Bluetooth Baseband LSI

Panasonic PAN1026
Toshiba TC35661

Bluetooth Basic Management

Command Interface Document

July. 2013

PANASONIC Bluetooth Module PAN1026 CMD(MNG)

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[Revised Note]

Date	Modification	Note

24th-June-2013	1st Release
	Based on TC35661APL_ROM500_MNG_E_12thJune2013.
	Added the following sections.
	  1.1.1 TCU_MNG_INIT_REQ (Sniff_Subrating prameter)
	  1.1.12 TCU_MNG_SET_DI_SDP_RECORD_REQ
	  1.1.13 TCU_MNG_SET_DI_SDP_RECORD_RESP
	  1.1.14 TCU_MNG_DISCOVER_REMOTE_SERVICE_REQ
	  1.1.15 TCU_MNG_DISCOVER_REMOTE_SERVICE_EVENT
	  1.1.16 TCU_MNG_DISCOVER_REMOTE_SERVICE_CANCEL_REQ
	  1.1.17 TCU_MNG_DISCOVER_REMOTE_SERVICE_CANCEL_EVENT
	  1.1.34 TCU_MNG_SNIFF_MODE_CONTROL_REQ
	  1.1.35 TCU_MNG_SNIFF_MODE_CONTROL_RESP
	  1.1.36 TCU_MNG_EXIT_SNIFF_MODE_CONTROL_REQ
	  1.1.37 TCU_MNG_EXIT_SNIFF_MODE_CONTROL_RESP
	  1.1.38 TCU_MNG_SET_SNIFF_SUBRATING_PARAM_REQ
	  1.1.39 TCU_MNG_SET_SNIFF_SUBRATING_PARAM_RESP
	  1.1.40 TCU_MNG_RCV_SNIFF_SUBRATING_EVENT	

26th-July-2013	1.1.41 TCU_MNG_DEEP_SLEEP_REQ Command description is added.	

PANASONIC Bluetooth Module PAN1026 CMD(MNG)

Contents

1. Control Command Explanation

1.1 Bluetooth Basic Management

1.1.1 TCU_MNG_INIT_REQ

This command initializes TC35661 firmware and sets various parameters and
selection of profiles for Bluetooth control automatically.
When this command is completed, TCU_MNG_INIT_RESP is generated to host CPU as an ACK response.

Command Format:

ServiceID	1 Byte
OpCode	1 Byte
Parameter Length	2 Bytes
Supported_Profiles	1 Byte
Paired_Information Stored / Sniff_Subrating	1 Byte
Length_of_Device_Name	1 Byte
Device_Name	MAX 128Bytes

ServiceID	0xE1
OpCode	0x01
Parameter Length	0x0004 – 0x0083

Parameters:

Parameters	Parameter Description	Value
Supported_Profiles	Setting Supported Profiles	
	HFP(No Support)	+++++++0
	OPP(No Support)	++++++0+
	SPP	+++++1++
	PBAP(No Support)	+++0++++
	AVP(No Support)	++0+++++

Paired_Information_Stored Sniff_Subrating	Paired_information_Stored This parameter is deleted. Fixed to 0. ~~Store Paired_information to external I2C EEPROM.~~ ~~Disable(TC35661 dose not store them automatically)~~ ~~Enable(TC35661 store them automatically)~~	BIT0 +++++++0

	Sniff_Subrating
	Setting for SniffSubrating.
	  Unused SniffSubrating
	  Used SniffSubrating
	
	When "Use SniffSubratinf" is selected,
	Sniff interval is generated with TCU_MNG_CONNECTION_STATUS_EVENT.
	Refer to TCU_MNG_CONNECTION_STATUS_EVENT for more detail.
		BIT1
		
		++++++0+
		++++++1+

Length_of_Device_Name	Length of User_Friendly name (Note) If Device_Name is not set, its value is 0x00.	0x00 - 0x80
Device_Name	User_Friendly name UTF-8 encoded User_Friendly Descriptive name. If Length_of_Device_Name is set to 0x00, Device_Name is not set. (MAX:128Bytes)	

1.1.2 TCU_MNG_INIT_RESP

This is an ACK response for TCU_MNG_INIT_REQ.

Command Format:

ServiceID	1 Byte
OpCode	1 Byte
Parameter Length	2 Bytes
Status	1 Byte
BD_ADDR	6 Bytes

ServiceID	0xE1
OpCode	0x81
Parameter Length	0x0007

Parameters:

Parameters	Parameter Description	Value
Status	TCU_MNG_INIT_REQ Operation Result	
	Successful	0x00
	Parameter Failure	0x01
	Device Initialization finished	0x02
BD_ADDR	Local Device BD_ADDR If Status is failed, this parameter is set to 0xFFFFFFFFFFFF.	0xXXXXXXXX XXXX

1.1.3 TCU_MNG_CHANGE_LOCAL_DEVICE_PARAM_REQ

This command is used to set name of local device.

When this command is completed, TCU_MNG_CHANGE_LOCAL_DEVICE_PARAM_RESP is generated as an ACK response.

Command Format:

ServiceID	1 Byte
OpCode	1 Byte
Parameter Length	2 Bytes
Length_of_Device_Name	1 Byte
Device_Name	MAX128Bytes

ServiceID	0xE1
OpCode	0x11
Parameter Length	0x0001 – 0x0081

Parameters:

Parameters	Parameter Description	Value
Length_of_Device_Name	Length of User_Friendly name (Note) If Device_Name is not set, its value is 0x00.	0x00 - 0x80
Device_Name	User_Friendly name UTF-8 encoded User_Friendly Descriptive name If Length_of_Device_Name is set to 0x00, Device_Name is not set. (MAX:128Bytes)	

1.1.4 TCU_MNG_CHANGE_LOCAL_DEVICE_PARAM_RESP

This is an ACK response for TCU_MNG_CHANGE_LOCAL_DEVICE_PARAM_REQ.

Command Format:

ServiceID	1 Byte
OpCode	1 Byte
Parameter Length	2 Bytes
Status	1 Byte

ServiceID   0xE1
OpCode   0x91
Parameter Length   0x0001

Parameters:

Parameters	Parameter Description	Value
Status	Operation Result :	
	Successful	0x00
	Parameter Failure	0x01
	No Device Initialization	0x03

1.1.5 TCU_MNG_READ_LOCAL_PARAM_REQ

This command is used to get local device Information (BD_ADDR, Device Name).

When this command is completed,
TCU_MNG_READ_LOCAL_PARAM_RESP is generated.

ServiceID	1 Byte
OpCode	1 Byte
Parameter Length	2 Bytes

ServiceID   0xE1
OpCode   0x02
Parameter Length   0x0000

Parameters: - NONE -

1.1.6 TCU_MNG_READ_LOCAL_PARAM_RESP

This is an ACK response for TCU_MNG_READ_LOCAL_PARAM_REQ.

Command Format:

ServiceID	1 Byte
OpCode	1 Byte
Parameter Length	2 Bytes
Status	1 Byte
BD_ADDR	6 Byte
Length_of_Device_Name	1 Byte
Device_Name	MAX128Bytes

ServiceID	0xE1
OpCode	0x82
Parameter Length	0x0008 – 0x0088

Parameters:

Parameters	Parameter Description	Value
Status	Command Result Successful Parameter Failure No Device Initialization	 0x00 0x01 0x03
BD_ADDR	Local Device BD_ADDR If Status is failed, this parameter is set to 0xFFFFFFFFFFFF.	0xXXXXXXXX XXXX
Length_of_Device_Name	Length of User_Friendly name (Note) If Device_Name is not set, its value is 0x00.	0x00 - 0x80
Device_Name	User_Friendly name UTF-8 encoded User_Friendly Descriptive name If Length_of_Device_Name is set to 0x00, Device_Name is not set. (MAX:128Bytes)	

1.1.7 TCU_MNG_DISCOVER_REMOTE_DEVICE_REQ

This command is set TC35661 to remote device search function.

When TC35661 starts device search function, TCU_ACCEPT is generated to host CPU.

In case that remote device is found, TCU_MNG_DISCOVER_REMOTE_DEVICE_RESULT _EVENT is generated.

When this command is completed, TCU_MNG_DISCOVER_REMOTE_DEVICE_COMPLETE_EVENT is generated.

(Note)

When TC35661 find out the remote devices and the number of searched devices reach to setting

number, TC35661 gets name of searched remote devices and transfers remote device information to Host CPU.

If the number of searched devices do not reach to setting number, TC35661 moves to get the

name 10.24sec later.

After TC35661 makes an result event for all searched devices, the complete event is generated to Host CPU.

Command Format:

ServiceID	1 Byte
OpCode	1 Byte
Parameter Length	2 Bytes
Max_Number_of_Reports	1 Byte

ServiceID   0xE1
OpCode   0x03
Parameter Length   0x0001

Parameters:

Parameters	Parameter Description	Value
MAX_Number_of_Reports	This parameter is set the number of searched device.	0x01-0x10

Response Status in TCU_ACCEPT for TCU_MNG_DISCOVER_REMOTE_DEVICE_REQ

Parameters	Parameter Description	Value
Status	Operation Result	
	Successful	0x00
	Parameter Failure	0x01
	No Device Initialization	0x03
	On Searching device	0x04
	On Searching device service	0x05
	On progress of other profile connection	0x0E
	On releasing SPP connection	0x43

1.1.8 TCU_MNG_DISCOVER_REMOTE_DEVICE_RESULT_EVENT

This event is generated, when remote device is found.
BD_ADDR, CoD value and device name of remote device is informed to host CPU.

Command Format:

ServiceID	1 Byte
OpCode	1 Byte
Parameter Length	2 Bytes
BD_ADDR	6 Bytes
Class_of_Device	3 Bytes
Length_of_Device_Name	1 Byte
Device_Name	MAX 128Bytes

ServiceID   0xE1
OpCode   0x44
Parameter Length   0x000A-0x008A

Parameters:

Parameters	Parameter Description	Value
BD_ADDR	Remote Device BD_ADDR	0xXXXXXXXXXXXX
Class_of_Device	Device Class of Remote Device	0xXXXXXX
Length_of_Device_Name	Length of User-friendly name If the name is not set, this value is 0x00.	0x00 - 0x80
Device_Name	UTF-8 encoded User-friendly name If Length_of_Device_Name is 0x00, device name is not transferred. (MAX:128Bytes)	

1.1.9 TCU_MNG_DISCOVER_REMOTE_DEVICE_COMPLETE_EVENT

When device searching is completed, this event is generated.

Command Format:

ServiceID	1 Byte
OpCode	1 Byte
Parameter Length	2 Bytes

ServiceID   0xE1
OpCode   0x43
Parameter Length   0x0000
Parameters: --- None ---

1.1.10 TCU_MNG_CANCEL_DISCOVER_REMOTE_DEVICE_REQ

This command is used to cancel the device search function.

When this command is completed,

TCU_MNG_CANCEL_DISCOVER_REMOTE_DEVICE_RESP is generated as an ACK response.

(Note)

This command can be used to start from TCU_MNG_DISCOVER_REMOTE_DEVICE_REQ

to TCU_MNG_DISCOVER_REMOTE_DEVICE_COMPLETE_EVENT.

If this command is sent before to start device search or after the complete event is generated,

the status is success in TCU_MNG_CANCEL_DISCOVER_REMOTE_DEVICE_RESP and

the complete event is not generated.

Command Format:

ServiceID	1 Byte
OpCode	1 Byte
Parameter Length	2 Bytes

ServiceID   0xE1
OpCode   0x06
Parameter Length   0x0000
Parameters: - NONE -

Response Status in TCU_ACCEPT for TCU_MNG_CANCEL_DISCOVER_REMOTE_DEVICE_REQ

Parameters	Parameter Description	Value
Status	Operation Result	
	Successful	0x00
	Parameter Failure	0x01
	No Device Initialization	0x03

1.1.11 TCU_MNG_CANCEL_DISCOVER_REMOTE_DEVICE_EVENT

ACK response for TCU_MNG_CANCEL_DISCOVER_REMOTE_DEVICE_REQ

Command Format:

ServiceID	1 Byte
OpCode	1 Byte
Parameter Length	2 Bytes

ServiceID   0xE1
OpCode   0x46
Parameter Length   0x0000
Parameters: None

PANASONIC Bluetooth Module PAN1026 CMD(MNG)

1.1.12 TCU_MNG_SET_DI_SDP_RECORD_REQ

This command is used to set SDP record for DI.
When this command is completed, TCU_MNG_SET_DI_SDP_RECORD_RESP is generated.

Command Format:

ServiceID	1 Byte
OpCode	1 Byte
Parameter Length	2 Bytes
SpecificationID	2 Bytes
VenderID	2 Bytes
ProductID	2 Bytes
Version	2 Bytes
Primary Record	1 Byte
VendorID Source	2 Bytes

ServiceID: 0xE1
OpCode: 0xDC
Parameter Length: 0x000B

Parameters:

Parameters	Parameter Description	Value
SpecificationID	SpecificationID of local device DID Profile Version 1.3(0x0103)	0x0103 Fixed
VendorID	VendorID of local device	0x0000 – 0xFFFF
ProductID	ProductID of local device	0x0000 – 0xFFFF
Version	Version of local device	0x0000 – 0xFFFF
Primary Record	Primary Record of local device	0x01 Fixed
VendorID Source	VendorID Source of local device:	
	Reserved for future use	0x0000
	VendorID issued by Bluetooth SIG	0x0001
	VendorID issued by USB Implementer's Forum	0x0002
	Reserved for future use	0x0003 – 0xFFFF

1.1.13 TCU_MNG_SET_DI_SDP_RECORD_RESP

ACL response for TCU_MNG_SET_DI_SDP_RECORD_REQ.

Command Format:

ServiceID	1 Byte
OpCode	1 Byte
Parameter Length	2 Bytes
Status	1 Byte

ServiceID: 0xE1
OpCode: 0xDE
Parameter Length: 0x0001

Parameters:

Parameters	Parameter Description	Value
Status	Operation Result	
	Successful	0x00
	Parameter Failure	0x01
	No Device Initialization	0x03
	Device ID already exists	0x7D

1.1.14 TCU_MNG_DISCOVER_REMOTE_SERVICE_REQ

The service of remote device is searched.

TCU_ACCEPT is generated to notify to Host CPU, when this command operation is started.

TCU_MNG_DISCOVER_REMOTE_SERVICE_EVENT is generated, when this command is completed.

Command Format:

ServiceID	1 Byte
OpCode	1 Byte
Parameter Length	2 Bytes
Security_Mode	1 Byte
BD_ADDR	6 Bytes
Use_of_Link_key	1 Byte
Link_Key	16 Bytes

ServiceID	0xE1
OpCode	0x05
Parameter Length	0x0007 or 0x0008 or 0x0018

Parameters:

Parameters	Parameter Description	Value
Security_Mode	Set of Bluetooth Security mode Mode 3 Mode 2	 0x00 0x01
BD_ADDR	Searched Remote device BD_ADDR	0xXXXXXXXXXXXX
Use_of_Link_Key	Set Link_Key for Bluetooth connection No Yes	 0x00 0x01
Link_Key	Link_Key for Bluetooth connection If Use_of_Link_Key parameter is set 0x00, This parameter can be cut.	0xXXXXXXXXXXXX XXXXXXXXXXXX XXXXXXX

Response Status in TCU_ACCEPT for TCU_MNG_DISCOVER_REMOTE_SERVICE_REQ

Parameters	Parameter Description	Value
Status	Operation Result	
	Successful	0x00
	Parameter Failure	0x01
	No Device Initialization	0x03
	On Searching device	0x04
	On Searching device service	0x05
	On progress of other profile connection	0x0E
	On progress SPP connection or Establish SPP	0x42
	On releasing SPP connection	0x43

1.1.15 TCU_MNG_DISCOVER_REMOTE_SERVICE_EVENT

This event is generated, when the service information of remote device is found.
BD_ADDR, service information of remote device is transferred to host CPU.

Command Format:

ServiceID	1 Byte
OpCode	1 Byte
Parameter Length	2 Bytes
Status	1 Byte
BD_ADDR	6 Bytes
Service_Count	1 Byte
Service_Type	1 Byte
…Service_Type	1 Byte
…Service_Type	1 Byte
Extension-info_Profile	1 Byte
Extension-Info_Length	1 Byte
Extension_Info	186 Byte

} Notify each supported profiles

} Notify each profile information

ServiceID	0xE1
OpCode	0x45
Parameter Length	0x0008 – 0x00FF

Parameters:

Parameters	Parameter Description	Value
Status	TCU_MNG_DISCOVER_REMOTE_SERVICE_REQ Operation result :	
	Successful	0x00
	SDP connection Failure	0x8C
	No supported SDP	0x8D
BD_ADDR	Remote device BD_ADDR	0xXXXXXXXXXXXX
Service_Count	Number of service in Remote device	0x01 - 0x06
Service_Type	Profile Indicator :	
	HFP(AG) No Support	0x01
	OPP(Client) No Support	0x02
	SPP(B-Party)	0x03
	A2DP(SRC) No Support	0x06
	AVRCP(CT) No Support	0x07
	PBAP(PSE) No Support	0x08
	DeviceID(DI)	0x0E

The following two information is added to each profile.

Example) In the case of there is additional information of each of SPP and Device ID. First, additional information of SPP sets after Extension_Info_Profile and Extension_Info_Length for SPP. Secound, additional information of Device ID sets after Extension_Info_Profile and Extension_Info_Length for Device ID.

Extension_Info_Profile	Set the profile that has additional information.	
	− SPP	0x02
	− Device ID	0x03
Extension_Info_Length	Length for Number of ServerChannel and Server Channel.	0x00-0x0F

In case of SPP

Number of ServerChannel	This is the number of supported SPPServerChannel.	0x00-0x0F
Server Channel	ServerChannel.	0xXX
Server Channel	Continued when there is more than two.	0xXX

In case of Device ID

SpecificationID	SpecificationID of remote device.	0x0000 – 0xFFFF
VendorID	VendorID of remote device.	0x0000 – 0xFFFF
ProductID	ProductID of remote device.	0x0000 – 0xFFFF
Version	Version of remote device.	0x0000 – 0xFFFF
Primary Record	Primary Record of remote device.	0x00 – 0xFF
VendorID Source	VendorID Sourde of remote device.	0x0000 – 0xFFFF

(Note) Notify 0xFFFF or 0xFF to the host when Attribute can not get from a remote device.

For example for SPP
Extension_Info_Profile 0x02 (Fixed value)
Extension_Info_Length 0x03
Number of ServerChannel 0x02 (Server Channel is two)
Server Channel 0x01
Server Channel 0x02

For example for ID and SPP.
Parameter Length   0x001D(Following all information)
Status   0x00(Success)
BD_ADDR   0xXXXXXXXXXXXX
Service_Count   0x02
SPP   0x03
Device ID 0x0B

Extension_Info_Profile   0x02(SPP)
Extension_Info_Length   0x03
Number of ServerChannel = 0x02(Server Channel is 2）
Server Channel 0x01
Server Channel 0x02

Extension_Info_Profile   0x03(Device ID)
Extension_Info_Length   0x0B
SpecificationID 0xXXXX
VendorID 0xXXXX
ProductID 0xXXXX
Version 0xXXXX
Primary Record 0xXXXX
VendorID Source 0xXXXX

1.1.16 TCU_MNG_ DISCOVER_REMOTE_SERVICE_ CANCEL_REQ

This command is used to cancel the service search function.
TCU_ACCEPT is generated to notify to Host CPU, when this command operation is started.

When this command is completed,
TCU_MNG_ DISCOVER_REMOTE_SERVICE_ CANCEL_EVENT is generated.

(Note)
This command can be used to start from TCU_MNG_DISCOVER_REMOTE_SERVICE_REQ
to TCU_MNG_DISCOVER_REMOTE_SERVICE_EVENT.

If this command is sent before to start service search or after the complete event is generated,
the status is success in TCU_MNG_CANCEL_DISCOVER_REMOTE_SERVICE_CANCEL_EVENT and the
complete event is not generated.

Command Format:

ServiceID	1 Byte
OpCode	1 Byte
Parameter Length	2 Bytes
BD_ADDR	6 Bytes

ServiceID   0xE1
OpCode   0x12
Parameter Length   0x0006

Parameters:

Parameters	Parameter Description	Value
BD_ADDR	Remote device BD_ADDR	0xXXXXXXXXXXXX

Response Status in TCU_ACCEPT for TCU_MNG_DISCOVER_REMOTE_SERVICE_CANCEL_REQ

Parameters	Parameter Description	Value
Status	Operation Result	
	Successful	0x00
	Parameter Failure	0x01
	No Device Initialization	0x03

1.1.17 TCU_MNG_DISCOVER_REMOTE_SERVICE_CANCEL_EVENT

ACK response for TCU_MNG_ DISCOVER_REMOTE_SERVICE_ CANCEL_REQ

Command Format:

ServiceID	1 Byte
OpCode	1 Byte
Parameter Length	2 Bytes
BD_ADDR	6 Byte

ServiceID   0xE1
OpCode   0x52
Parameter Length   0x0006

Parameters:

Parameters	Parameter Description	Value
BD_ADDR	Remote device BD_ADDR	0xXXXXXXXX XXXX

1.1.18 TCU_MNG_CONNECTION_ACCEPT_REQ

This command is used to accept or reject for Bluetooth connection request from remote device.

When this command is completed, TCU_MNG_CONNECTION_ACCEPT_RESP is generated.

Command Format:

ServiceID	1 Byte
OpCode	1 Byte
Parameter Length	2 Bytes
Response_Type	1 Byte
BD_ADDR	6 Bytes
Use_of_Link_Key	1 Byte
Link_Key	16 Bytes

ServiceID: 0xE1
OpCode: 0x13
Parameter Length: 0x0007 0x0008 - 0x0018

Parameters:

Parameters	Parameter Description	Value

Response_Type	Accept or Reject
	
	  Accept
	  Reject
		
		0x00
		0x01

BD_ADDR	Remote device BD_ADDR	0xXXXXXXXXXXXX

Use_of_Link_Key	Use of Link Key for Bluetooth connection
	  No
	  Yes
	If Response_Type is 0x01, this is fixed to 0x00.
		
		0x00
		0x01

Link_Key	Link key data If Use_of_Link_Key is 0x00, this can be cut.	0xXXXXXXXXXXXX XXXXXXXXXXXXXX XXXXXX

1.1.19 TCU_MNG_CONNECTION_ACCEPT_RESP

When TCU_MNG_CONNECTION_ACCEPT_REQ is completed, this response is generated.

Command Format:

ServiceID	1 Byte
OpCode	1 Byte
Parameter Length	2 Bytes
Status	1 Byte

ServiceID   0xE1
OpCode   0x93
Parameter Length   0x0001

Parameters:

Parameters	Parameter Description	Value
Status	Command Result :	
	Successful	0x00
	Parameter Failure	0x01
	No Device Initialization	0x03
	No Connection	0x06

1.1.20 TCU_MNG_CONNECTION_REQUEST_EVENT

This command is generated, when remote device requests to connect to local device.

(Note)
If Host CPU is not executed TCU_MNG_CONNECTION_ACCEPT_REQ after 5sec
from generation of this response, TC35661 automatically cancels to establish
Bluetooth link and generates TCU_MNG_CONNECTION_STATUS_EVENT.

Command Format:

ServiceID	1 Byte
OpCode	1 Byte
Parameter Length	2 Bytes
BD_ADDR	6 Bytes

ServiceID   0xE1
OpCode   0x55
Parameter Length   0x0007

Parameters:

Parameters	Parameter Description	Value
BD_ADDR	Remote device BD_ADDR	0xXXXXXXXXXXXX
Class_of_Device	Remote device Class of Device	0xXXXXXX

1.1.21 TCU_MNG_CONNECTION_STATUS_EVENT

This event is generated, when following state is occurred.

- Establish ACL connection
- Disconnect ACL connection
- Pairing is successful and Link key is generated
- Pairing or Authentication is failed

Command Format:

ServiceID	1 Byte
OpCode	1 Byte
Parameter Length	2 Bytes
Status	1 Byte
BD_ADDR	6 Bytes
Connection_Status	1 Byte
Link_Key	16 Bytes
Link_Key_Type	1 Bytes
Sniff_Interval	2 Bytes

ServiceID   0xE1
OpCode   0x47
Parameter Length   0x0008 or 0x0019 or 0x000a
Parameters: In case of Connection_Status = expect Mode Change Sniff

Parameters	Parameter Description	Value
Status	Operation Result :	
	Successful	0x00
	Page Timer-out	0x80
	Local device Connection Reject	0x81
	Link Loss	0x82
	Pin code Input timer-out	0x83
	Pin code failure	0x84
	Local device Pin code input reject	0x85
	Remote device Pin code input reject	0x86
	Link key failure	0x87
BD_ADDR	Remote device BD_ADDR	0xXXXXXXXXXXXX
Connection_Status	Connected	0x00
	Disconnected	0x01
	Connection Failure	0x02
	Link key	0x03
	Mode Change Active	0x04
	Mode Change Hold	0x05
	Mode Change Sniff	0x06
	Mode Change Park	0x07
Link_Key	Link Key data	0xXXXXXXXXXXXX
	If connection_Status is 0x00 – 0x02, this parameter is cut.	XXXXXXXXXXXXXXXX XXXX

Link_Key_Type	Link Key Type	
	When connection_Status is 0x03, this parameter is generated.	
	Combination Key	0x00
	Local Unit Key	0x01
	Remote Unit Key	0x02
	Debug Combination Key	0x03
	Unauthenticated Combination Key	0x04
	Authenticated Combination Key	0x05
	Changed Combination Key	0x06
	Reserved	0x07 – 0xFF
SniffInterval	SniffInterval	0xXXXX
	When SniffSubrating on TCU_MNG_INIT_REQ is selected, and Connection_Status on this EVENT is Mode Change Sniff, this parameter is generated. Sniffi interval is used to set Sniff Subrating.	

In case of Connection_Status = Mode Change Sniff

Parameters	Parameter Description	Value
Status	Operation Result :	
	Successful	0x00
	Page Timer-out	0x80
	Local device Connection Reject	0x81
	Link Loss	0x82
	Pin code Input timer-out	0x83
	Pin code failure	0x84
	Local device Pin code input reject	0x85
	Remote device Pin code input reject	0x86
	Link key failure	0x87
BD_ADDR	Remote device BD_ADDR	0xXXXXXXXXXXXX
Connection_Status	Connected	
	Mode Change Sniff	0x06
SniffInterval	SniffInterval	0xXXXX
	When SniffSubrating on TCU_MNG_INIT_REQ is selected, and Connection_Status on this EVENT is Mode Change Sniff, this parameter is generated. Sniffi interval is used to set Sniff Subrating.	

1.1.22 TCU_MNG_REMOTE_CONNECT_CANCEL_REQ

To cancel the connection, which is initiated from remote device.

TCU_ACCEPT is generated to notify to Host CPU, when this command operation is started.
When this command operation is completed, TCU_MNG_CONNECTION_STATUS_EVENT is generated.

This command is allowed to enter from TCU_MNG_CONNECTION_STATUS_EVENT to the following event.
TCU_SPP_CONNECT_EVENT

Command Format:

ServiceID	1 Byte
OpCode	1 Byte
Parameter Length	2 Bytes

ServiceID	0xE1
OpCode	0x15
Parameter Length	0x0000
Parameters : None	

Response Status in TCU_ACCEPT for TCU_MNG_REMOTE_CONNECT_CANCEL_REQ

Parameters	Parameter Description	Value
Status	Operation Result	
	Successful	0x00
	Parameter Failure	0x01
	No Device Initialization	0x03
	No Connection Request	0x0C

1.1.23 TCU_MNG_PIN_REQUEST_EVENT

This event is generated, when remote device is required to input PIN code.

(Note)

After this event is generated, TC35661 can receive PIN code from Host CPU within 30sec.

If 30sec passes, TC35661 recognizes to reject PIN code and generates

TCU_MNG_CONNECT_STATUS_EVENT to notify timer-out to Host CPU.

Command Format:

ServiceID	1 Byte
OpCode	1 Byte
Parameter Length	2 Bytes
BD_ADDR	6 Bytes
Length_of_Device_Name	1 Byte
Device_Name	MAX 128Bytes

ServiceID	0xE1
OpCode	0x48
Parameter Length	0x0007-0x0087

Parameters:

Parameters	Parameter Description	Value
BD_ADDR	Remote device BD_ADDR	0xXXXXXXXXXXXX
Length_of_Device_Name	Length of User-friendly name

If the name is not set, this value is 0x00. | 0x00 - 0x80 |
| Device_Name | UTF-8 encoded User-friendly name

When Length_of_Device_Name is 0x00, this data is ignored. (MAX:128Bytes) | |

1.1.24 TCU_MNG_PIN_WRITE_REQ

This command is used for TCU_MNG_PIN_REQUEST_EVENT.

When the command is completed, TCU_MNG_PIN_WRITE_RESP is generated as an ACK response.

Command Format:

ServiceID	1 Byte
OpCode	1 Byte
Parameter Length	2 Bytes
BD_ADDR	6 Bytes
Length_of_PIN_code	1 Byte
PIN_code	MAX 16Bytes

ServiceID   0xE1
OpCode   0x09
Parameter Length   0x0007– 0x0017

Parameters:

Parameters	Parameter Description	Value
BD_ADDR	Remote device BD_ADDR	0xXXXXXXXXXXXX
Length_of_PIN_Code	Length of PIN code (Note) If this value is 0x00, PIN code reply is Negative.	0x01 - 0x10
PIN_Code	PIN code This value is valid, when length of PIN code is not 0x00. (Note) PIN code parameter is String parameter. First byte of PIN code is transferred as first data.	

1.1.25 TCU_MNG_PIN_WRITE_RESP

ACK response for TCU_MNG_PIN_WRITE_REQ

Command Format:

ServiceID	1 Byte
OpCode	1 Byte
Parameter Length	2 Bytes
Status	1 Byte
BD_ADDR	6 Bytes

ServiceID   0xE1
OpCode   0x89
Parameter Length   0x0007

Parameters:

Parameters	Parameter Description	Value
Status	TCU_MNG_PIN_WRITE_REQ Operation Result : Successful Parameter Failure No Device Initialization No pairing sequence	 0x00 0x01 0x03 0x07
BD_ADDR	Remote Device BD_ADDR	0xXXXXXXXXXXXX

1.1.26 TCU_MNG_SET_SCAN_REQ

To set Inquiry Scan, Page Scan.

When this command is completed, TCU_MNG_SET_SCAN_RESP is generated.

Command Format:

ServiceID	1 Byte
OpCode	1 Byte
Parameter Length	2 Bytes
Scan_Mode	1 Byte

ServiceID	0xE1
OpCode	0x0C
Parameter Length	0x0001

Parameters:

Parameters	Parameter Description	Value
Scan_Mode	Inquiry Scan, Page Scan Setting	
	Inquiry Scan OFF Page Scan OFF	0x00
	Inquiry Scan ON Page Scan OFF	0x01
	Inquiry Scan OFF Page Scan ON	0x02
	Inquiry Scan ON Page Scan ON	0x03

1.1.27 TCU_MNG_SET_SCAN_RESP

This response is generated, when Inquiry Scan and Page Scan setting is completed.

Command Format:

ServiceID	1 Byte
OpCode	1 Byte
Parameter Length	2 Bytes
Status	1 Byte

ServiceID	0xE1
OpCode	0x8C
Parameter Length	0x0001

Parameters:

Parameters	Parameter Description	Value
Status	TCU_MNG_SET_SCAN_REQ Result :	
	Successful	0x00
	Parameter failure	0x01
	No device initialization	0x03
	No setup profile	0x08

1.1.28 TCU_MNG_READ_RSSI_REQ

To read RSSI data for remote device.

ACK Response : TCU_MNG_READ_RSSI_RESP is generated, when this command is completed.

Command Format:

ServiceID	1 Byte
OpCode	1 Byte
Parameter_Length	2 Bytes
BD_ADDR	6 Bytes

ServiceID   0xE1
OpCode   0x0D
Parameter Length   0x0006

Parameters:

Parameters	Parameter Description	Value
BD_ADDR	Remote device BD_ADDR	0xXXXXXXXXXXXX

1.1.29 TCU_MNG_READ_RSSI_RESP

This response is used to get the result of RSSI data read.

Command Format:

ServiceID	1 Byte
OpCode	1 Byte
Parameter_Length	2 Bytes
Status	1 Byte
BD_ADDR	6 Bytes
RSSI	2 Bytes

ServiceID	0xE1
OpCode	0x8D
Parameter Length	0x0009

Parameters:

Parameters	Parameter Description	Value
Status	TCU_MNG_READ_RSSI_REQ Result :	
	Successful	0x00
	Parameter Failure	0x01
	No device initialization	0x03
	No ACL connection	0x0B
BD_ADDR	Remote device BD_ADDR	0xXXXXXXXXXXXX
RSSI	RSSI Data (Note) 2's complimentary is used for negative Value. To change the read data to dBm, read data is divided 100.	0xXXXX

1.1.30 TCU_MNG_SSP_SET_REQ

This command is used to control SecureSimplePairing.

Parameter is the same as HCI command by BluetoothCoreSpecification.

Available commands are shown from the next page.

For more detail, refer to MSC for TCU_MNG command.

Refer to "CoreSpec2.1GAP page 1281 chapter 5.2.2.5 Mapping of Input / Output Capabilities to IO Capability"
for setting IOCapability of my device.

Refer to CoreSpec2.1GAP page 1283 Table5.6 for SimplePairing mode
(JustWork/NumericComparison/PasskeyEntry) by IOCapability.

(Note)

This command is same ServiceID/OpCode as standard HCI command setting:
TCU_MNG_STANDARD_HCI_SET_REQ. They are functionally the same.

Command Format:

ServiceID	1 Byte
OpCode	1 Byte
Parameter Length	2 Bytes
Parameter	Max256 Byte

ServiceID: 0xE1
OpCode: 0x3D
Parameter Length: 0x0001 - 0x00XX

Parameters:

Parameters	Parameter Description	Value
OP code(low byte）	Set OCF and OGF in HCI command.	0x00 - 0xFF
OP code(high byte)	Refer since it the next pages for the each command OP code.	0x00 - 0xFF
Parameter_Length	Set the parameter length.	0xXX
Parameter1	Set the parameters. Refer the next pages.	0xXX
Parameter2..last Parameter	Refer to the next page.	0xXX

1.1.30.1 HCI_IO_Capability_Request_Reply

The IO_Capability_Request_Reply command is used to reply to an IO Capability Request event from the TC35661, and specifies the current I/O capabilities of the host.

This includes the host input, output and out-of-band (OOB) capabilities.

Parameters	Parameter Description	Value
OP code(low byte)	Set the OCF and OGF value of HCI command.	0x2B
OP code(high byte)		0x04
Parameter_Length	Set the parameter length.	0x09
Parameter1	BD_ADDR of remote device(LSB)	0xXX
Parameter2	BD_ADDR of remote device(LSB +1)	0xXX
Parameter3	BD_ADDR of remote device(LSB +2)	0xXX
Parameter4	BD_ADDR of remote device(LSB +3)	0xXX
Parameter5	BD_ADDR of remote device(LSB +4)	0xXX
Parameter6	BD_ADDR of remote device(MSB)	0xXX
Parameter7	IO_Capability Set the IOCapability to the controller. 0x00: DisplayOnly 0x01: DisplayYesNo 0x02: KeyboardOnly 0x03: NoInputNoOutput 0x04-0xFF: Reserved for future use	0xXX
Parameter8	OOB_Data_Present If OOB is not used, set 0x00. 0x00: OOB authentication data not present 0x01: OOB authentication data from remote device present 0x02-0xFF: Reserved for future use	0xXX Usually 0x00
Parameter9	Authentication_Requirement Set MITM and General/DedicatedBonding. 0x00 MITM Protection Not Required – No Bonding. Numeric comparison with automatic accept allowed. 0x01 MITM Protection Required – No Bonding. Use IO Capabilities to determine authentication procedure 0x02 MITM Protection Not Required – Dedicated Bonding. Numeric comparison with automatic accept allowed. 0x03 MITM Protection Required – Dedicated Bonding. Use IO Capabilities to determine authentication procedure 0x04 MITM Protection Not Required – General Bonding. Numeric Comparison with automatic accept allowed. 0x05 MITM Protection Required – General Bonding. Use IO capabilities to determine authentication procedure. 0x06 - 0xFF Reserved for future use	0xXX

1.1.30.2 HCI_IO_Capability_Request_Negative_Reply

The IO_Capability_Request_Negative_Reply command shall be used to reject a pairing attempt after an HCI IO Capability Request event has been received by the Host.
The reason for the rejection is given in the Reason parameter.
Error code 0x37 (Simple Pairing not Supported by Host) shall not be used in the Reason parameter.

Parameters	Parameter Description	Value
OP code(low byte)	Set the OCF and OGF value of HCI command.	0x34
OP code(high byte)		0x04
Parameter_Length	Set the parameter length.	0x07
Parameter1	BD_ADDR of remote device(LSB)	0xXX
Parameter2	BD_ADDR of remote device(LSB +1)	0xXX
Parameter3	BD_ADDR of remote device(LSB +2)	0xXX
Parameter4	BD_ADDR of remote device(LSB +3)	0xXX
Parameter5	BD_ADDR of remote device(LSB +4)	0xXX
Parameter6	BD_ADDR of remote device(MSB)	0xXX
Parameter7	Set error case. This error code sends remote device. Usually 0x38(BUSY-PAIRING) is used.	0x38

1.1.30.3 HCI_User_Confirmation_Request_Reply

The User_Confirmation_Request_Reply command is used to reply to a User Confirmation Request event and indicates that the user selected "yes". It is also used when the host has no input and no output capabilities.

Parameters	Parameter Description	Value
OP code(low byte)	Set the OCF and OGF value of HCI command.	0x2C
OP code(high byte)		0x04
Parameter_Length	Set the parameter length.	0x06
Parameter1	BD_ADDR of remote device(LSB)	0xXX
Parameter2	BD_ADDR of remote device(LSB +1)	0xXX
Parameter3	BD_ADDR of remote device(LSB +2)	0xXX
Parameter4	BD_ADDR of remote device(LSB +3)	0xXX
Parameter5	BD_ADDR of remote device(LSB +4)	0xXX
Parameter6	BD_ADDR of remote device(MSB)	0xXX

1.1.30.4 HCI_User_Confirmation_Negative_Reply

The User_Confirmation_Request_Negative_Reply command is used to reply to a User Confirmation Request event and indicates that the user selected "no".

Parameters	Parameter Description	Value
OP code(low byte)	Set the OCF and OGF value of HCI command.	0x2D
OP code(high byte)		0x04
Parameter_Length	Set the parameter length.	0x06
Parameter1	BD_ADDR of remote device(LSB)	0xXX
Parameter2	BD_ADDR of remote device(LSB +1)	0xXX
Parameter3	BD_ADDR of remote device(LSB +2)	0xXX
Parameter4	BD_ADDR of remote device(LSB +3)	0xXX
Parameter5	BD_ADDR of remote device(LSB +4)	0xXX
Parameter6	BD_ADDR of remote device(MSB)	0xXX

1.1.30.5 HCI_Write_Simple_Pairing_Debug_Mode_Command

This command configures the Controller to use a predefined Diffie Hellman private key for Simple Pairing to enable debug equipment to monitor the encrypted connection.

Parameters	Parameter Description	Value
OP code(low byte)	Set the OCF and OGF value of HCI command.	0x04
OP code(high byte)	Refer to since next page for each command OP code.	0x18
Parameter_Length	Set the parameter length.	0x01
Parameter1	Set the Debug Mode. 0x00: Simple Pairing debug mode disabled(default) 0x01: Simple Pairing debug mode enabled 0x02-0xFF: Reserved for future use	0xXX

1.1.31 TCU_MNG_SSP_SET_RESP

This is an ACK response for TCU_MNG_SSP_SET_REQ.

Parameter is the same as HCI command by BluetoothCoreSpecification.

Available commands are shown from the next page.

For more detail, refer to MSC for TCU_MNG command.

(Note)

This command is same ServiceID/OpCode as standard

HCI command setting: TCU_MNG_STANDARD_HCI_SET_RESP. They are functionally the same.

Command Format:

ServiceID	1 Byte
OpCode	1 Byte
Parameter Length	2 Bytes
Status	1 Byte

ServiceID: 0xE1
OpCode: 0xBD
Parameter Length: 0x0001 - 0x00XX

Parameters:

Parameters	Parameter Description	Value
Status	Command Result	
	Successful	0x00
	Parameter Failure	0x01
	No Device Initialization	0x03
Parameter_Length	Set the parameter length.	0xXX
Parameter1	Returned HCI event parameters	0xXX
Parameter2..last Parameter	Refer to the next page.	0xXX

1.1.31.1 HCI_IO_Capability_Request_Reply response

Parameters:

Parameters	Parameter Description	Value
Parameter_Length	Set the parameter length.	0x0C
Parameter1	OP code of Command_Complete	0x0E
Parameter2	Event Length	0x0A
Parameter3	Num_HCI_Command_Packet. Fixed value.	0x01
Parameter4	OP code of command (low byte)	0x2B
Parameter5	OP code of command (high byte)	0x04
Parameter6	Status Command success: 00 Command failure: except 00	0xXX
Parameter7	BD_ADDR of remote device(LSB)	0xXX
Parameter8	BD_ADDR of remote device(LSB+1)	0xXX
Parameter9	BD_ADDR of remote device(LSB+2)	0xXX
Parameter10	BD_ADDR of remote device(LSB+3)	0xXX
Parameter11	BD_ADDR of remote device(LSB+4)	0xXX
Parameter12	BD_ADDR of remote device(MSB)	0xXX

1.1.31.2 HCI_IO_Capability_Request_Negative_Reply response

Parameters:

Parameters	Parameter Description	Value
Parameter_Length	Set the parameter length.	0x0C
Parameter1	OP code of Command_Complete	0x0E
Parameter2	Event Length	0x0A
Parameter3	Num_HCI_Command_Packet. Fixed value.	0x01
Parameter4	OP code of command (low byte)	0x34
Parameter5	OP code of command (high byte)	0x04
Parameter6	Status Command success: 00 Command failure: except 00	0xXX
Parameter7	BD_ADDR of remote device(LSB)	0xXX
Parameter8	BD_ADDR of remote device(LSB+1)	0xXX
Parameter9	BD_ADDR of remote device(LSB+2)	0xXX
Parameter10	BD_ADDR of remote device(LSB+3)	0xXX
Parameter11	BD_ADDR of remote device(LSB+4)	0xXX
Parameter12	BD_ADDR of remote device(MSB)	0xXX

1.1.31.3 HCI_User_Confirmation_Request_Reply response

Parameters:

Parameters	Parameter Description	Value
Parameter_Length	Set the parameter length.	0x0C
Parameter1	OP code of Command_Complete	0x0E
Parameter2	Event Length	0x0A
Parameter3	Num_HCI_Command_Packet. Fixed value.	0x01
Parameter4	OP code of command (low byte)	0x2C
Parameter5	OP code of command (high byte)	0x04
Parameter6	Status Command success: 00 Command failure: non-00	0xXX
Parameter7	BD_ADDR of remote device(LSB)	0xXX
Parameter8	BD_ADDR of remote device(LSB+1)	0xXX
Parameter9	BD_ADDR of remote device(LSB+2)	0xXX
Parameter10	BD_ADDR of remote device(LSB+3)	0xXX
Parameter11	BD_ADDR of remote device(LSB+4)	0xXX
Parameter12	BD_ADDR of remote device(MSB)	0xXX

1.1.31.4 HCI_User_Confirmation_Request_Negative_Reply response

Parameters:

Parameters	Parameter Description	Value
Parameter_Length	Set the parameter length.	0x0C
Parameter1	OP code of Command_Complete	0x0E
Parameter2	Event Length	0x0A
Parameter3	Num_HCI_Command_Packet. Fixed value.	0x01
Parameter4	OP code of command (low byte)	0x2D
Parameter5	OP code of command (high byte)	0x04
Parameter6	Status Command success: 00 Command failure: except 00	0xXX
Parameter7	BD_ADDR of remote device(LSB)	0xXX
Parameter8	BD_ADDR of remote device(LSB+1)	0xXX
Parameter9	BD_ADDR of remote device(LSB+2)	0xXX
Parameter10	BD_ADDR of remote device(LSB+3)	0xXX
Parameter11	BD_ADDR of remote device(LSB+4)	0xXX
Parameter12	BD_ADDR of remote device(MSB)	0xXX

1.1.31.5 HCI_Write_Simple_Pairing_Debug_Mode response

Parameters:

Parameters	Parameter Description	Value
Parameter_Length	Set the parameter length.	0x06
Parameter1	OP code of Command_Complete	0x0E
Parameter2	Event Length	0x04
Parameter3	Num_HCI_Command_Packet.Fixed value.	0x01
Parameter4	OP code of command (low byte)	0x04
Parameter5	OP code of command (high byte)	0x18
Parameter6	Status Command success: 00 Command failure: except 00	0xXX

1.1.32 TCU_MNG_SSP_INFO_EVENT

This command is used to notify information for SecureSimplePairing.

Parameter is the same as HCI command by BluetoothCoreSpecification.

Available commands are shown from the next page.

For more detail, refer to MSC for TCU_MNG command.

Command Format:

ServiceID	1 Byte
OpCode	1 Byte
Parameter Length	2 Bytes
Status	1 Byte

ServiceID: 0xE1
OpCode: 0x7D
Parameter Length: 0x0001 - 0x00XX

Parameters:

Parameters	Parameter Description	Value
OP code	Command OP code	0x00-0xFF
Parameter_Length	Set the parameter length.	0xXX
Parameter1	Notified HCI event parameters	0xXX
Parameter2..last Parameter	Refer to the next page.	0xXX

1.1.32.1 HCl_Encryption_Key_Refresh_Complete_Event

When encryption key is changed, this event is notified.

When received this command, HOST not need action.

Parameters	Parameter Description	Value
OP code	For Encryption Key Refresh Complete	0x30
Parameter_Length	Set the parameter length	0x03
Parameter1	Status Refer to CoreSpec2.1Vol2PartD ErrorCode. 00: Success; Others: Error	0xXX
Parameter2	Connection_Handle of remote device(Low Byte)	0xXX
Parameter3	Connection_Handle of remote device (High Byte)	0xXX

1.1.32.2 HCI_IO_Capability_Request_Event

The IO Capability Request event is used to indicate that the IO capabilities of the Host CPU are required for a simple pairing process.

The host shall respond with an HCI_IO_Capability_Reqeust_Reply command.

Parameters	Parameter Description	Value
OP code	IO_Capability_Request_Event	0x31
Parameter_Length	Set the parameter length.	0x06
Parameter1	BD_ADDR of remote device(LSB)	0xXX
Parameter2	BD_ADDR of remote device(LSB +1)	0xXX
Parameter3	BD_ADDR of remote device(LSB +2)	0xXX
Parameter4	BD_ADDR of remote device(LSB +3)	0xXX
Parameter5	BD_ADDR of remote device(LSB +4)	0xXX
Parameter6	BD_ADDR of remote device(MSB)	0xXX

1.1.32.3 HCI_IO_Capability_Response_Event

The IO Capability Response event is used to indicate to the host that IO capabilities from a remote device specified by BD_ADDR have been received during a simple pairing process.

Parameters	Parameter Description	Value
OP code	IO_Capability_Request_Event OP code	0x32
Parameter_Length	Set the parameter length.	0x09
Parameter1	BD_ADDR of remote device(LSB)	0xXX
Parameter2	BD_ADDR of remote device(LSB +1)	0xXX
Parameter3	BD_ADDR of remote device(LSB +2)	0xXX
Parameter4	BD_ADDR of remote device(LSB +3)	0xXX
Parameter5	BD_ADDR of remote device(LSB +4)	0xXX
Parameter6	BD_ADDR of remote device(MSB)	0xXX
Parameter7	IO_Capability the IOCapability of remote device 0x00: DisplayOnly 0x01: DisplayYesNo 0x02: KeyboardOnly 0x03: NoInputNoOutput 0x04-0xFF: Reserved for future use	0xXX
Parameter8	OOB_Data_Present 0x00: OOB authentication data not present 0x01: OOB authentication data from remote device present 0x02-0xFF: Reserved for future use	0xXX Usually 0x00
Parameter9	Authentication_Requirement MITM and General/DedicatedBonding 0x00 MITM Protection Not Required – No Bonding. Numeric comparison with automatic accept allowed. 0x01 MITM Protection Required – No Bonding. Use IO Capabilities to determine authentication procedure 0x02 MITM Protection Not Required – Dedicated Bonding. Numeric comparison with automatic accept allowed. 0x03 MITM Protection Required – Dedicated Bonding. Use IO Capabilities to determine authentication procedure 0x04 MITM Protection Not Required – General Bonding. Numeric Comparison with automatic accept allowed. 0x05 MITM Protection Required – General Bonding. Use IO capabilities to determine authentication procedure. 0x06 - 0xFF Reserved for future use	0xXX

1.1.32.4 HCI_IO_User_Confirmation_Request_Event

The User Confirmation Request event is used to indicate that user confirmation of a numeric value is required. The host shall reply with either the User Confirmation Request Reply or the User Confirmation Request Negative Reply command.
If the Host CPU has output capability it shall display the Numeric_Value until the Simple Pairing Complete event is received. It shall reply based on the yes/no response from the user.

If the host has no input and no output it shall reply with the User Confirmation Request Reply command.

The range of Numeric Value is hexadecimal 000000 - 999999.

Ex) 999999 is 0x000F423F

Parameters	Parameter Description	Value
OP code	IO_Capability_Request_Event OP code	0x33
Parameter_Length	Set the parameter length.	0x0A
Parameter1	BD_ADDR of remote device(LSB)	0xXX
Parameter2	BD_ADDR of remote device(LSB +1)	0xXX
Parameter3	BD_ADDR of remote device(LSB +2)	0xXX
Parameter4	BD_ADDR of remote device(LSB +3)	0xXX
Parameter5	BD_ADDR of remote device(LSB +4)	0xXX
Parameter6	BD_ADDR of remote device(MSB)	0xXX
Parameter7	Numeric Value (LSB)	0xXX
Parameter8	Numeric Value (LSB+1)	0xXX
Parameter9	Numeric Value (LSB+2)	0xXX
Parameter10	Numeric Value (MSB)	0xXX

1.1.32.5 HCI_Simple_Pairing_Complete_Event

The Simple Pairing Complete event is used to indicate that the simple pairing process has completed.
A host that is displaying a numeric value can use this event to change its UI.
When the LMP simple pairing sequences fail for any reason, the Simple Pairing Complete event shall be sent to the Host.
When Simple Pairing Complete event is sent in response to the IO capability exchange failing, the Status parameter shall be set to the error code received from the remote device. Otherwise, the Status shall be set to the error code "Authentication Failure (0x05)."

Parameters	Parameter Description	Value
OP code	IO_Capability_Request_Event OP code	0x36
Parameter_Length	Set the parameter length.	0x07
Parameter1	Status Command success: 00 Command failure: except 00	0x00 0x01-0xFF
Parameter2	BD_ADDR of remote device(LSB)	0xXX
Parameter3	BD_ADDR of remote device(LSB +1)	0xXX
Parameter4	BD_ADDR of remote device(LSB +2)	0xXX
Parameter5	BD_ADDR of remote device(LSB +3)	0xXX
Parameter6	BD_ADDR of remote device(LSB +4)	0xXX
Parameter7	BD_ADDR of remote device(MSB)	0xXX

1.1.33 TCU_MNG_REMOTE_DEVICE_NAME_AUTO_NOTIFY_EVENT

To inform name of remote device, when security4.

Command Format:

ServiceID	1 Byte
OpCode	1 Byte
Parameter Length	2 Bytes
BD_ADDR	6 Bytes
Length_of_Device_Name	1 Byte
Device_Name	MAX 128Bytes

ServiceID: 0xE1
OpCode: 0x6E
Parameter Length: 0x0007 - 0x0087

Parameters:

Parameters	Parameter Description	Value
BD_ADDR	Remote Device BD_ADDR	0xXXXXXXXX XXXX
Length_of_Device_Name	Length of User-friendly name If the name is not set, this value is 0x00.	0x00 - 0x80
Device_Name	UTF-8 encoded User-friendly name If Length_of_Device_Name is 0x00, device name is not transferred. (MAX:128Bytes)	

1.1.34 TCU_MNG_SNIFF_MODE_CONTROL_REQ

This command is used to enter Sniff mode.

Command Format:

ServiceID	1 Byte
OpCode	1 Byte
Parameter_Length	2 Bytes
BD_ADDR	6 Bytes
Max_Interval	2 Bytes
Min_Interval	2 Bytes
Attempt	2 Bytes
Timeout	2 Bytes

ServiceID: 0xE1
OpCode: 0xCB
Parameter Length: 0x000E

Parameters:

Parameters	Parameter Description	Value
BD_ADDR	Remote BD_ADDR LSB first	0xXXXXXXXX XXXX
Max_Interval	Sniff max interval.	
Min_Interval	Sniff minimum interval	
Attempt	Sniff slot	
Timeout	Sniff timeout	

1.1.35 TCU_MNG_SNIFF_MODE_CONTROL_RESP

When TCU_MNG_SNIFF_MODE_CONTROL_REQ is completed, this response is generated.

Command Format:

ServiceID	1 Byte
OpCode	1 Byte
Parameter Length	2 Bytes
Status	1 Byte

ServiceID   0xE1
OpCode   0xCD
Parameter Length   0x0001

Parameters:

Parameters	Parameter Description	Value
Status	Command Result :	
	Successful	0x00
	Parameter Failure	0x01
	No Device Initialization	0x03
	ACL Link Not Connected	0x0B
	Sniff (Cancel) Request Failure	0x96

1.1.36 TCU_MNG_EXIT_SNIFF_MODE_CONTROL_REQ

This command is used to exit Sniff mode.

Command Format:

ServiceID	1 Byte
OpCode	1 Byte
Parameter_Length	2 Bytes
BD_ADDR	6 Bytes

ServiceID: 0xE1
OpCode: 0xCC
Parameter Length: 0x0006

Parameters:

Parameters	Parameter Description	Value
BD_ADDR	Remote BD_ADDR	0xXXXXXXXX
	LSB first	XXXX

1.1.37 TCU_MNG_EXIT_SNIFF_MODE_CONTROL_RESP

When TCU_MNG_EXIT_SNIFF_MODE_CONTROL_REQ is completed, this response is generated.

Command Format:

ServiceID	1 Byte
OpCode	1 Byte
Parameter Length	2 Bytes
Status	1 Byte

ServiceID   0xE1
OpCode   0xCE
Parameter Length   0x0001

Parameters:

Parameters	Parameter Description	Value
Status	Command Result :	
	Successful	0x00
	Parameter Failure	0x01
	No Device Initialization	0x03
	ACL Link Not Connected	0x0B
	Sniff (Cancel) Request Failure	0x96

1.1.38 TCU_MNG_SET_SNIFF_SUBRATING_PARAM_REQ

Set the parameters used in the HCI_Sniff_Subrating command.
TCU_MNG_SET_SNIFF_SUBRATING_PARAM_RESP is generated, when this command is completed.

(NOTE)
Execute HCI_Sniff_Subrating command setting with this command when SPP connetion is completed.
When the SPP connection is completed, execute the HCI_Sniff_Subrating command using the parameters set by this command.
When this command is execute in Sniff mode, execute the HCI_Sniff_Subrating command using the parameters set by this command.

Command Format:

ServiceID	1 Byte
OpCode	1 Byte
Parameter Length	2 Bytes
Max Letency	2 Bytes
Min Remote Timeout	2 Bytes
Min Local Timeout	2 Bytes

ServiceID	0xE1
OpCode	0xE9
Parameter Length	0x0006

Parameters:

Parameters	Parameter Description	Value
Max Letency	The Maximum Latency parameter shall be used to calculate the maximum_sniff subrate that the remote device may use.	0x0000 - 0xFFFE
Min Remote Timeout	Minimum base sniff subrate timeout that the remote device may use.	0x0000 - 0xFFFE
Min Local Timeout	Minimum base sniff subrate timeout that the local device may use.	0x0000 - 0xFFFE

1.1.39 TCU_MNG_SET_SNIFF_SUBRATING_PARAM_RESP

This command is generated, when the Sniff subrating parameter setting is completed to by the TCU_MNG_SET_SNIFF_PARAM_REQ.

Command Format:

ServiceID	1 Byte
OpCode	1 Byte
Parameter Length	2 Bytes
Status	1 Byte

ServiceID	0xE1
OpCode	0xEA
Parameter Length	0x0001

Parameters:

Parameters	Parameter Description	Value
Status	TCU_MNG_SET_SNIFF_SUBRATING_PARAM_REQ result	
	Successful	0x00
	Parameter Failure	0x01

1.1.40 TCU_MNG_RCV_SNIFF_SUBRATING_EVENT

This command is generated when receive the HCI_EVENT_SNIFF_SUBRATING command.

Command Format:

ServiceID	1 Byte
OpCode	1 Byte
Parameter Length	2 Bytes
Status	1 Byte
Max Transmit Latency	2 Bytes
Max Receive Latency	2 Bytes
Min Remote Timeout	2 Bytes
Min Local Timeout	2 Bytes

ServiceID   0xE1
OpCode   0xEB
Parameter Length   0x0009

Parameters:

Parameters	Parameter Description	Value
Status	result Successful	 0x00
Max Transmit Latency	Maximum latency for data being transmitted from the local device to the remote device.	0x0000 - 0xFFFE
Max Receive Latency	Maximum latency for data being received by the local device from the remote device.	0x0000 - 0xFFFE
Min Remote Timeout	The base sniff subrate timeout in baseband slots that the remote device shall use.	0x0000 - 0xFFFE
Min Local Timeout	The base sniff subrate timeout in baseband slots that the local device will use.	0x0000 - 0xFFFE

1.1.41 TCU_MNG_DEEP_SLEEP_REQ

This command is used to enter Deep Sleep mode.

Condition to enter Sleep mode

- Host sends this command

- Host sends M2 (BTL_SET_DEEP_SLEEP) during HCI mode

- Sniff mode

- Bluetooth link is not exsisted

(Note)After Host sends TCU_MNG_DEEP_SLEEP_REQ(Enable),

Host shall send TCU_MNG_DEEP_SLEEP_REQ(Disable) before sending other commands.

TC35661 enters deep sleep mode after receiving TCU_MNG_DEEP_SLEEP_REQ(Enable).

Then TC35661 recognizes all commands as TCU_MNG_DEEP_SLEEP_REQ(Disable) command during deep sleep mode.

Command Format:

ServiceID	1 Byte
OpCode	1 Byte
Parameter_Length	2 Bytes
mode	1 Bytes

ServiceID: 0xE1
OpCode: 0xB6
Parameter Length: 0x0001

Parameters:

Parameters	Parameter Description	Value
mode	Deep Sleep mode setting	
	Disable	0x00
	Enable	0x01

1.1.42 TCU_MNG_DEEP_SLEEP_RESP

When TCU_MNG_DEEP_SLEEP_REQ is completed, this response is generated.

Command Format:

ServiceID	1 Byte
OpCode	1 Byte
Parameter Length	2 Bytes
Status	1 Byte

ServiceID   0xE1
OpCode   0xB7
Parameter Length   0x0001

Parameters:

Parameters	Parameter Description	Value
Status	Command Result :	
	Successful	0x00
	Parameter Failure	0x01
	No Device Initialization	0x03
	Unsupported	0xF8

1.1.43 TCU_MNG_STANDARD_HCI_SET_REQ

This command is used to set HCI command which is specified in the BluetoothCoreSpecifiction.

When this command is executed, operation is the same as HCI command which is specified in Bluetooth Spec.

Only described HCI commands in this document are available.

(Note)

ServiceID/OpCode of this command is the same as TCU_MNG_SSP_SET_REQ. Function is also same.

Command Format:

ServiceID	1 Byte
OpCode	1 Byte
Parameter Length	2 Bytes
Parameter	Max256 Byte

ServiceID: 0xE1

OpCode: 0x3D

Parameter Length: 0x0001 - 0x00XX

Parameters:

Parameters	Parameter Description	Value
OpCode(High byte)	Set OCF and OGF of HCI command.	0x00 - 0xFF
OpCode(Low byte)	OPcode for each command, refer to the following pages.	0x00 - 0xFF
Parameter_Length	Set parameter length.	0xXX
Parameter1	Set after OPcode of HCI command.	0xXX
Parameter2 last Parameter	Parameter for each command, refer to the following pages.	0xXX

1.1.43.1 Write Class of Device Command

Set ClassOfDevice parameters.

Parameters	Parameter Description	Value
OpCode(LSB)	Set OCF and OGF of HCI command.	0x24
OpCode(MSB)		0x0C
Parameter_Length	Set parameter length.	0x03
Parameter1	Set ClassOfDevice (LSB).	0xXX
Parameter2	Set ClassOfDevice (LSB+1).	0xXX
Parameter3	Set ClassOfDevice (MSB).	0xXX

1.1.43.2 Write Page Timeout Command

Set waiting-time of a page response. The response is from the remote device when connecting.

If there is no response although the waiting-time is over, connection is failed.

Parameters	Parameter Description	Value
OpCode(LSB)	Set OCF and OGF of HCI command.	0x18
OpCode(MSB)		0x0C
Parameter_Length	Set parameter length.	0x02
Parameter1	Set Page Timeout Interval (LSB). ** Setting Range: 0x0001-0xFFFF(0.625msec-5.12sec)	0xXX
Parameter2	Set Page Timeout Interval (LSB+1). ** Setting Range: 0x0001-0xFFFF(0.625msec-5.12sec)	0xXX

1.1.43.3 Write Page Scan Activity Command

Set Interval and Window length of Page Scan.

Set Page Scan Window smaller than Page Scan Interval

Parameters	Parameter Description	Value
OpCode(LSB)	Set OCF and OGF of HCI command.	0x1C
OpCode(MSB)		0x0C
Parameter_Length	Set parameter length.	0x04
Parameter1	Set Page Scan Interval (LSB). ** Setting Range: 0x0012-0x1000(11.25msec-2560msec)	0xXX
Parameter2	Set Page Scan Interval (LSB+1). ** Setting Range: 0x0012-0x1000(11.25msec-2560msec)	0xXX
Parameter3	Set Page Scan Window (LSB). ** Setting Range: 0x0011-0x1000(10.625msec-2560msec)	0xXX
Parameter4	Set Page Scan Window (LSB+1). ** Setting Range: 0x0011-0x1000(10.625msec-2560msec)	0xXX

1.1.43.4 Write Inquiry Scan Activity Command

Set Interval and Window length of Inquiry Scan.

Set Inquiry Scan Window smaller than Inquiry Scan Interval.

Parameters	Parameter Description	Value
OpCode(LSB)	Set OCF and OGF of HCI command.	0x1E
OpCode(MSB)		0x0C
Parameter_Length	Set parameter length.	0x04
Parameter1	Set Inquiry Scan Interval (LSB). ** Setting Range: 0x0012-0x1000(11.25msec-2560msec)	0xXX
Parameter2	Set Inquiry Scan Interval (LSB+1). ** Setting Range: 0x0012-0x1000(11.25msec-2560msec)	0xXX
Parameter3	Set Inquiry Scan Window (LSB). ** Setting Range: 0x0011-0x1000(10.625msec-2560msec)	0xXX
Parameter4	Set Inquiry Scan Window (LSB+1). ** Setting Range: 0x0011-0x1000(10.625msec-2560msec)	0xXX

1.1.44 TCU_MNG_STANDARD_HCI_SET_RESP

ACK response for TCU_MNG_STANDARD_HCI_SET_REQ

Response event format is specified in the BluetoothCoreSpec2.1 Vol2 Part E.06

Only described HCI event in this document are available.

(Note)

ServiceID/OpCode of this command is the same as TCU_MNG_SSP_SET_RESP. Function is also same.

Command Format:

ServiceID	1 Byte
OpCode	1 Byte
Parameter Length	2 Bytes
Status	1 Byte

ServiceID: 0xE1

OpCode: 0xBD

Parameter Length: 0x0001 - 0x00XX

Parameters:

Parameters	Parameter Description	Value
Status	Successful	0x00
	Parameter Failure	0x01
	No Device Initialization	0x03
Parameter_Length	Set the parameter length.	0xXX
Parameter1	Returned HCI event parameters	0xXX
Parameter Parameter2..last Parameter	Refer to the following pages.	0xXX

1.1.44.1 Write Class of Device Command response

Parameters	Parameter Description	Value
Parameter_Length	Parameter length of this response.	0x06
Parameter1	OpCode of Command_Complete.	0x0E
Parameter2	Length from parameter3.	0x04
Parameter3	Num_HCI_Command_Packet This value does not indicate the number of sending packets. Do not use this value. This value should be ignored.	0x01
Parameter4	Command OpCode (LSB)	0x24
Parameter5	Command OpCode (MSB)	0x0C
Parameter6	Status 0x00 = Successful / Not 0x00 = Fail Refer to HCI error table for more detail.	0xXX

1.1.44.2 Write Page Timeout Command response

Parameters	Parameter Description	Value
Parameter_Length	Parameter Length	0x06
Parameter1	Command_Complete OP code	0x0E
Parameter2	Parameter Length from parameter3	0x04
Parameter3	Num_HCI_Command_Packet Always set as 0x01 this time.	0x01
Parameter4	Command OpCode (LSB)	0x18
Parameter5	Command OpCode (MSB)	0x0C
Parameter6	Status 0x00: Success Others: Failed Refer to HCI error table.	0xXX

1.1.44.3 Write Page Scan Activity Command response

Parameters	Parameter Description	Value
Parameter_Length	Parameter Length	0x06
Parameter1	Command_Complete OP code	0x0E
Parameter2	Parameter Length from parameter3	0x04
Parameter3	Num_HCI_Command_Packet Always set as 0x01 this time.	0x01
Parameter4	Command OpCode (LSB)	0x1C
Parameter5	Command OpCode (MSB)	0x0C
Parameter6	Status 　0x00: Success 　Others: Failed Refer to HCI error table.	0xXX

1.1.44.4 Write Inquiry Scan Activity Command response

Parameters	Parameter Description	Value
Parameter_Length	Parameter Length	0x06
Parameter1	Command_Complete OP code	0x0E
Parameter2	Parameter Length from parameter3	0x04
Parameter3	Num_HCI_Command_Packet Always set as 0x01 this time.	0x01
Parameter4	Command OpCode (LSB)	0x1E
Parameter5	Command OpCode (MSB)	0x0C
Parameter6	Status 　0x00: Success 　Others: Failed Refer to HCI error table.	0xXX

1.1.45 TCU_ACCEPT

This event is used to notify that module can receive the command from Host CPU.

When Host CPU is received this event, Host CPU can send next command to the Module.

Command Format:

ServiceID	1 Byte
OpCode	1 Byte
Parameter Length	2 Bytes
Status	1 Byte
Command_ServiceID	1 Byte
Command_OpCode	1 Byte

ServiceID	0xE1
OpCode	0xF1
Parameter Length	0x0003

Parameters:

Parameters	Parameter Description	Value
Status	Commands: TCU_XXX_REQ	
	Successful	0x00
	Parameter Failure	0x01
	No Device Initialization	0x03
	On Device Searching	0x04
	On Service Searching	0x05
	Enable Scan mode	0x09
	Establish ACL connection	0x0A
	Not Connection Established yet	0x0C
	Connection with Multi-connection restricted	0x0D
	device	0x0E
	Under Connection Setup of other Profile	0x10
	Setup SPP	0x40
	No setup SPP	0x41
	Establish SPP connection	0x42
	On releasing SPP connection	0x43
	No SPP connection	0x44
Command_Service ID	Command ServiceID	0xXX
Command_OpCode	Command OpCode	0xXX

1.1.46 TCU_NOT_ACCEPT

This event is generated to notify that module rejects input command from Host CPU, because Baseband LSI is processing the other request.

This event is occurred,

1) Host CPU does not wait to receive TCU_ACCEPT for REQ_Command and enter next REQ command.

2) Host CPU does not wait to receive Response for REQ_Command and enter next REQ Command.

Command Format:

ServiceID	1 Byte
OpCode	1 Byte
Parameter Length	2 Bytes
Command_ServiceID	1 Byte
Command_Opcode	1 Byte

ServiceID	0xE1
OpCode	0xF2
Parameter Length	0x0002

Parameters:

Parameters	Parameter Description	Value
Command_ServiceID	Command ServiceID	0xXX
Command_Opcode	Command OpCode	0xXX

1.1.47 TCU_SYS_INVALID_COMMAND

This event is generated to notify that command from Host CPU is invalid.

Command Format:

ServiceID	1 Byte
OpCode	1 Byte
Parameter Length	2 Bytes
ServiceID_Received	1 Byte
Command_Opcode_Received	1 Byte

ServiceID	0xE1
OpCode	0xFF
Parameter Length	0x0002

Parameters:

Parameters	Parameter Description	Value
ServiceID_Received	Received ServiceID	0xXX
Command_Opcode_Received	Received Command OpCode	0xXX

2. Timer specification

2.1 Maximum Response Time from REQ to RESP

2.1.1 Maximum Response Time from REQ to RESP

Following table shows maximum response time from REQ to RESP.

Command Name	msec
TCU_MNG_INIT_REQ	100
TCU_MNG_CHANGE_LOCAL_DEVICE_PARAM_REQ	100
TCU_MNG_READ_LOCAL_PARAM_REQ	100
TCU_MNG_CONNECTION_ACCEPT_REQ	100
TCU_MNG_PIN_WRITE_REQ	100
TCU_MNG_SET_SCAN_REQ	100
TCU_MNG_READ_RSSI_REQ	100
TCU_MNG_SSPI_SET_REQ	300
TCU_MNG_STANDARD_HCI_SET_REQ	300

2.1.2 Recommended Operation of HOST CPU

If RESP is not generated over maximum response time, TC35661 has a possibility of uncertain state.

To recover correct operation, Host CPU shall make a hardware reset operation to TC35661.

2.2 Response time from command to Event

Command（TCU_MNG_XXX）	Description		Maximum respond time(s)
CONNECTION_REQUEST_EVENT	Complete ACL Connection		35
CONNECTION_STATUS_EVENT		SUM	35
CONNECTION_REQUEST_EVENT	Connection timer		60
(Profiles connection complete event)		SUM	60
DISCOVER_REMOTE_DEVICE_REQ	Inquiry		10
DISCOVER_REMOTE_DEVICE_RESULT_EVENT （Until notify a first RESULT_EVENT	UnSniff/UnPark time left: normal maximum time Right unSniff/Park timer		4
	Page Timeout		5
	LMP response timeout		30
		SUM	49
DISCOVER_REMOTE_DEVICE_REQ	Inquiry		10
DISCOVER_REMOTE_DEVICE_COMPLETE_EVENT	UnSniff/UnPark time *4(ACL num) left: normal maximum time Right unSniff/Park timer		4
	Page timeout *16 (discovery num)		5 × 16
	LMP response timeout *16 (discovery num)		30 × 16
		SUM	564
DISCOVER_REMOTE_DEVICE_ CANCEL_REQ DISCOVER_REMOTE_DEVICE_	No Timer.		

CANCEL_EVENT			
		SUM	0
DISCOVER_REMOTE_SERVICE_REQ	Complete ACL connection		35
DISCOVER_REMOTE_SERVICE_EVENT	SDP connection		2
(Discover Service to no ACL connection device）	Each profile has service search timer.		10 × 7 (10Sec:7Profile)
	L2CAP disconnection		2
		SUM	107
DISCOVER_REMOTE_SERVICE_REQ	UnSniff/UnPark time left: normal maximum time Right unSniff/Park timer		4
DISCOVER_REMOTE_SERVICE_EVENT			
(ACL connection complete()Profile connection))	SDP connection		2
(Discover Service to device)	Each profile has service search timer.		10
	L2CAP disconnection		2
		SUM	18
DISCOVER_REMOTE_SERVICE_ CANCEL_REQ	No Timer		
DISCOVER_REMOTE_SERVICE_ CANCEL_EVENT			
(No profile connection)		SUM	0
DISCOVER_REMOTE_SERVICE_ CANCEL_REQ	service search		10
DISCOVER_REMOTE_SERVICE_ CANCEL_EVENT	L2CAP disconnection		2
(complete profile connection)			
		SUM	12

2.3   Recommendation for HOST CPU

When TC35661 dose not notify event within above time, TC35661 is under unusual operation.

Then HOST CPU should reset TC35661 with HW-RESET. It is recommended for HOST to consider extra time from above time.

3. List of error codes

The error code of 0x00 means Success. The possible range of failure error codes is 0x01-0xFF.

Error Code	Name
0x00	Success
0x01	Unknown HCI Command
0x02	Unknown Connection Identifier
0x03	Hardware Failure
0x04	Page Timeout
0x05	Authentication Failure
0x06	PIN or Key Missing
0x07	Memory Capacity Exceeded
0x08	Connection Timeout
0x09	Connection Limit Exceeded
0x0A	Synchronous Connection Limit To A Device 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 HCI 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
0x17	Repeated Attempts
0x18	Pairing Not Allowed

Error Code	Name
0x19	Unknown LMP PDU
0x1A	Unsupported Remote Feature / Unsupported LMP Feature
0x1B	SCO Offset Rejected
0x1C	SCO Interval Rejected
0x1D	SCO Air Mode Rejected
0x1E	Invalid LMP Parameters
0x1F	Unspecified Error
0x20	Unsupported LMP Parameter Value
0x21	Role Change Not Allowed
0x22	LMP Response Timeout
0x23	LMP Error Transaction Collision
0x24	LMP PDU Not Allowed
0x25	Encryption Mode Not Acceptable
0x26	Link Key Can Not be Changed
0x27	Requested QoS Not Supported
0x28	Instant Passed
0x29	Pairing With Unit Key Not Supported
0x2A	Different Transaction Collision
0x2B	Reserved
0x2C	QoS Unacceptable Parameter
0x2D	QoS Rejected
0x2E	Channel Classification Not Supported
0x2F	Insufficient Security
0x30	Parameter Out Of Mandatory Range
0x31	Reserved
0x32	Role Switch Pending
0x33	Reserved
0x34	Reserved Slot Violation
0x35	Role Switch Failed
0x36	Extended Inquiry Response Too Large
0x37	Secure Simple Pairing Not Supported By Host.
0x38	Host Busy - Pairing

End of document