection_Handle, Length, Attribute_Data

_Service_Characteristics_

Res

Description:

This event is used to response of “Discover_Specific_Primary_Service_Characteristics” command.

Event Parameters:

Connection_Handle: *Length: 1 Byte*

Value	Parameter Description
0xXX	Connection Handle

Length: *Length: 1 Byte*

Value	Parameter Description
0xXX	The size of each attribute handle-value pair

Attribute_Data: *Length: 2 to 18 Bytes*

The Attribute Data field is comprised of a list of attribute handle and value pairs for characteristic declaration.

Attribute Handle	Attribute Value
2 Bytes	(Length -2) Bytes

Attribute Value of Characteristic Declaration:

Attribute Value		
Characteristic Properties (1 Byte)	Characteristic Value Attribute Handle (2 Bytes)	Characteristic UUID (2 or 16 Bytes)

Properties	Value
Broadcast	0x01
Read	0x02
Write Without Response	0x04
Write	0x08
Notify	0x10
Indicate	0x20
Authenticated Signed Writes	0x40

Extended Properties	0x80

[Return to Event Table]

4.4.3 Discover_All_Characteristic_Descriptors_Res (0x92)

Event	OpCode	Event Parameters
Discover_All_Characteristic_Descriptors_Res	0x92	Connection_Handle, Format, Information_Data

Description:

This event is used to response of “Discover_All_Characteristic_Descriptors” command.

Event Parameters:

Connection_Handle: *Length: 1 Byte*

Value	Parameter Description
0xXX	Connection Handle

Format: *Length: 1 Byte*

Value	Parameter Description
0x01	A list of 1 or more handles with their 16-bit Bluetooth UUIDs
0x02	A list of 1 or more handles with their 128-bit UUIDs

Information_Data: *Length: 4 to 20 Bytes*

The information data is comprised of a list of data defined in the tables below depending on the value chosen for the format.

Handle	16-bit Bluetooth UUID
2 Bytes	2 Bytes

Format 0x01-handle and 16-bit Bluetooth UUIDs

Handle	128-bit Bluetooth UUID
2 Octets	16 Octets

Format 0x02-handle and 128-bit UUIDs

[Return to Event Table]

4.4.4 Characteristic_Value _Received (0x93)

Event	OpCode	Event Parameters
Characteristic_Value_Received	0x93	Connection_Handle, Characteristic_Value_Handle, Characteristic_Value

Description:

This event is used to inform MCU that **BLEDK3** has received a characteristic value Notification or indication from GATT Server.

Event Parameters:

Connection_Handle: *Length: 1 Byte*

Value	Parameter Description
0xXX	Connection Handle

Characteristic_Value_Handle: *Length: 2 Byte*

Value	Parameter Description
0xXXXX	Characteristic Value Handle

Characteristic_Value: *Length: 1 to 20 Bytes*

Value	Parameter Description
0xXX	Characteristic Value

[Return to Event Table]

4.5 GATT Server Event

4.5.1 Client_Write_Characteristic_Value (0x98)

Event	OpCode	Event Parameters
Client_Write_Characteristic_Value	0x98	Connection_Handle, Characteristic_Value_Handle, Characteristic_Value

Description:

This event is used to inform MCU that GATT Client has written a Characteristic Value to **BLEDK3**

Event Parameters:

Connection_Handle: *Length: 1 Byte*

Value	Parameter Description
0xXX	Connection Handle

Characteristic_Value_Handle: *Length: 2 Bytes*

Value	Parameter Description
0xXXXX	Characteristic Value Handle

Characteristic_Value: *Length: 1 to 20 Bytes*

Value	Parameter Description

0xXX	Characteristic Value

[Return to Event Table]

4.6 GATT Transparent Event

4.6.1 Recieved _Transparent_Data (0x9a)

Event	OpCode	Event Parameters
Received_Transparent_Data	0x9a	Connection_Handle, Transparent_Data

Description:

This event is used to inform MCU that **BLEDK3** has received transparent data by ISSC_TRANS_RX service.

Event Parameters:

Connection_Handle: *Length: 1 Byte*

Value	Parameter Description
0xXX	Connection Handle

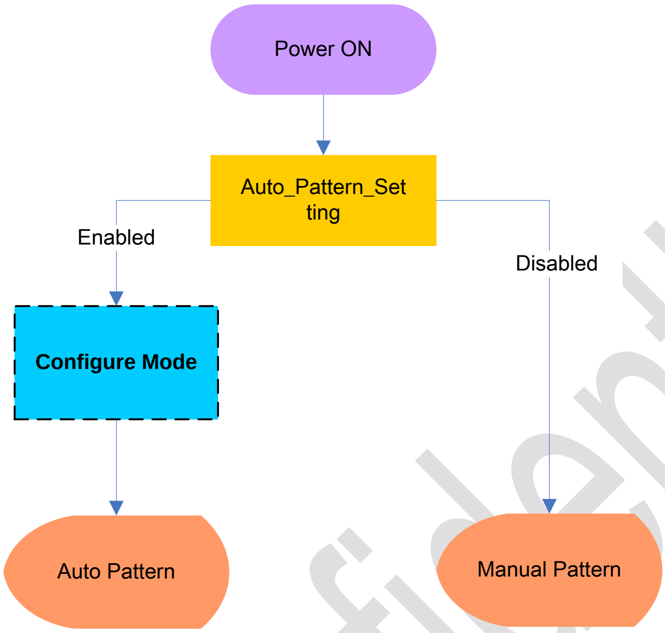
Transparent_Data: *Length: n Bytes*

Value	Parameter Description
0xXX	Transparent data

[Return to Event Table]

5. Operation Definition:

5.1 Pattern Configuration



5.1.1 Auto Pattern:

BLEDK3 will be executed base on internal state machine that can be configured by UI tool.

- **BLEDK3** may into "Configure Mode" by UI tool setting and MCU command assigned.
- Some commands are available at "Configure Mode" and "Connected Mode with pairing procedure" only.
- The data pipe is "Transparent Pipe".

5.1.2 Manual Pattern:

BLEDK3 will be executed base on MCU command totally.

- MCU must handle **BLEDK3** state by correct commands.
- The data pipe is "Protocol Pipe".

5.2 Mode:

5.2.1 Power On Mode

BLEDK3 enters into Power On mode, after **BLEDK3 is** powered on**.** This mode is just a transition state.

5.2.2 Scanning Mode

BLEDK3 tries to find advertising devices in the area. **BLEDK3** would receive advertising packets from peer device and report these to MCU.

5.2.3 Connecting Mode

BLEDK3 tries to initiate a connection to an advertiser

5.2.4 Standby Mode

BLEDK3 is under Bluetooth discoverable and connectable mode. **BLEDK3** enables the Undirected Advertising. It can also be paired by another device in this mode.

5.2.5 Broadcast Mode

BLEDK3 is under Bluetooth discoverable mode. And **BLEDK3** has no connection capacity in this mode.

5.2.6 LE Connected Mode

Bluetooth connection is established successfully, and GATT data session is opened.

5.2.7 Idle Mode

There's no any activity of **BLEDK3** until MCU assign the new command. And Idle mode is only available in Manual Pattern.

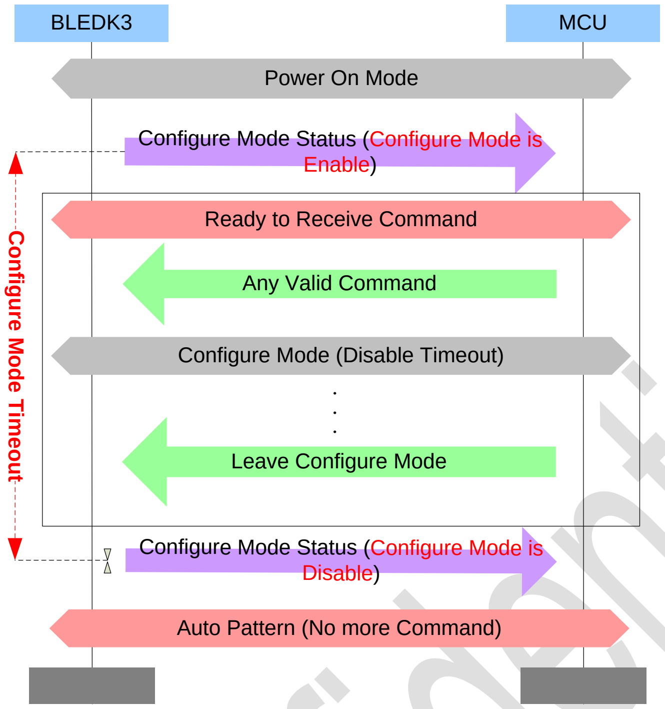
5.2.8 Shutdown Mode

BLEDK3 enters into deep power down situation.

- **Auto Pattern:**
  - **BLEDK3** Enter into shutdown automatically
  - Wakeup Trigger: Wakeup pin
- **Manual Pattern:**
  - **BLEDK3** Enter into shutdown by MCU command assign
  - Wakeup Trigger: Wakeup pin or UART_RX_IND pin

5.2.9 Configure Mode

It is used to configure relative setting before **BLEDK3** enter into **Auto Pattern**


BLEDK3
MCU
Power On Mode
Configure Mode Status (Configure Mode is Enable)
Ready to Receive Command
Any Valid Command
Configure Mode (Disable Timeout)
Leave Configure Mode
Configure Mode Timeout
Configure Mode Status (Configure Mode is Disable)
Auto Pattern (No more Command)

5.2.10 LE Physical Link Established

Bluetooth connection is established successfully and GATT data session is not been enabled.

5.3 Data Pipe:

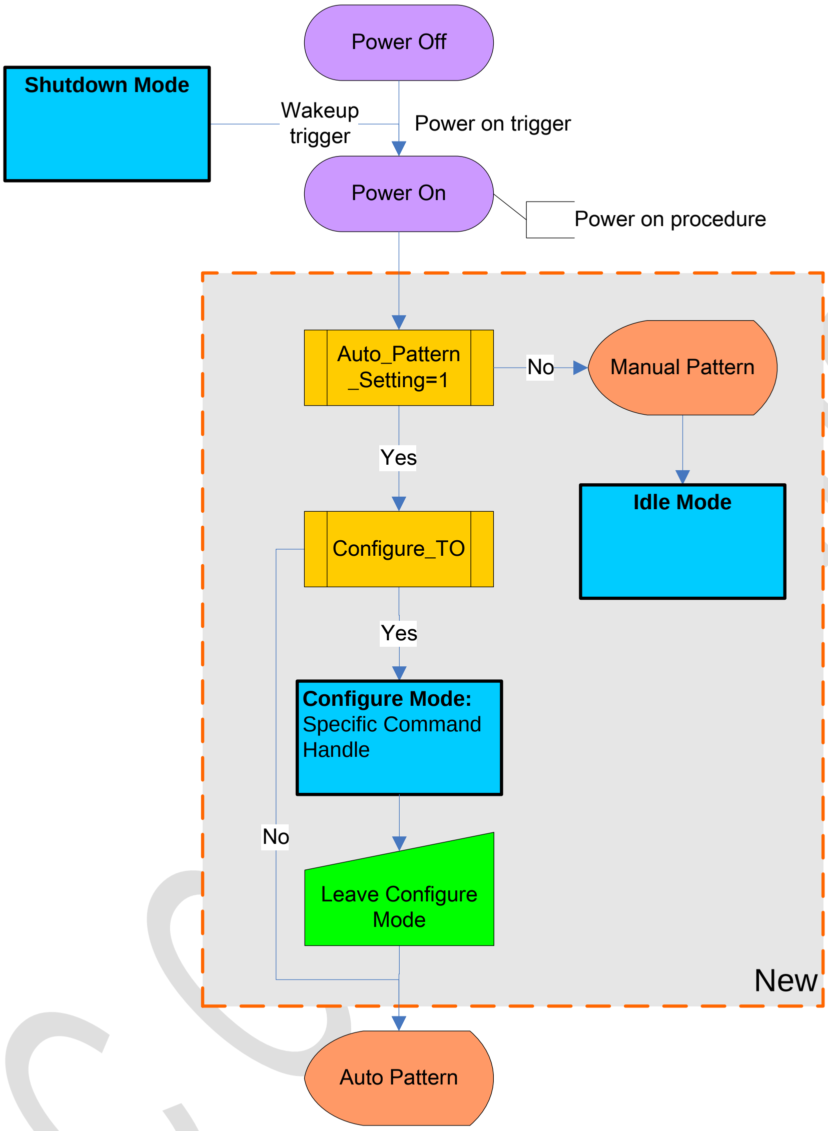
- **Transparent Pipe:** The exchange data between MCU and APP will be transferred directly.
- **Protocol Pipe:**
  - MCU to APP: MCU use “Send_Transparent_Data” command to send data.
  - APP to MCU: **BLEDK3** use “Recieved _Transparent_Data” event to inform MCU.

5.4 BLEDK3 State Definition:

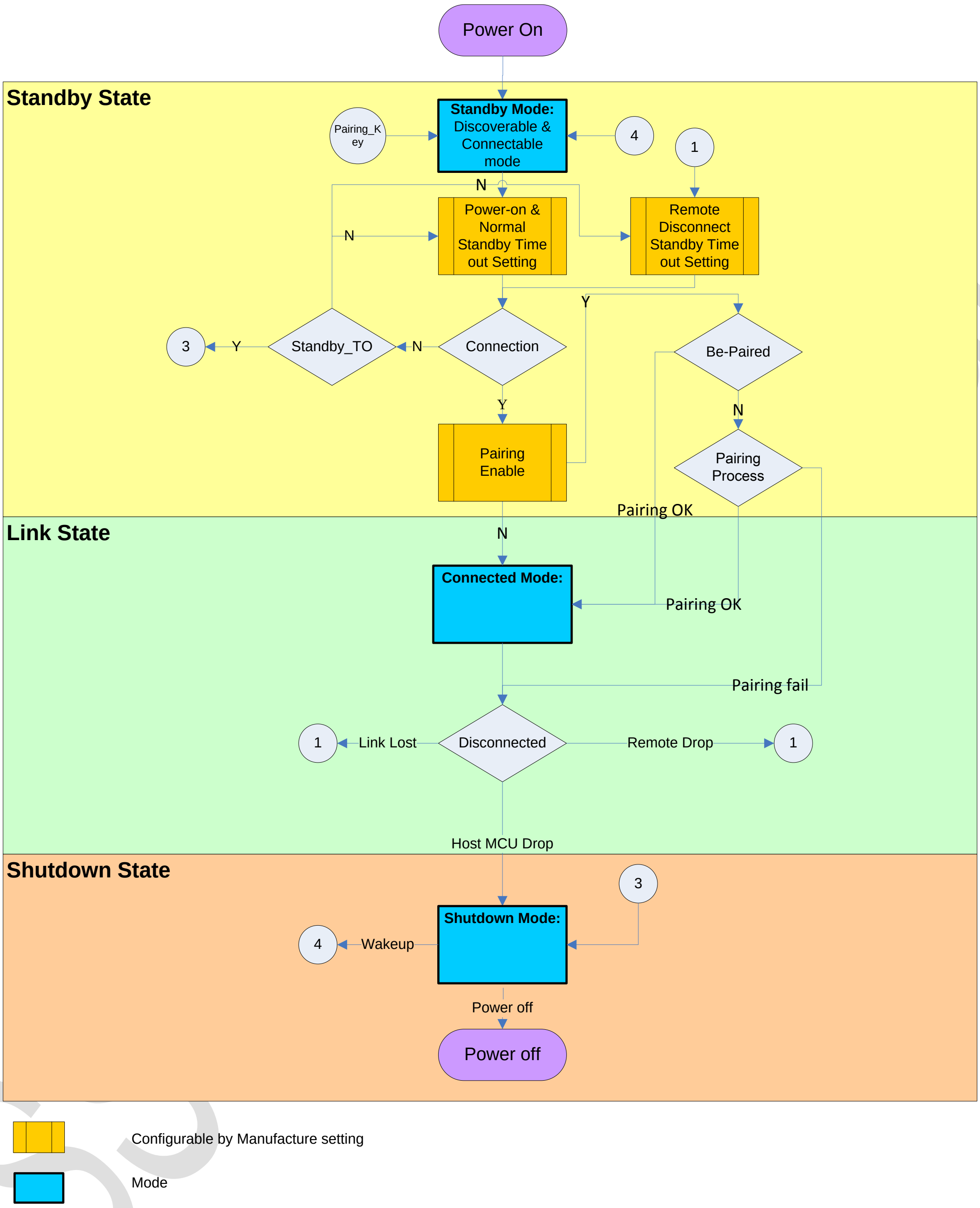
- **Access State: BLEDK3** is trying to setup Bluetooth Connection.
- **Link State: BLEDK3** is ready to exchange Host MCU UART traffic.
- **Shutdown State: BLEDK3** is shutdown after Idle Mode.

6. State Machine Charts

6.1 Power ON Flow

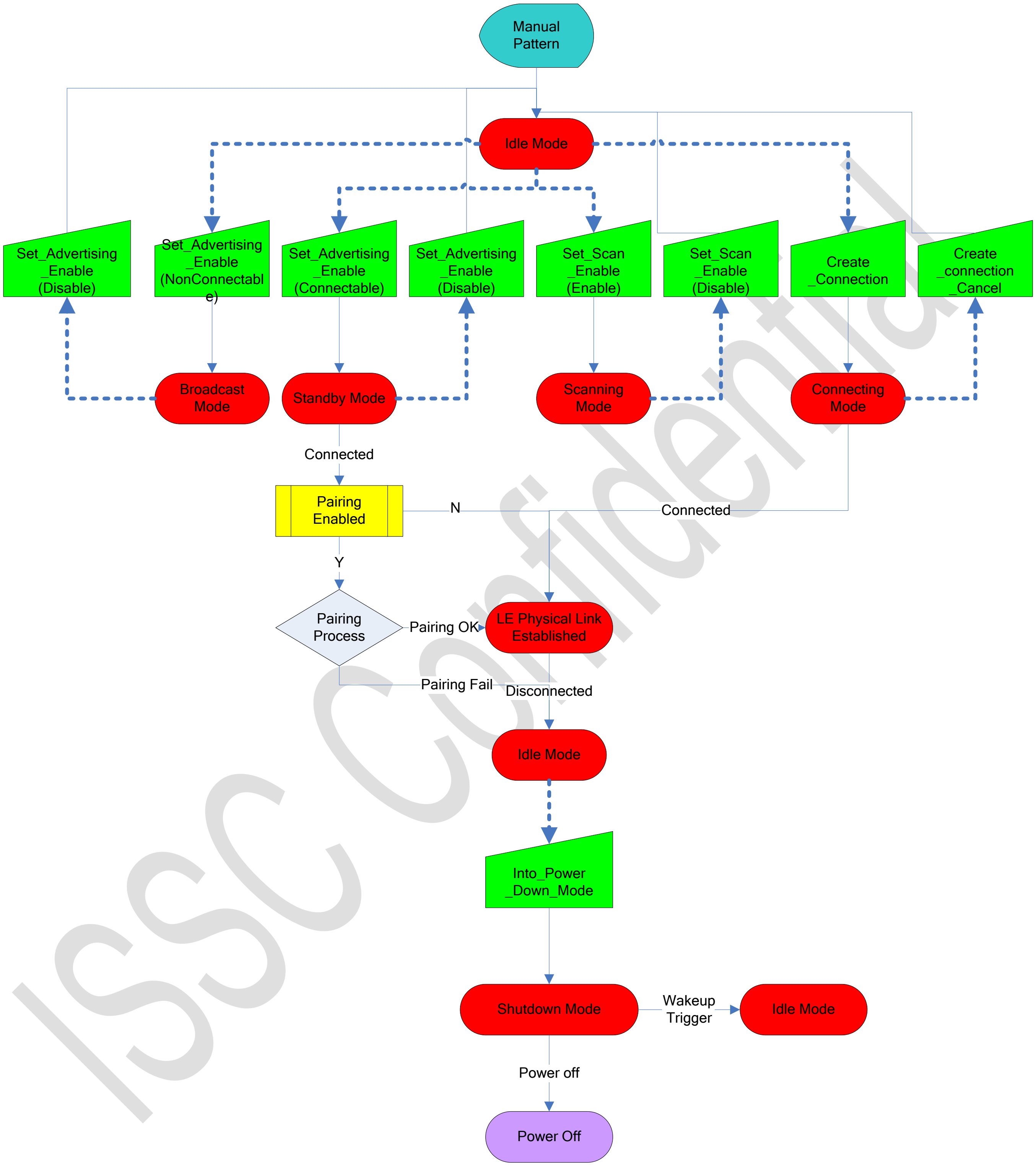

Power Off
Shutdown Mode
Wakeup trigger
Power on trigger
Power On
Power on procedure
Auto_Pattern _Setting=1
No
Manual Pattern
Yes
Idle Mode
Configure_TO
Yes
Configure Mode: Specific Command Handle
No
Leave Configure Mode
New
Auto Pattern

6.2 Auto Pattern


Power On
Standby State
Standby Mode: Discoverable & Connectable mode
Pairing_Key
4
1
N
N
Power-on & Normal Standby Time out Setting
Remote Disconnect Standby Time out Setting
Y
3
Y
Standby_TO
N
Connection
Be-Paired
Y
N
Pairing Enable
Pairing Process
Pairing OK
Link State
N
Connected Mode:
Pairing OK
Pairing fail
1
Link Lost
Disconnected
Remote Drop
1
Host MCU Drop
Shutdown State
3
Shutdown Mode:
4
Wakeup
Power off
Power off
Configurable by Manufacture setting
Mode

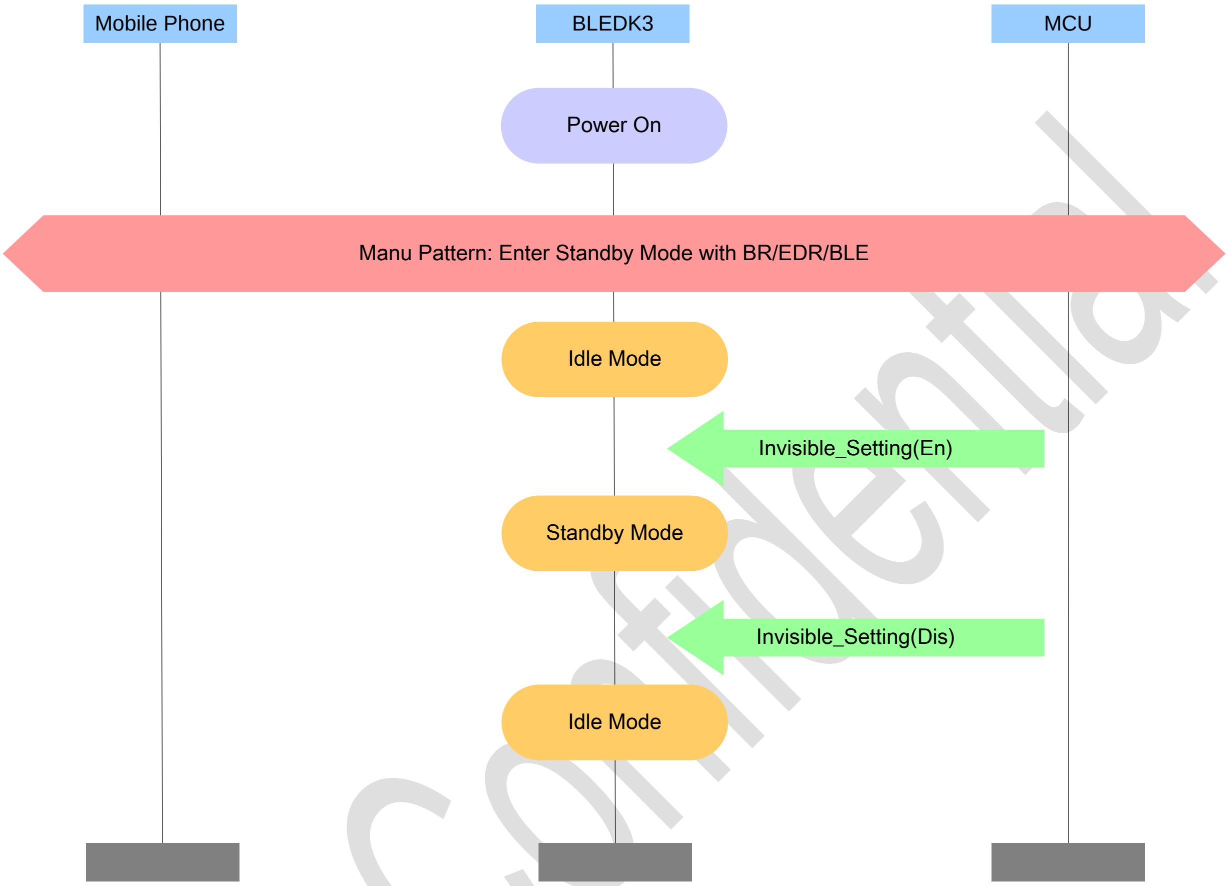
ISSC

6.3 Manual Pattern


Manual Pattern
Idle Mode
Set_Advertising _Enable (Disable)
Set_Advertising _Enable (NonConnectable)
Set_Advertising _Enable (Connectable)
Set_Advertising _Enable (Disable)
Set_Scan _Enable (Enable)
Set_Scan _Enable (Disable)
Create _Connection
Create _connection _Cancel
Broadcast Mode
Standby Mode
Scanning Mode
Connecting Mode
Connected
Pairing Enabled
N
Connected
Y
Pairing Process
Pairing OK
LE Physical Link Established
Pairing Fail
Disconnected
Idle Mode
Into_Power _Down_Mode
Shutdown Mode
Wakeup Trigger
Idle Mode
Power off
Power Off

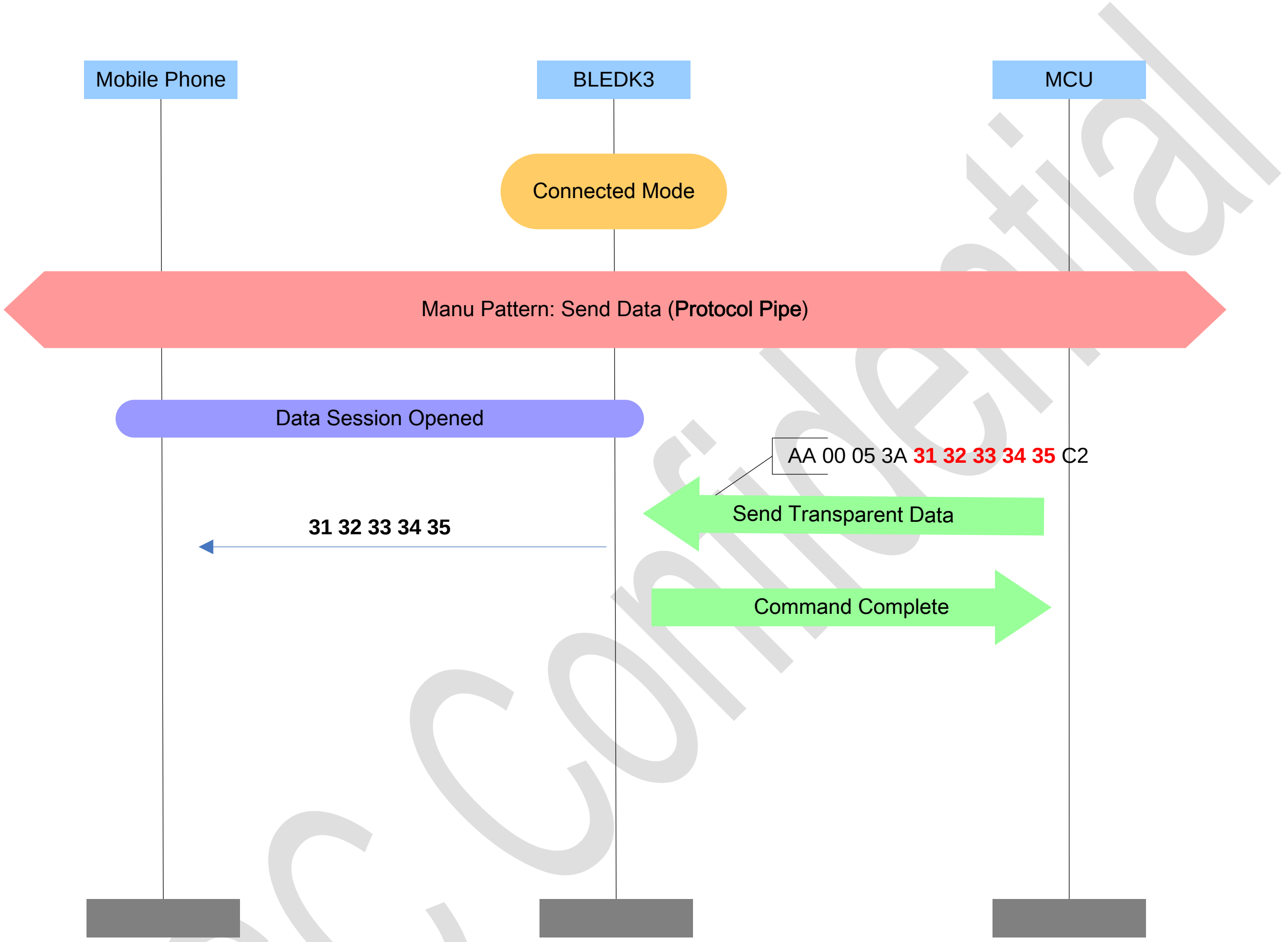
7. Message Sequence Charts

7.1 Standby Mode

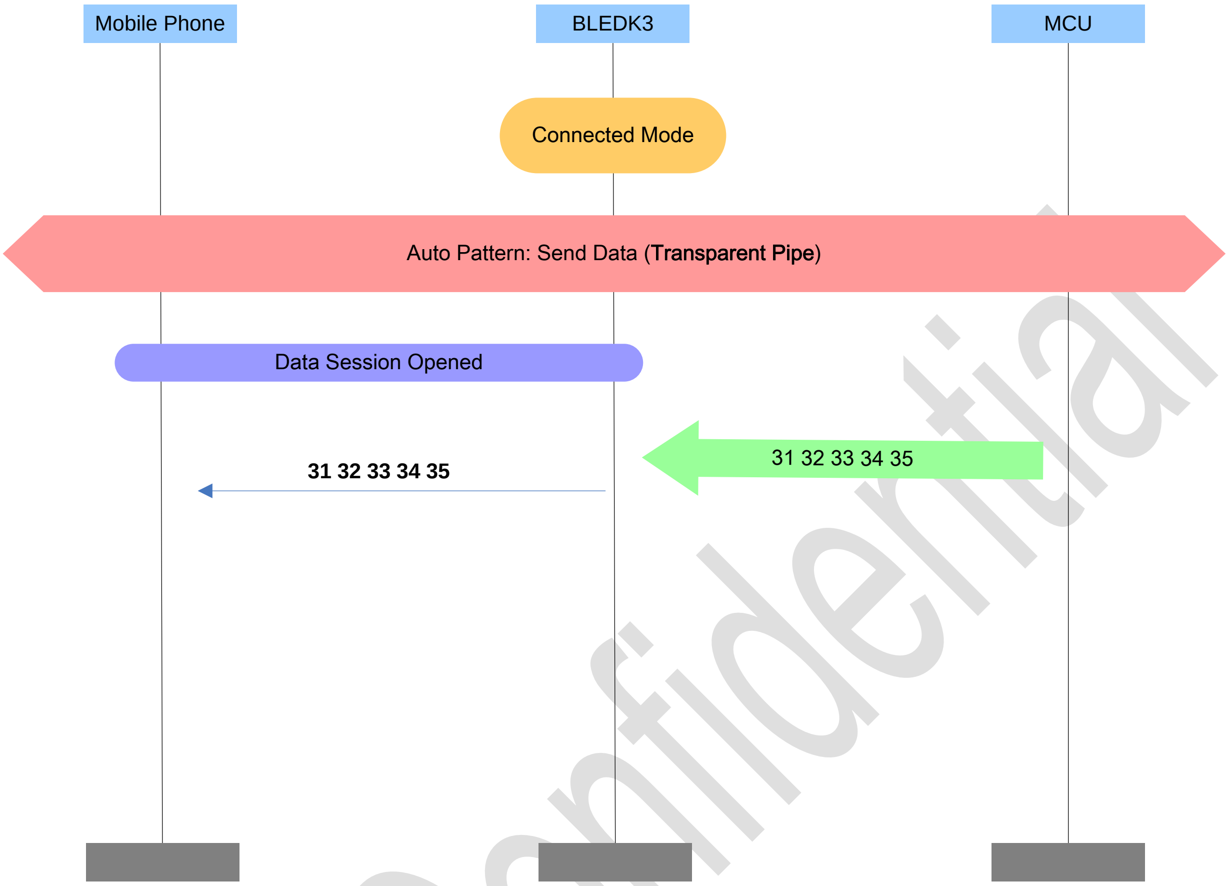

Mobile Phone
BLEDK3
MCU
Power On
Manu Pattern: Enter Standby Mode with BR/EDR/BLE
Idle Mode
Invisible_Setting(En)
Standby Mode
Invisible_Setting(Dis)
Idle Mode

7.2 LE_Connected Mode

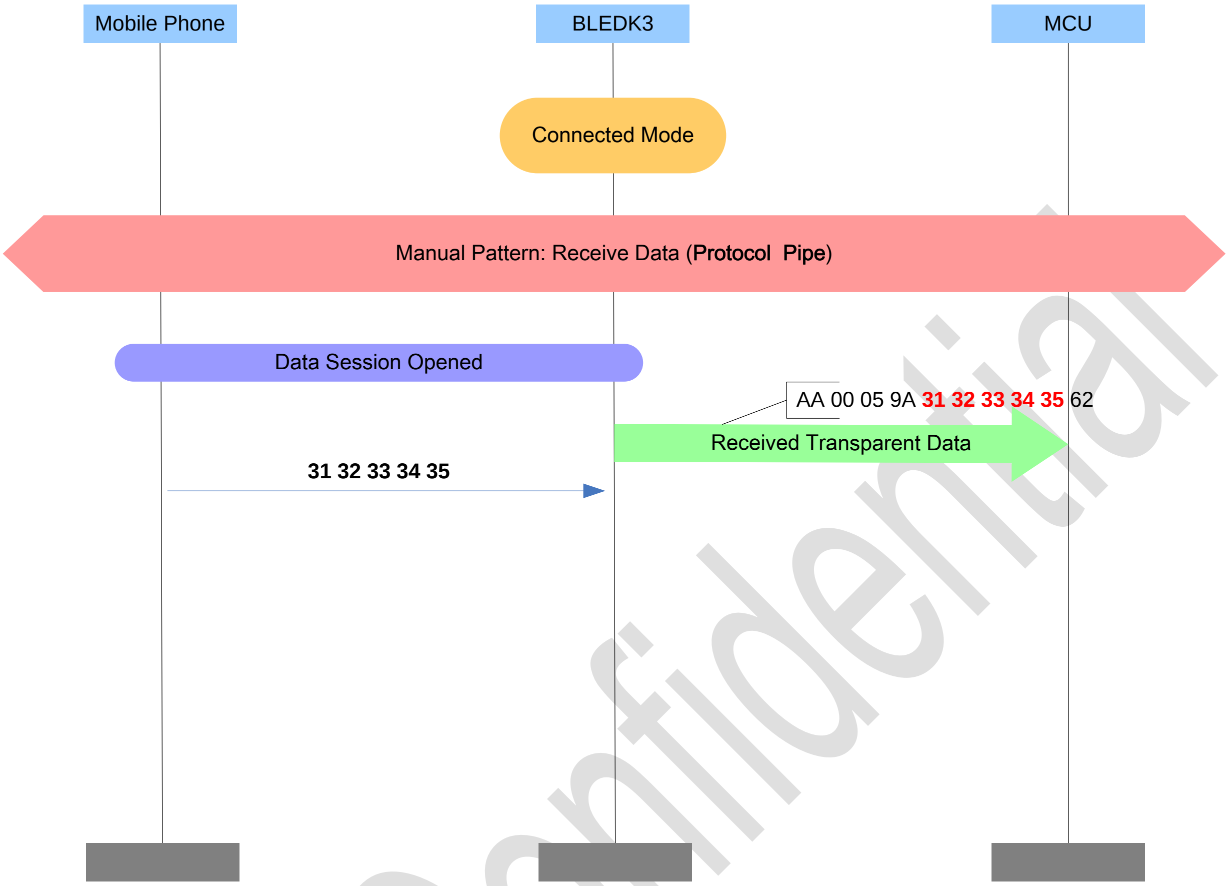
7.2.1 Manual Pattern Send Data


Mobile Phone
BLEDK3
MCU
Connected Mode
Manu Pattern: Send Data (Protocol Pipe)
Data Session Opened
AA 00 05 3A 31 32 33 34 35 C2
Send Transparent Data
31 32 33 34 35
Command Complete

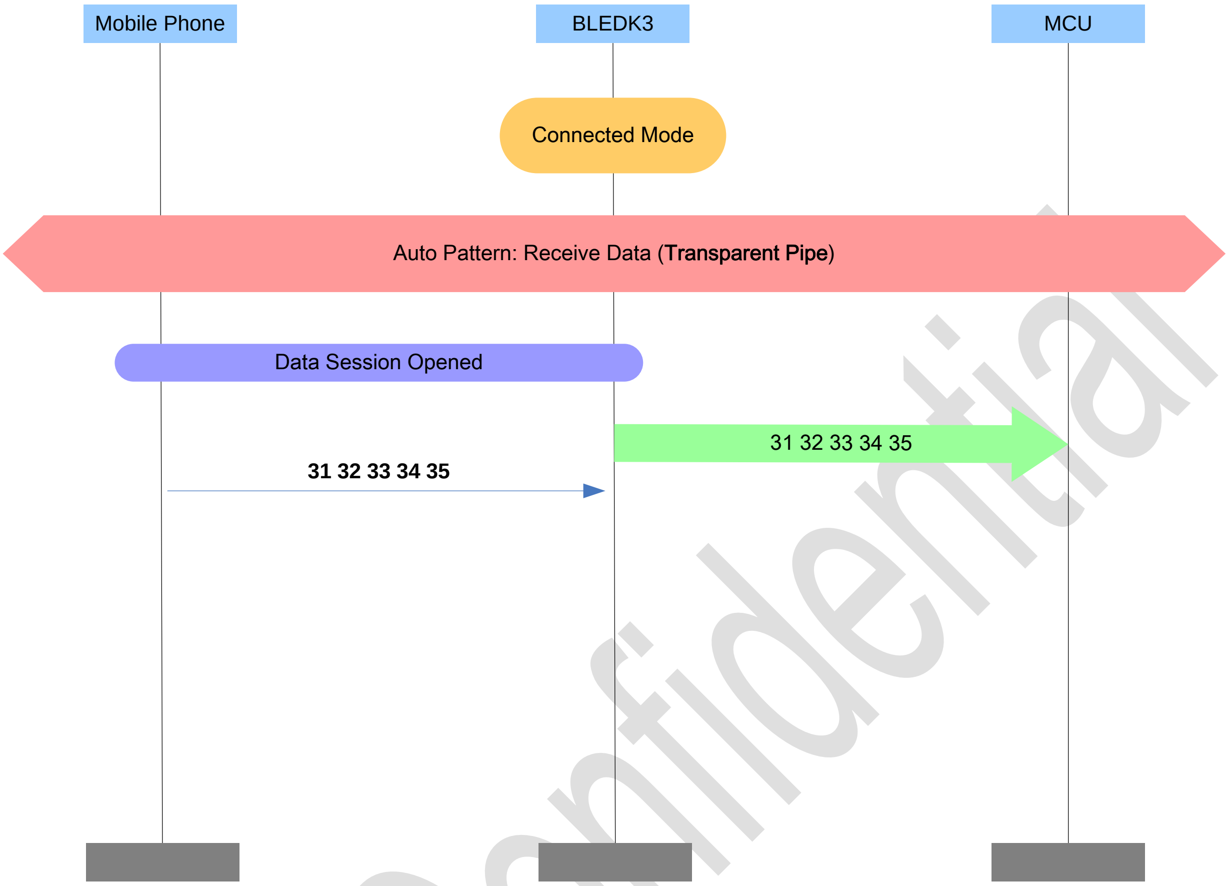
7.2.2 Auto Pattern Send Data


Mobile Phone
BLEDK3
MCU
Connected Mode
Auto Pattern: Send Data (Transparent Pipe)
Data Session Opened
31 32 33 34 35
31 32 33 34 35

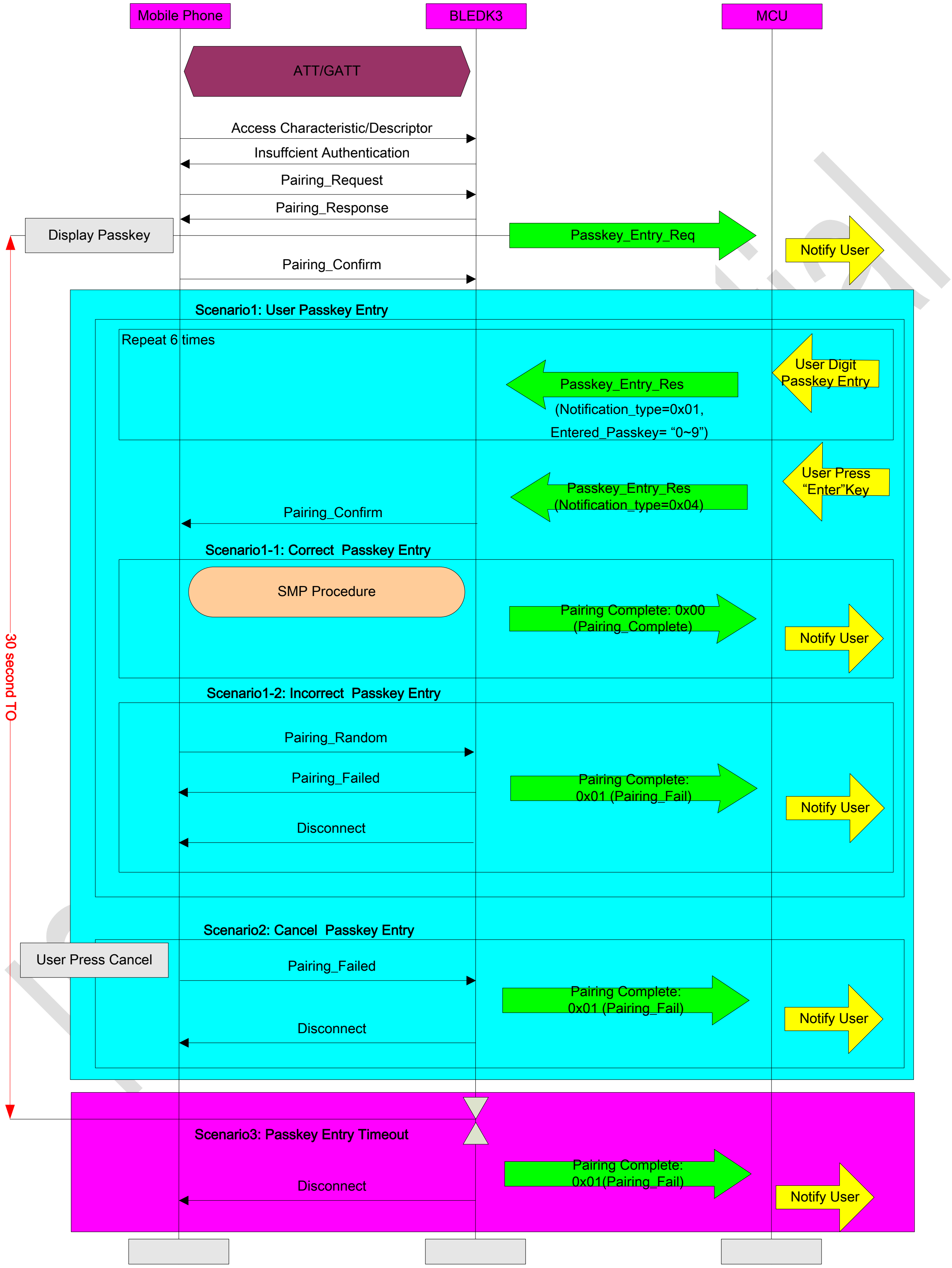
7.2.3 Manual Pattern Receive Data


Mobile Phone
BLEDK3
MCU
Connected Mode
Manual Pattern: Receive Data (Protocol Pipe)
Data Session Opened
AA 00 05 9A 31 32 33 34 35 62
Received Transparent Data
31 32 33 34 35

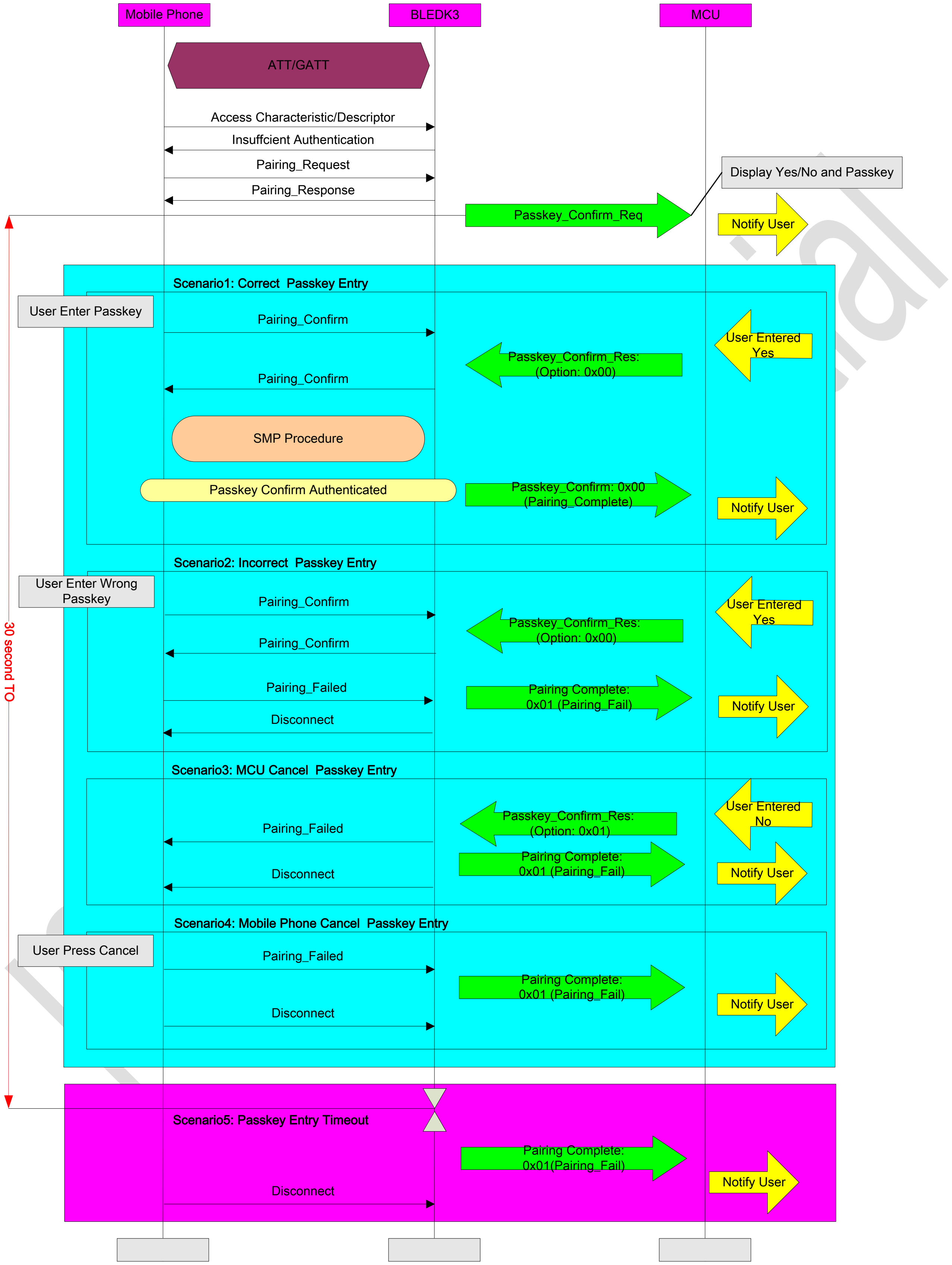
7.2.4 Auto Pattern Receive Data


Mobile Phone
BLEDK3
MCU
Connected Mode
Auto Pattern: Receive Data (Transparent Pipe)
Data Session Opened
31 32 33 34 35
31 32 33 34 35

7.3 LE Pairing Method: Passkey Entry


Mobile Phone
BLEDK3
MCU
ATT/GATT
Access Characteristic/Descriptor
Insuffcient Authentication
Pairing_Request
Pairing_Response
Display Passkey
Passkey_Entry_Req
Notify User
Pairing_Confirm
Scenario1: User Passkey Entry
Repeat 6 times
User Digit Passkey Entry
Passkey_Entry_Res
(Notification_type=0x01,
Entered_Passkey= “0~9”)
User Press “Enter”Key
Passkey_Entry_Res
(Notification_type=0x04)
Pairing_Confirm
Scenario1-1: Correct Passkey Entry
SMP Procedure
Pairing Complete: 0x00
(Pairing_Complete)
Notify User
Scenario1-2: Incorrect Passkey Entry
Pairing_Random
Pairing_Failed
Disconnect
Pairing Complete:
0x01 (Pairing_Fail)
Notify User
30 second TO
Scenario2: Cancel Passkey Entry
User Press Cancel
Pairing_Failed
Disconnect
Pairing Complete:
0x01 (Pairing_Fail)
Notify User
Scenario3: Passkey Entry Timeout
Disconnect
Pairing Complete:
0x01(Pairing_Fail)
Notify User

7.4 LE Pairing Method: Passkey Confirm


Mobile Phone
BLEDK3
MCU
ATT/GATT
Access Characteristic/Descriptor
Insuffcient Authentication
Pairing_Request
Pairing_Response
Display Yes/No and Passkey
Passkey_Confirm_Req
Notify User
30 second TO
Scenario1: Correct Passkey Entry
User Enter Passkey
Pairing_Confirm
Passkey_Confirm_Res: (Option: 0x00)
User Entered Yes
Pairing_Confirm
SMP Procedure
Passkey Confirm Authenticated
Passkey_Confirm: 0x00 (Pairing_Complete)
Notify User
Scenario2: Incorrect Passkey Entry
User Enter Wrong Passkey
Pairing_Confirm
Passkey_Confirm_Res: (Option: 0x00)
User Entered Yes
Pairing_Confirm
Pairing_Failed
Pairing Complete: 0x01 (Pairing_Fail)
Notify User
Disconnect
Scenario3: MCU Cancel Passkey Entry
User Entered No
Passkey_Confirm_Res: (Option: 0x01)
Pairing_Failed
Pairing Complete: 0x01 (Pairing_Fail)
Notify User
Disconnect
Scenario4: Mobile Phone Cancel Passkey Entry
User Press Cancel
Pairing_Failed
Pairing Complete: 0x01 (Pairing_Fail)
Notify User
Disconnect
Scenario5: Passkey Entry Timeout
Pairing Complete: 0x01(Pairing_Fail)
Notify User
Disconnect

8. Listing of Command Status Error Code

Error Code	Description
0x00	Command succeeded
0x01	Unknown Command
0x02	Unknown Connection Identifier
0x03	Hardware Failure
0x05	Authentication Failure
0x06	PIN or Key Missing
0x07	Memory Capacity Exceeded
0x08	Connection Timeout
0x09	Connection Limit Exceeded
0x0B	ACL Connection Already Exists
0x0C	Command Disallowed
0x0D	Connection Rejected due to Limited Resources
0x0E	Connection Rejected Due To Security Reasons
0x0F	Connection Rejected due to Unacceptable BD_ADDR
0x10	Connection Accept Timeout Exceeded
0x11	Unsupported Feature or Parameter Value
0x12	Invalid Command Parameters
0x13	Remote User Terminated Connection
0x14	Remote Device Terminated Connection due to Low Resources
0x15	Remote Device Terminated Connection due to Power Off
0x16	Connection Terminated By Local Host
0x18	Pairing Not Allowed
0x1F	Unspecified Error
0x28	Instant Passed
0x29	Pairing With Unit Key Not Supported
0x2F	Insufficient Security
0x39	Connection Rejected due to No Suitable Channel Found
0x3A	Controller Busy
0x3B	Unacceptable Connection Interval
0x3C	Directed Advertising Timeout
0x3D	Connection Terminated due to MIC Failure
0x3E	Connection Failed to be Established
0x81	Invalid Handle

0x82	Read Not Permitted
0x83	Write Not Permitted
0x84	Invalid PDU
0x85	Insufficient Authentication
0x86	Request Not Supported
0x77	Invalid Offset
0x88	Insufficient Authorization
0x89	Prepare Queue Full
0x8A	Attribute Not Found
0x8B	Attribute Not Long
0x8C	Insufficient Encryption Key Size
0x8D	Invalid Attribute Value Length
0x8E	Unlikely Error
0x8F	Insufficient Encryption
0x90	Unsupported Grout Type
0x91	Insufficient Resources
0xF0	Application Defined Error
0xFF	UART_Check_Sum_Error

9. Listing of BLEDK3 Status

BLEDK3 Status	Description
0x00	Power On
0x01	Scanning Mode
0x02	Connecting Mode
0x03	Standby Mode
0x05	Broadcast Mode
0x08	LE Connected Mode(GATT Link Established)
0x09	Idle Mode
0x0a	Shutdown Mode
0x0b	Configure Mode
0x0c	LE Physical Link Established

10. Revision History

Version	Date	History

1.00	2014/10/03	Preliminary Version
1.01	2014/10/06	Modify command parameters ● Read_Pairing_Mode_Setting ● Write_Pairing_Mode_Setting ● Write_Adv_Data ● Write_Scan_Res_Data ● Write_Device_Name Modify event parameters ● Client_Write_Characteristic_Value
1.02	2014/11/07	Add GATT Server commands ● Read_Local_Characteristic_Value ● Read_Local_All_Primary_Service ● Read_Local_Specific_Primary_Service Modify command parameters ● Send_Transparent_Data Modify Event Parameters ● Recieved _Transparent_Data
1.03	2014/11/11	Modify command parameters ● Write_Adv_Data
1.04	2014/11/26	Modify command response parameters ● Read_Local_Information
1.05	2014/12/01	Modify command format description ● GPIO_Conrtol
1.06	2014/12/08	Modify UART CTS/RTS pin description ● Pin definition
1.07	2014/12/11	Modify command parameters, remove options ● Write_Adv_Data
1.08	2015/01/09	Revise state machine charts Revise UART exchange timing diagram
1.09	2015/01/14	Modify command parameters ● Read_ADC_Value Add common command ● PWM_Control
1.10	2015/01/15	Modify command parameters ● Set_Scan_Parameters
1.11	2015/02/26	Add an error code: 0xF0 ● Listing of Command Status Error Code