LAPIS SEMICONDUCTOR

FEXL7105_PCapp-02

PC application for ML7105 evaluation kit User's Manual

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Preface

This user's manual describes the functional specification of PC application bundled with evaluation kit for the Bluetooth® Low Energy ML7105.
The following related manual is available and should be referenced as needed.

- ML7105 data sheet
- ML7105 user's manual
- Bluetooth Application Controller Interface (BACI) Command Manual
- ML7105 Wireless Sensor Node BOARD (WSN7105GD-01) Hardware Manual
- ML7105 USB BOARD Hardware Manual
- Wireless Sensor Node Application for ML7105 Evaluation Kit User's Manual

Notation

Classification	Notation	Description
● Numeric value	0x*nn*	Represents a hexadecimal number.
	0b*nnnn*	Represents a binary number.
● Address	0x*nnnn_nnnn*	Represents a hexadecimal number. (indicates 0xnnnnnnnn)
● Unit	word, W	1 word = 32 bits
	byte, B	1 byte = 8 bits
	Mega, M	10^6
	Kilo, K (uppercase)	2^{10}=1024
	Kilo, k (lowercase)	10^3=1000
	Milli, m	10^{-3}
	Micro, μ	10^{-6}
	Nano, n	10^{-9}
	Second, s (lowercase)	Second
● Terminology	"H" level	Signal level on the high voltage side; indicates the voltage level of V_{IH} and V_{OH} as defined in electrical characteristics.
	"L" level	Signal level on the low voltage side; indicates the voltage level of V_{IL} and V_{OL} as defined in electrical characteristics.

● Register description

Read/write attribute: R indicates read-enabled; W indicates write-enabled.

MSB: Most significant bit in an 8-bit register (memory)

LSB: Least significant bit in an 8-bit register (memory)

Table of Contents

1. General Description

This document describes operating manual of PC appliation software bundled to evaluation kit ML7105. The Kit inlcude USB dongle + ML7105 wireless module as HOST role, and Sensor Node + ML7105 wireless module as Peripheral role. Please refer to hardware manual for both environment. PC application for evaluation kit ML7105 control Sensor Node and receive data from Sensors mouted on Sensor Node over Bluetooth Low Energy network. The profile is based on the proprietary profile and is called VSP (Vendor Specific Profile). It is possible to perform the feature of the simple data transmission of Bluetooth Low Energy.

1.1 System Overview

Figure 1.1 shows the protocol stack configuration figure of the Bluetooth Low Energy with using ML7105. ML7105 contains the Bluetooth Low Energy stack and can communicate with windows PC via Virtual Com Port over USB interface. In Windows PC application, profile and control software are implemented. Software architecture is shown below.

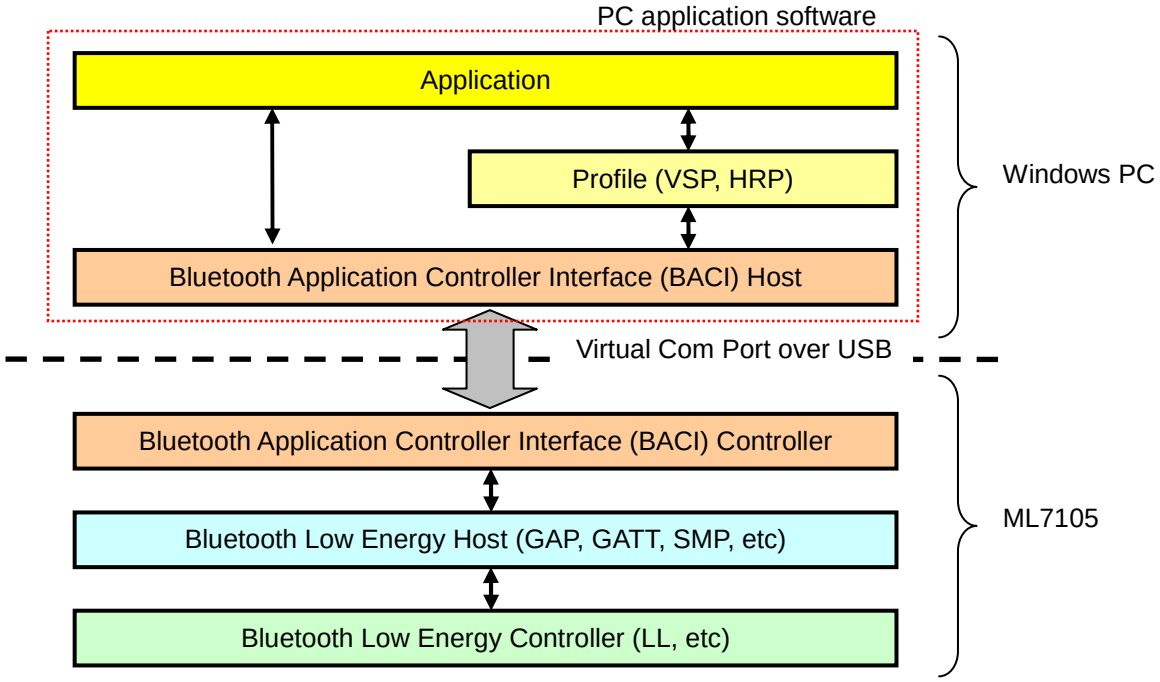

Figure 1.1 Protocol stack configuration

Figure 1.2 shows the system overview of the evaluation kit ML7105. PC application has master side (HOST or Central role). Connection between USB conversion board and Windows PC is Virtual Com Port over USB.

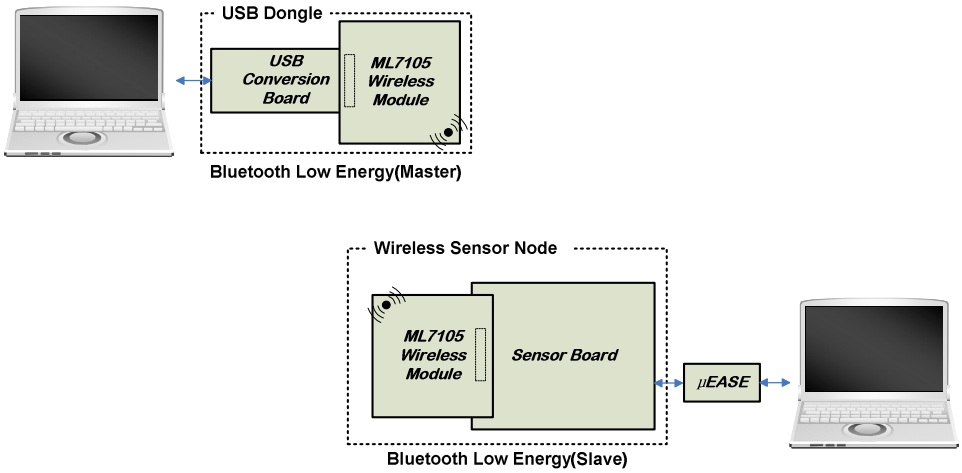

Figure 1.2 System overview

1.2 PC application Software Package

PC application software for evaluation kit ML7105 includes following files.

- baci_app_rev4.exe : command line application executable
- baci_app_config.txt : Initial setup file
- README_BACI_PC_APP.txt : Simplified version of user's manual

Figure 1.3 baci_app_rev4

1.3 Initial setup

1.3.1 Configuration of ML7105 wireless module

ML7105 wireless module has to be in BACI over UART mode. As a default, ML7105 wireless module will be provided by BACI mode. It is possible to select physical layer of BACI mode either over SPI or over UART. See ML7105 USB BOARD Hardware Manual for more detail.

1.3.2 Configuration of BT transport

When ML7105 USB board is connected to PC, a Com port number will be assigned if you have installed driver software for USB serial IC properly. You can check assigned Com port number by using device manager.

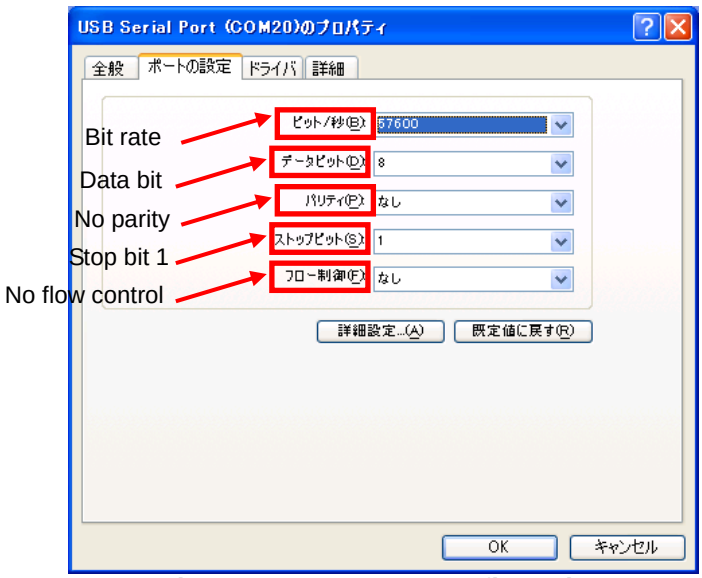

Figure 1.4 UART port configuration

Com port has to be configured as shown above, 57.6kbps baud rate, 8bit data, no parity, 1-stop bita and no flow control. Same information has to be configured in 'baci_app_config.txt'

```
#==================================================================
#     BT Transport settings
#==================================================================

## Transport selection: UART 0, USB 1, SOCKET 2
HCI_TRANSPORT=0

# UART Transport device settings
# For Ports greater than COM9 on Windows devices, UART Device Name
# should be of the format '¥¥.¥COMX'
BT_UART_DEVICE_NAME=¥¥.¥COM20
BT_UART_DEVICE_BAUD=57600
```

1.3.3 Configure BD_ADD and address type

In the 'baci_app_config.txt' there is section configure BD_ADDR for peer device and address type.

```
#==================================================================
#     Local Device settings
#==================================================================
BT_LOCAL_DEVICE_NAME=MindTree

# Sensor Node
BT_PEER_DEVICE_ADDR=070001000571

# Public 0, Random 1
BT_PEER_DEVICE_ADDR_TYPE=0
```

Please mind that BD_ADDR has to be written LSO to MSO.

#BT_PEER_DEVICE_ADDR_TYPE=0 for Public address
#BT_PEER_DEVICE_ADDR_TYPE=1 for Random address.

1.3.4 Configure device role

In the 'baci_app_config.txt' there is section configure device role.

Device Role: Peripheral 0 or Central 1
BT_DEVICE_ROLE=1
#BT_DEVICE_ROLE=1 for Central (Host) device
#BT_DEVICE_ROLE=0 for Peripheral (Sensor) device

1.3.5 Advertizing parameters

In the 'baci_app_config.txt' there is section configure advertizing parameters. Table 1.1 shows advertizing parameter. In the 'baci_app_config.txt' file, there are two type of advertizing parameters are described. One for Bonded device, the other for UnBonded device, which parameters starting from "BT_PERIPHERAL_BONDED_XXXX" and "BT_PERIPHERAL_UNBONDED_XXXX" respectively. (Here XXXX will be filled in parameter name shown Table.1.1.

Table 1.1 Advertisement parameters

Advertisement Parameter	Value [dec]	Value range	Parameter Description
ADVERTISING_INTERVAL_MIN	32	20ms-10.24	Advertizing interval minimum, 20 msec (32 x 0.625ms)
ADVERTISING_INTERVAL_MAX	32	20ms-10.24	Advertizing interval maximum, 20 msec (32 x 0.625ms)
ADVERTISING_TYPE	0	0-3	0: Connectable undirected advertising (ADV_IND) 1: Connectable directed advertising (ADV_DIRECT_IND) 2: Scannable undirected advertising (ADV_SCAN_IND) 3:Non connectable undirected advertising (ADV_NONCONN_IND)
OWN_ADDR_TYPE	0	0-1	0: Public Device Address (default) 1: Random Device Address
DIRECT_ADDR_TYPE	0	0-1	0: Public Device Address (default) 1: Random Device Address
ADVERTISING_CHANNEL_MAP	7	0-7	Channel map for advertizing, all channels (37, 38, 39) enabled
ADVERTISING_FILTER_POLICY	0	0-3	0: Allow Scan Request from Any, Allow Connect Request from Any 1: Allow Scan Request from White List Only, Allow Connect Request from Any 2:Allow Scan Request from Any, Allow Connect Request from White List Only. 3 Allow Scan Request from White List Only, Allow Connect Request from White List Only.

1.3.6 Scan parameters

Table 1.2 shows scan parameter. In the 'baci_app_config.txt' file, there are two type of scan parameters are described. One for Bonded device, the other for UnBonded device, which parameters starting from "BT_CENTRAL_BONDED_XXXX" and "BT_CENTRAL_UNBONDED_XXXX" respectively. (Here XXXX will be filled in parameter name shown Table.1.2.

Table 1.2 Scan parameters

Scan Parameter	Value [dec]	Value range	Parameter Description
LE_SCAN_TYPE	1	0-1	0: Passive Scanning. No SCAN_REQ packets shall be sent. 1: Active scanning. SCAN_REQ packets may be sent.
LE_SCAN_INTERVAL	64	2.5ms-10.24s	Scanning interval, 40 msec (64 x 0.625ms)

LE_SCAN_WINDOW	64	2.5ms -10.24s	Duration of scanning, 40msec (64 x 0.625ms)
OWN_ADDRESS_TYPE	0	0-1	0: Public Device Address (default) 1: Random Device Address
SCANNING_FILTER_POLICY	0	0-1	0: Accept all advertisement packets (default). 1: Ignore advertisement packets from devices not in the White List Only.

1.3.7 Connection request parameters

Table 1.3 shows parameter used for connection request. In the 'baci_app_config.txt' file, there is a set of parameters for connection request, which parameters starting from "BT_CENTRAL_ XXXX". (Here XXXX will be filled in parameter name shown Table.1.3

Table 1.3 Connection request parameters

Connection request Parameter	Value [dec]	Value range	Parameter Description
LE_SCAN_INTERVAL	4	2.5ms -10.24s	Scanning interval, 2.5 msec (64 x 0.625ms)
LE_SCAN_WINDOW	4	2.5ms -10.24s	Duration of scanning, 2.5 msec (64 x 0.625ms)
INITIATOR_FILTER_POLICY	0	0-1	0: White list is not used to determine which advertiser to connect to. Peer_Address_Type and Peer_Address shall be used.Accept all advertisement packets (default). 1: White list is used to determine which advertiser to connect to. Peer_Address_Type and Peer_Address shall be ignored.
OWN_ADDRESS_TYPE	0	0-1	0: Public Device Address (default) 1: Random Device Address
CONN_INTERVAL_MIN	40	7.5ms - 4s	Minimum value for the connection event interval. 50 msec (40 x 1.25ms)
CONN_INTERVAL_MAX	56	7.5ms - 4s	Maximum value for the connection event interval. 70 msec (56 x 1.25ms)
CONN_LATENCY	0	0-500	Slave latency for the connection in number of connection events.
SUPERVISION_TIMEOUT	955	0-3200	Supervision timeout for the LE Link. 9550 msec (955 x 10ms)
MINIMUM_CE_LENGTH	32	0-65535	Information parameter about the minimum length of connection needed for this LE connection. 20 msec (32 x 0.625ms)
MAXIMUM_CE_LENGTH	32	0-65535	Information parameter about the maximum length of connection needed for this LE connection. 20 msec (32 x 0.625ms)

1.3.8 Connection update parameters

Table 1.4 shows parameter used for connection update. In the 'baci_app_config.txt' file, there is a set of parameters for connection update, which parameters starting from "BT_PERIPHERAL_XXXX". (Here XXXX will be filled in parameter name shown Table.1.4.

Table 1.4 Connection updated parameters

Connection update parameter	Value [dec]	Value range	Parameter Description
CONN_INTERVAL_MIN	40	7.5ms - 4s	Minimum value for the connection event interval. 50 msec (40 x 1.25ms)
CONN_INTERVAL_MAX	56	7.5ms - 4s	Maximum value for the connection event interval. 70 msec (56 x 1.25ms)
CONN_LATENCY	0	0-500	Slave latency for the connection in number of connection events.
SUPERVISION_TIMEOUT	955	0-3200	Supervision timeout for the LE Link. 9550 msec (955 x 10ms)
MINIMUM_CE_LENGTH	32	0-65535	Information parameter about the minimum length of connection needed for this LE connection. 20 msec (32 x 0.625ms)
MAXIMUM_CE_LENGTH	32	0-65535	Information parameter about the maximum length of connection needed for this LE connection. 20 msec (32 x 0.625ms)

2. Operating Manual

2.1 Command Window

When configuration of 'baci_app_config.txt' completed, it is now ready to start up application 'baci_app_rev4.exe'.
By double click application icon, you will see command line window with following start up message. After starting up, the application performs to read own local device address. Please confirm the display of address information which is in red line as below.

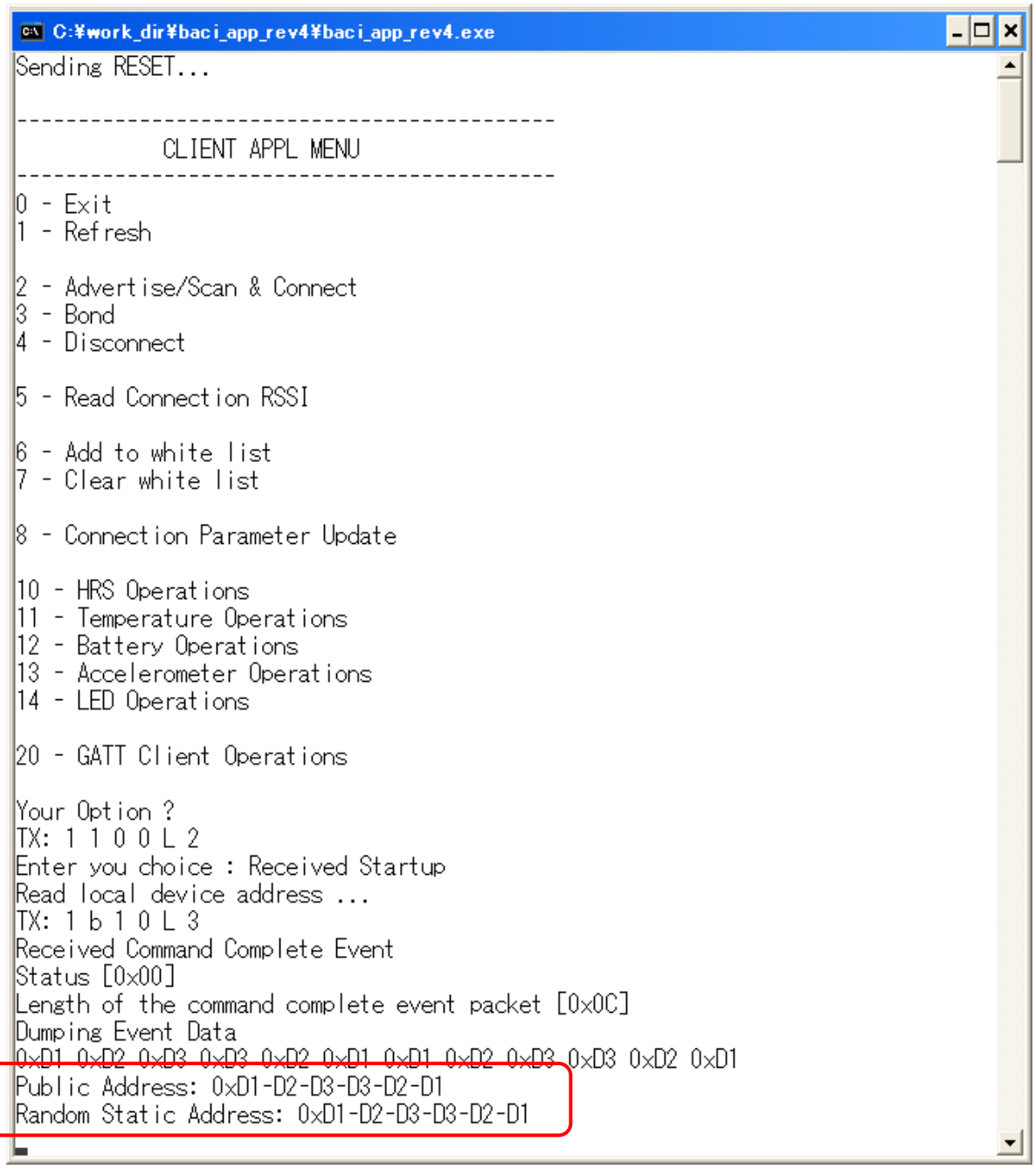

Figure 2.1 baci_app_rev4

2.2 Debug Messages

After starting up, the application issues the reset command and read command of local address to ML7105. The following messages are related to the first reset command.

```
Sending RESET…
TX: 1 1 0 0 L 2
```

The meaning of the character string which continues behind "TX:" is as follows.

1	BACI packet type = 0x01 (BACI command packet)
1	Opcode/Event type = 0x01 (Reset command)
0	Parameter total length = 0x00 (Reset command does not have any parameters)
0	1st byte of parameters (If parameter total length is zero, then ignore this byte)
L	Identifier of "Length"
2	Total packet length excluding packet type = 0x02

After the application issues BACI reset command, the application will receive the Start-up event from ML7105 as follows.

```
Received Startup
```

After receiving of the Start-up event, the application will issue the read command of local address.

```
Read local device address ...
TX: 1 b 1 0 L 3
```

The meaning of the character string which continues behind "TX:" is as follows.

1	BACI packet type = 0x01 (BACI command packet)
b	Opcode/Event type = 0x0B (Read Local Device Address command)
1	Parameter total length = 0x01
0	1st byte of parameters = 0x00 (Read Public Static Random Address)
L	Identifier of "Length"
3	Total packet length excluding packet type = 0x03

After the application issues Read Local Deice Address command, the application will receive the Command Complete event from ML7105 as follows.

```
Received Command Complete Event
Status [0x00]
Length of the command complete event packet [0x0C]
Dumping Event Data
0xD1 0xD2 0xD3 0xD3 0xD2 0xD1 0xD1 0xD2 0xD3 0xD3 0xD2 0xD1
Public Address: 0xD1-D2-D3-D3-D2-D1
Random Static Address: 0xD1-D2-D3-D3-D2-D1
```

Regarding the detail of the format of Command/Event, please refer to "Bluetooth Application Controller Interface (BACI) Command Manual.

2.3 Navigation menu

Figure2.3.1 shows state diagram of PC application for evaluation kit ML7105.

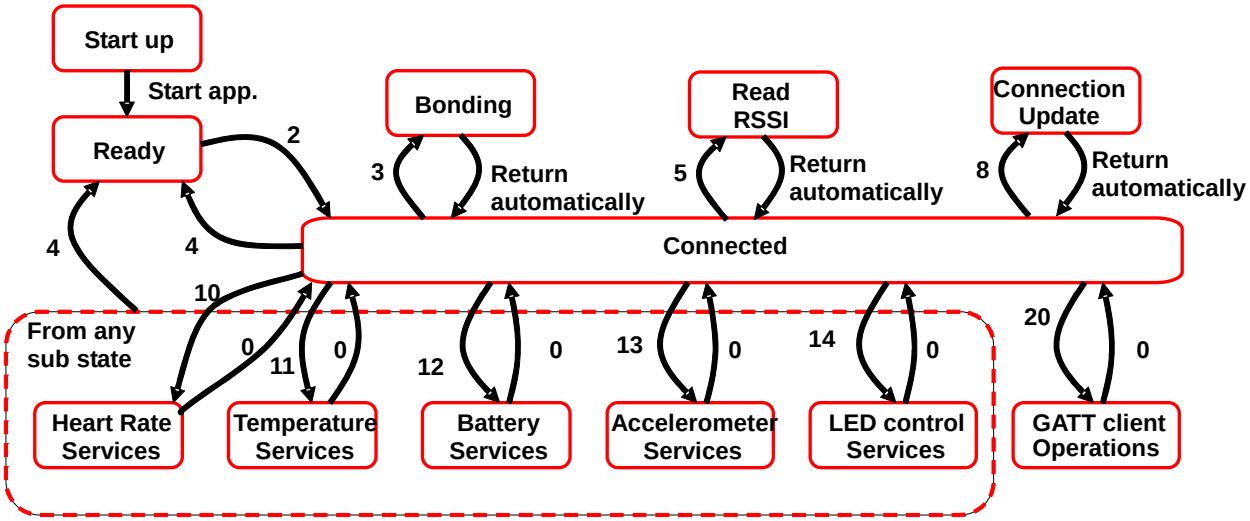

Figure 2.3.1 Menu navigation

In each service sub state, basically same principle of sub menu navigation to be applied.

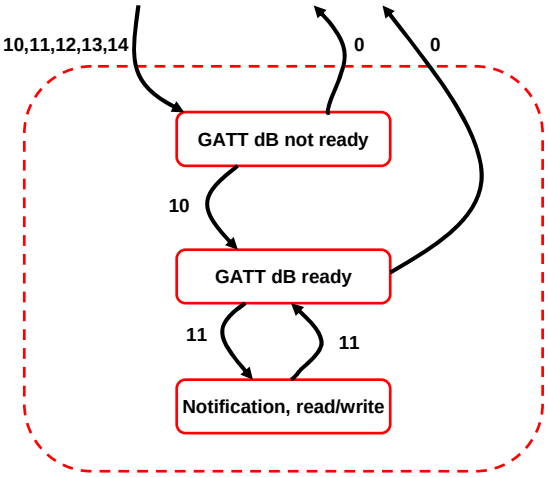

Figure 2.3.2 Service state

2.4 Refresh and Exit

In the command line window, there are menu displaying available command called "refresh". By typing "1", you can display available command whenever software is waiting for input.
In any state, you can exit from current state to preveously located state by typing "0".

2.5 Connection setup

3 options of the connection setup are supprted by PC application for the master device.

1. Scanning device in the config file and establish connection (added option to change connection parameter)
2. Scanning device in the white list and establish connection
3. Scanning device address and establish connection

Figure 2.5.1 shows screenshot when PC app performing scan&connect by typing "0" and "2". 3 options are shown.

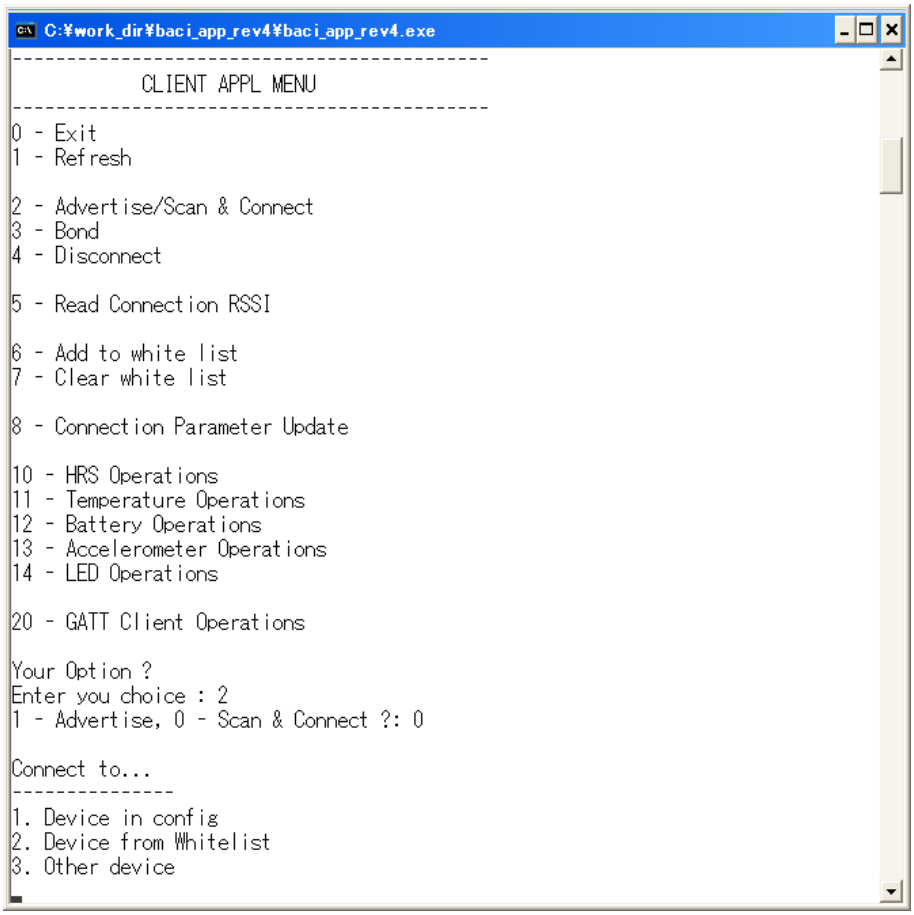

Figure 2.5.1 Scanning and Connect options

2.5.1 Connection with device in the config file

Figure 2.5.2 shows screen shot when selecting option1 in "Scan & Connect" menu 2. Pre-defined BDADDR wrtten in baci_app_config.txt is scanned and connected if the device was found by scan process.
In baci_app_config.txt, BDADDR is defined as shown below. The public address "d1 d2 d3 d3 d2 d1" is listed. In the end of command lines, there is a message showing "Received Connection Complete Event" and the address of connected device.

```
#=================================================================
#     Local Device settings
#=================================================================
BT_LOCAL_DEVICE_NAME=MindTree

BT_PEER_DEVICE_ADDR=d1d2d3d3d2d1
#BT_PEER_DEVICE_ADDR=070001000571
# Public 0, Random 1
BT_PEER_DEVICE_ADDR_TYPE=0
```

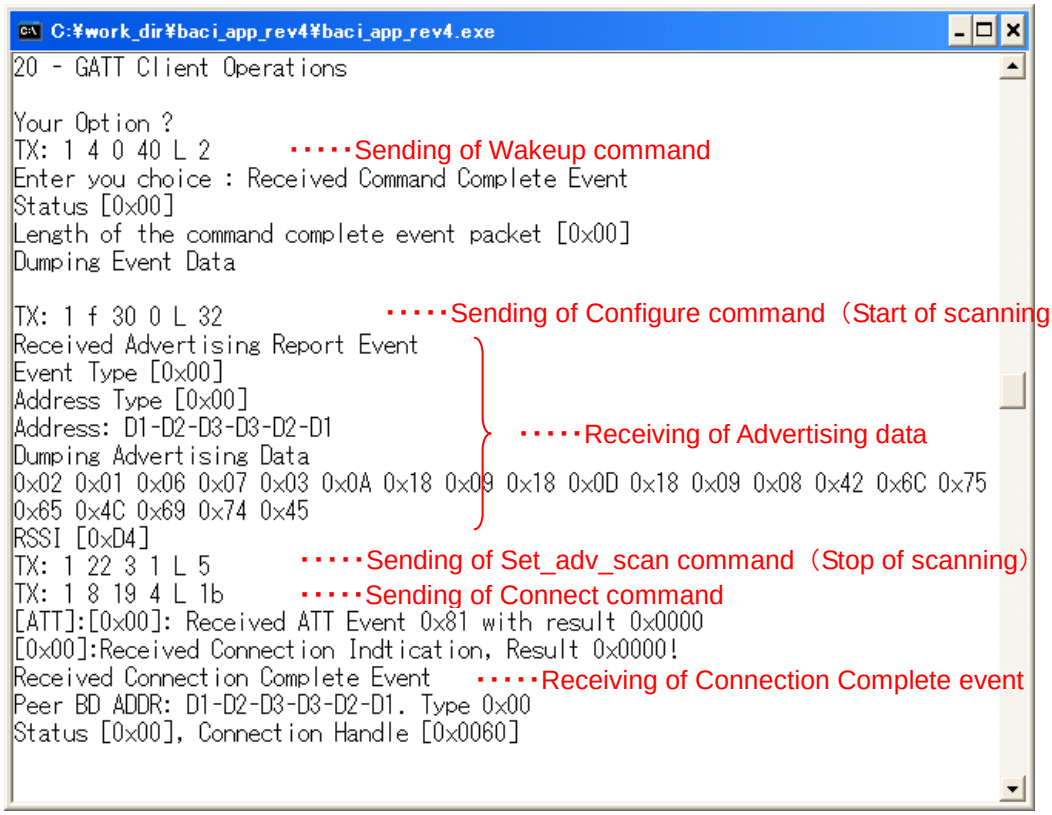

Figure 2.5.2 Connection with device in the cofig file

There is an option to change connection parameter such as connection interval so that shorted or longer interval of connection events. Following snapshot reprents menu changing connection parameter when master start scanning.

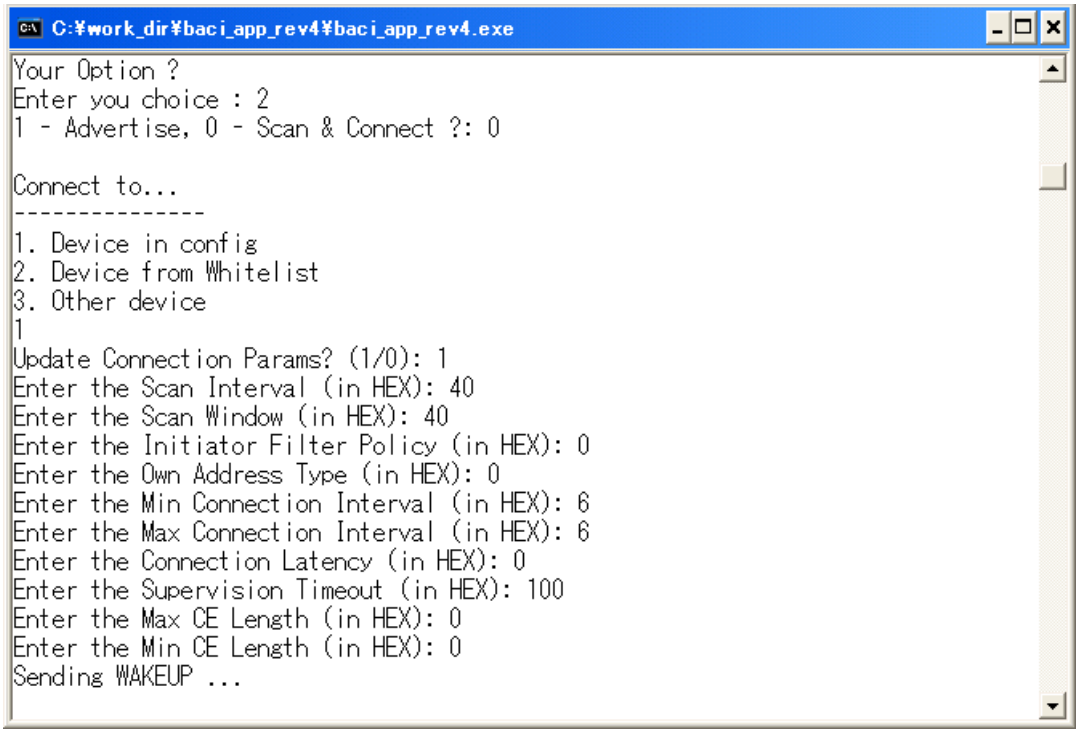

Fig. 2.5.2.1 Changing connection parameter

Figure 2.5.3 shows Message Sequence Chart (MSC) while establishing baseband connection. Scanner send connection request and received Sensor Node as CONNECT_REQ (at Frame #1533)

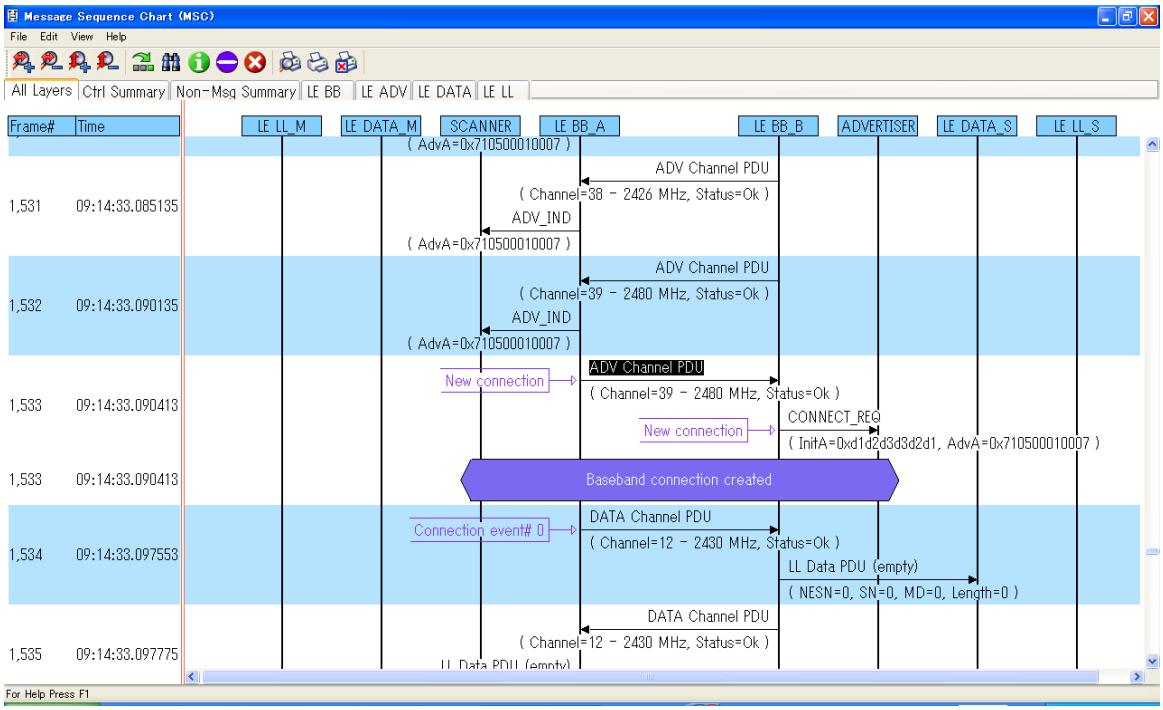

Figure 2.5.3 MSC Connection Setup

2.5.2 Connection with device in the White lists

The White lists is a list of remote device address, can be used for device filtering. It can be used to limit remote device to advertise, scan and connection procedures. Following example shows usage of white lists. Figure 2.5.4 is showing case when putting device into white list, in this application, user has to input address type and device address manualy.

Figure 2.5.4 Putting device address in the White Lists

Once the device was registerd in the White Lists, option2 of "Advertise/Scan & Connect" will establish connection with device in the white lists. Figure 2.5.5 shows case when connecting device in the White Lists. In this example, connection is established because device address "d1 d2 d3 d3 d2 d1" is already registered in the White Lists".

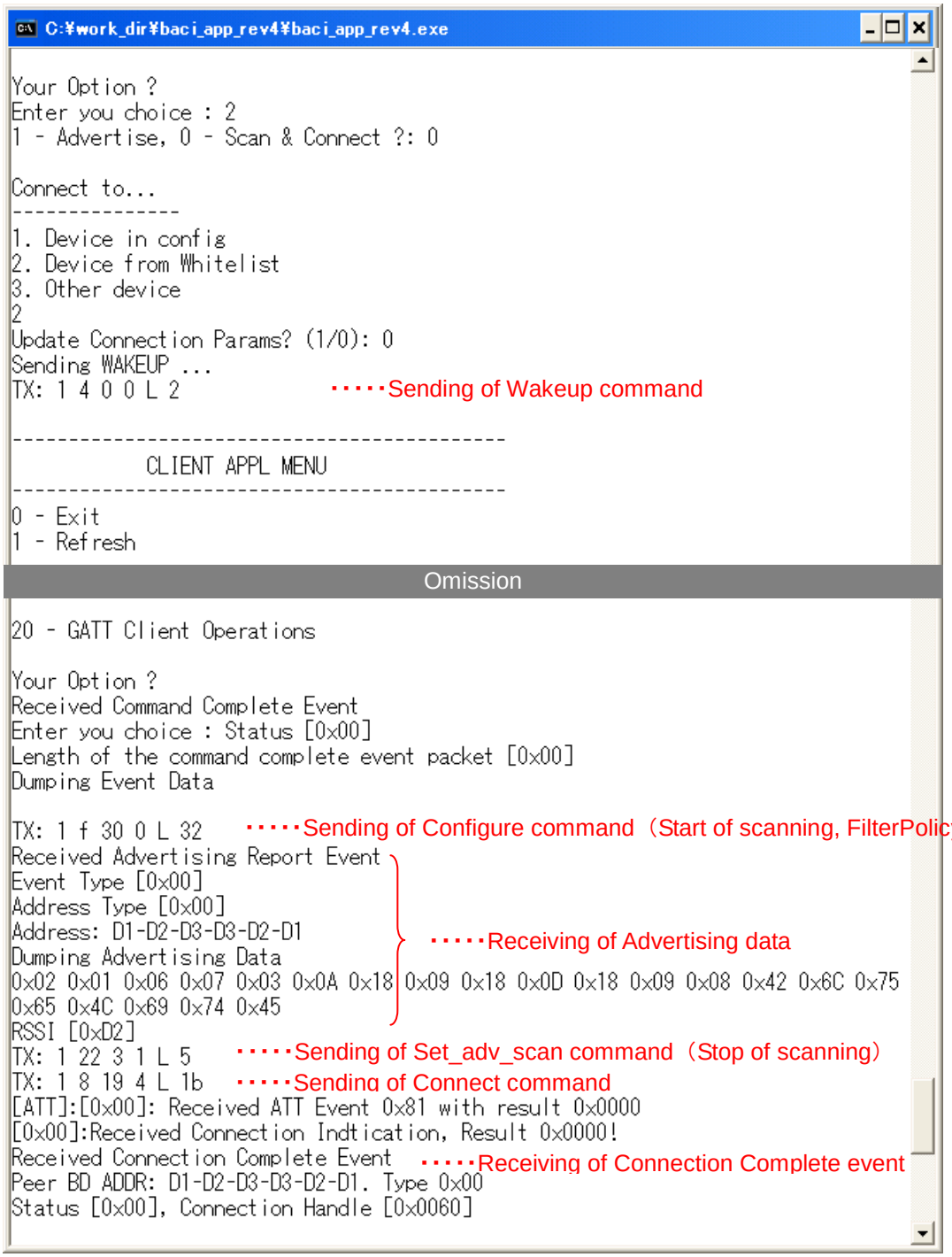

Figure 2.5.5 Connecting device in the White Lists

Current version of PC application support to clear the White Lists. Figure 2.5.6 shows case when clear the White Lists.

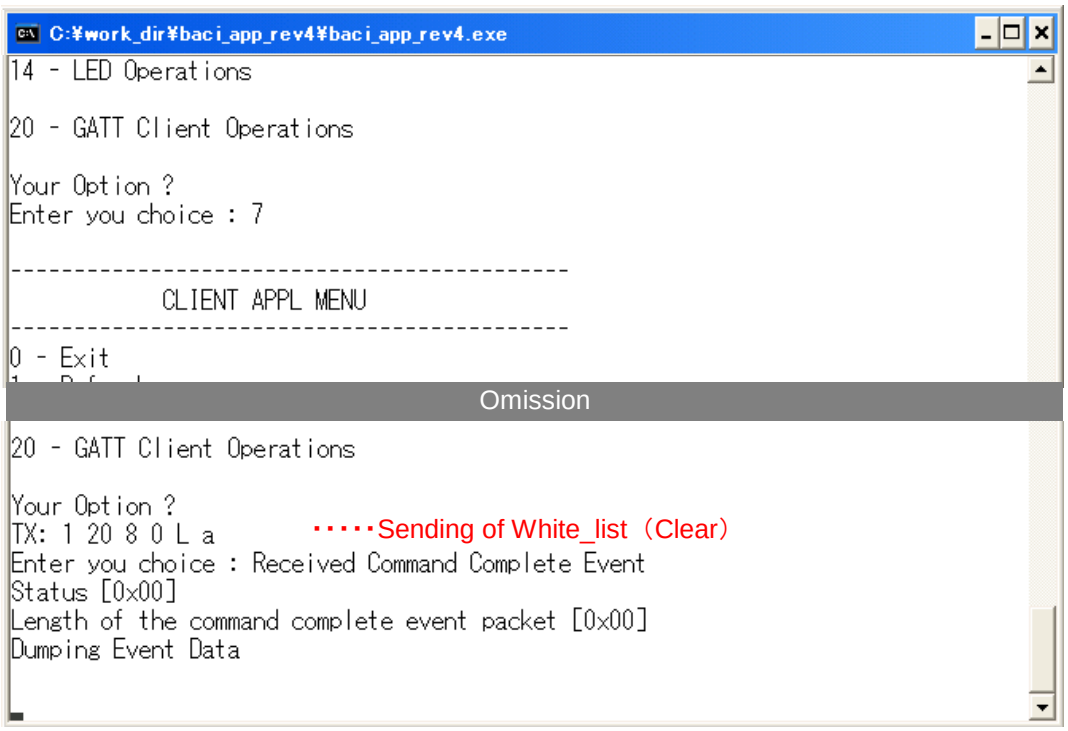

Figure 2.5.6 Clear the White Lists

Next example shows when trying connection establishment while white lists is empty, connection will not be established because white lists is empty.

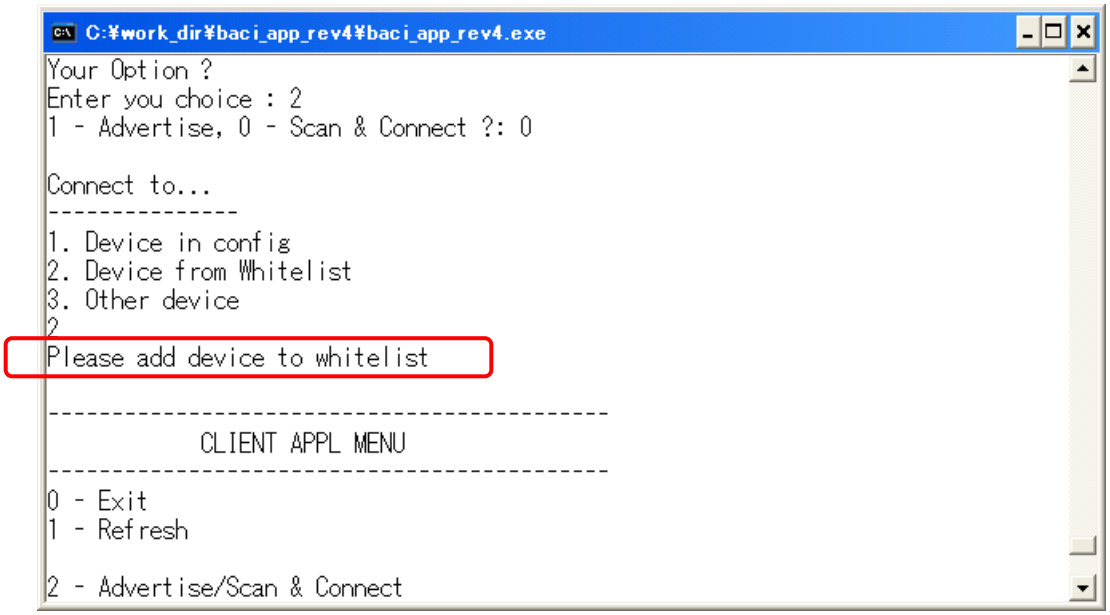

Figure 2.5.7 Connection with empty white lists

2.5.3 Scanning device address and establish connection

If the device address of remote device is unknown, it is possible to know by scanning device with option3 of "Advertise/Scan & Connect" menu. Scanning device with dummy address will list found device address.

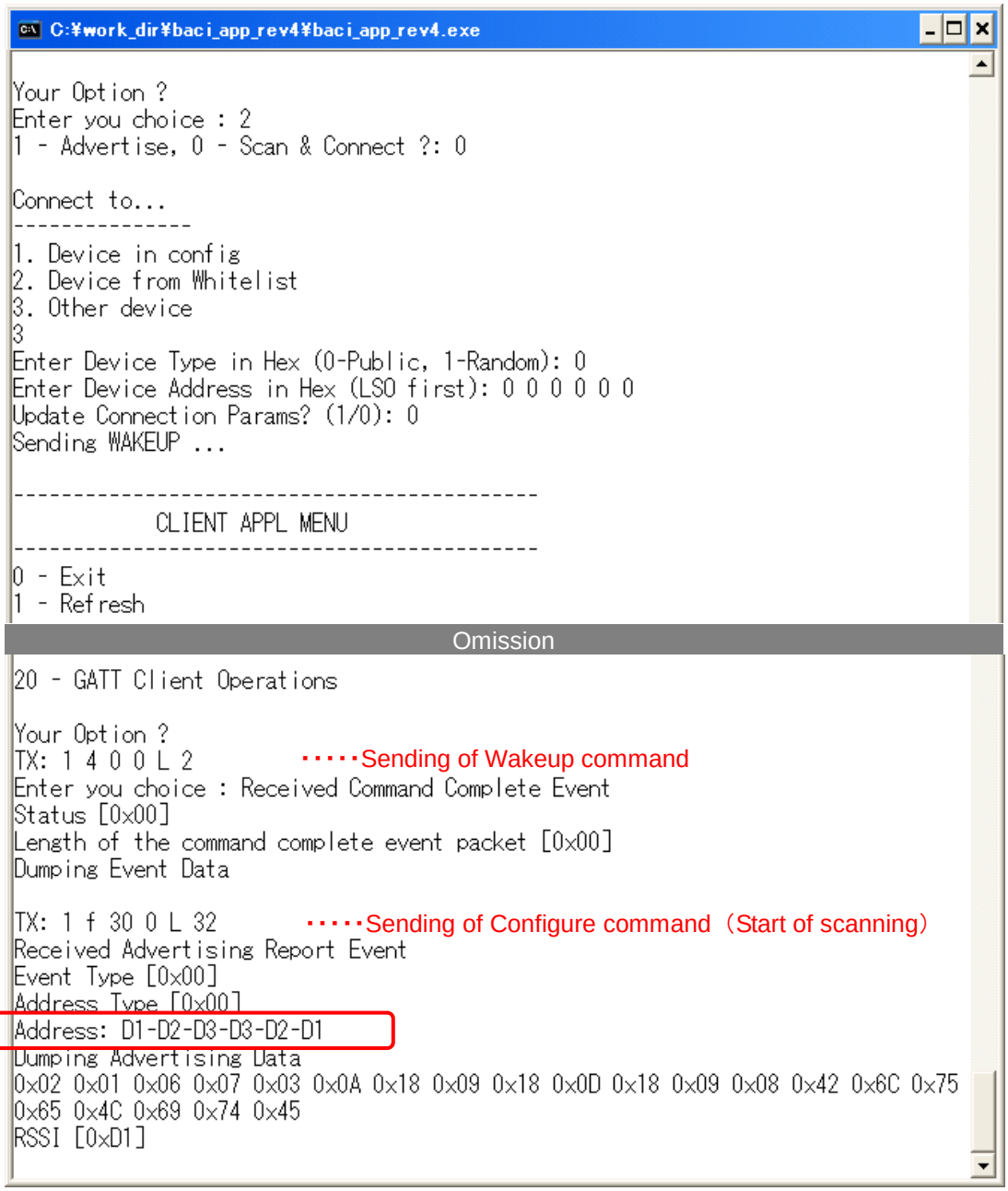

Figure 2.5.8 Scanning device address

In the end of comman lines, found device "d1 d2 d3 d3 d2 d1" is listed. By using found device address with option3, it is possible to connect to arbitary device address.

2.5.4 Advertising

PC application can perform as slave role also. If you select option 1 ("Advertise") in "Advertise/Scan & Connect" menu, the device will start advertising. Figure 2.5.9 shows case when advertising.

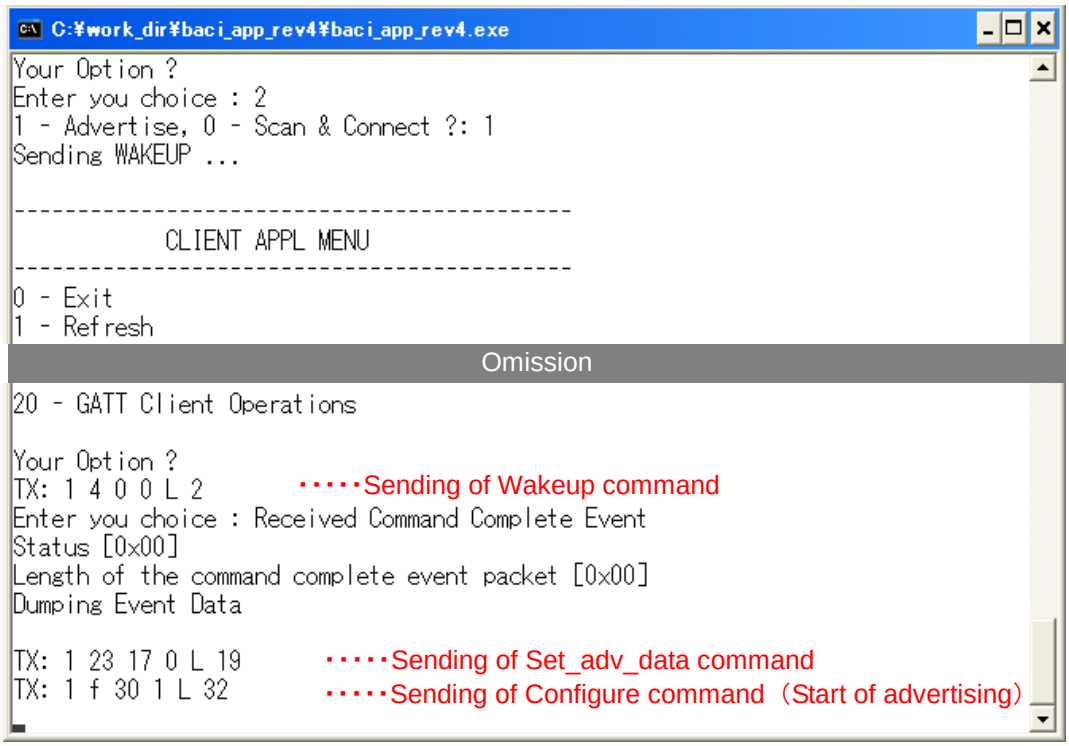

Figure 2.5.9 Advertising

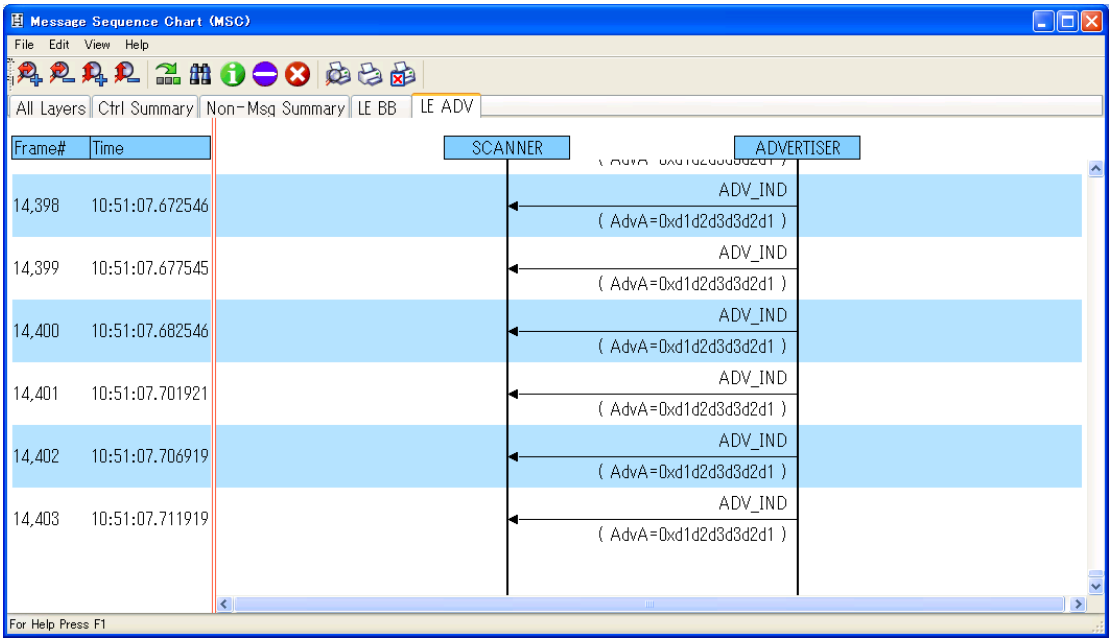

Figure 2.5.10 MSC of advertising

2.6 Disconnect

Figure2.6.1 shows screenshot when PC application perform disconnection event by typing "4".

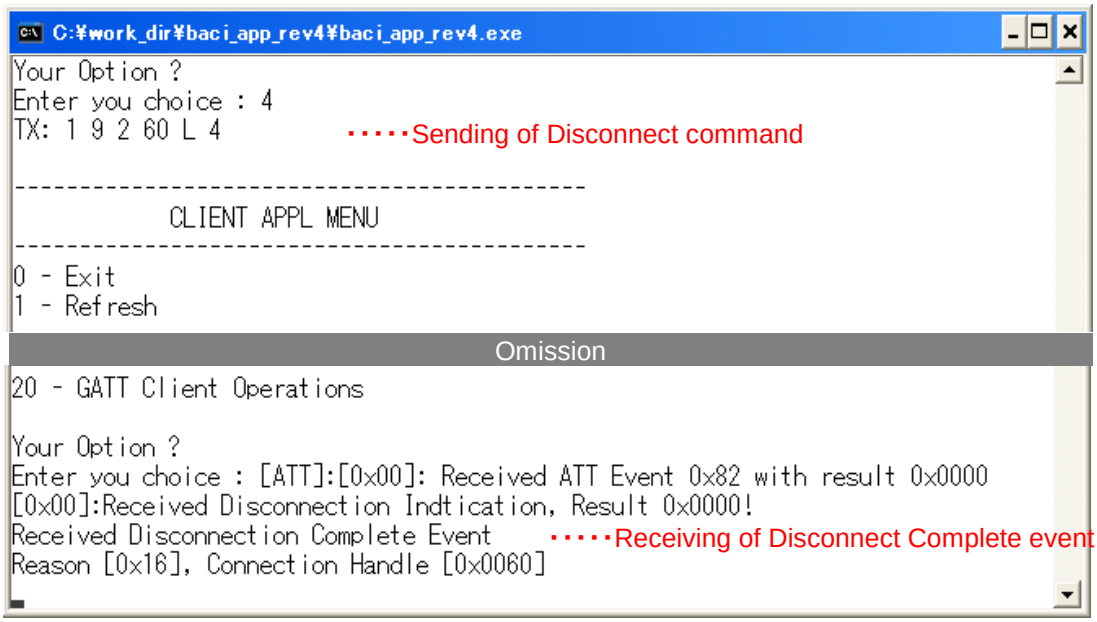

Figure 2.6.1 Disconnection

Figure2.6.2 shows MSC when HOST disconnect baseband connection. (at Frame #1552), when baseband connection terminated, Sensor Node start advertizing again.

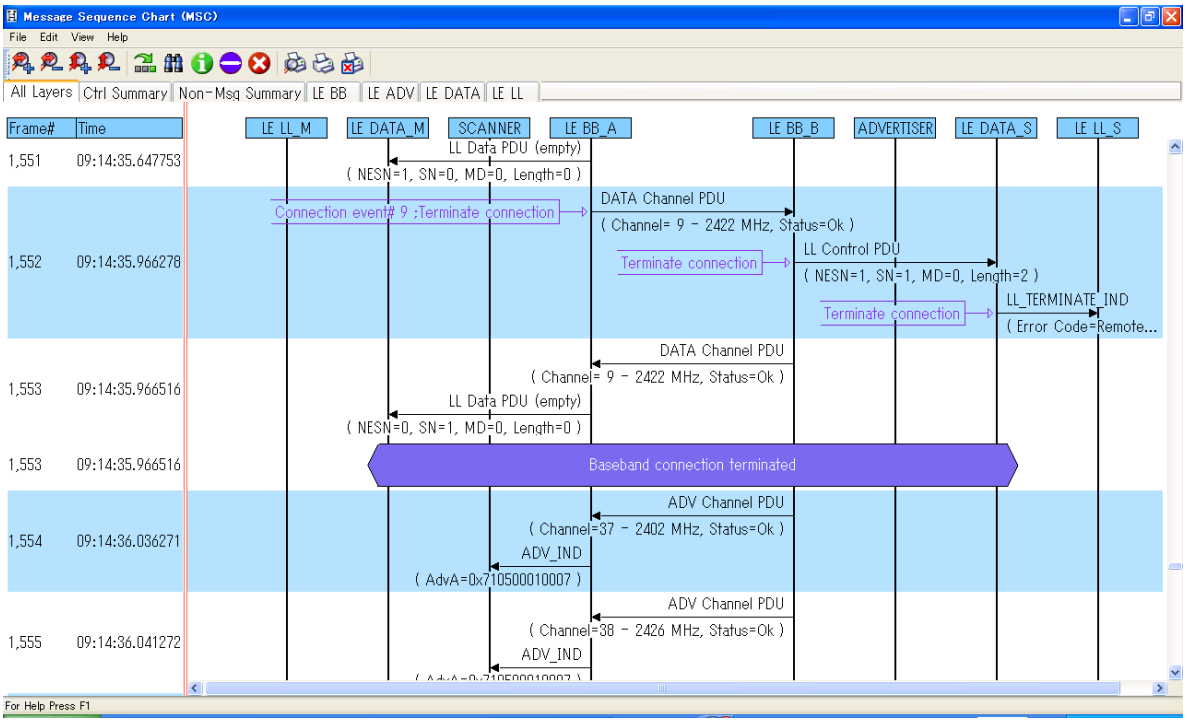

Figure 2.6.2 MSC of disconnection

2.7 Bonding

Figure 2.7.1 and Figure 2.7.2 shows screenshot when performing "Bonding device with Unbonded device" and "Bonding device with Bonded device" respectively. Bonding with Unbonded device perform Authentication process including registeration of encryption keys, device will be bonded in the end. On the other hand Bonding with Bonded device does not perform authentication and perform encryption with registered information.

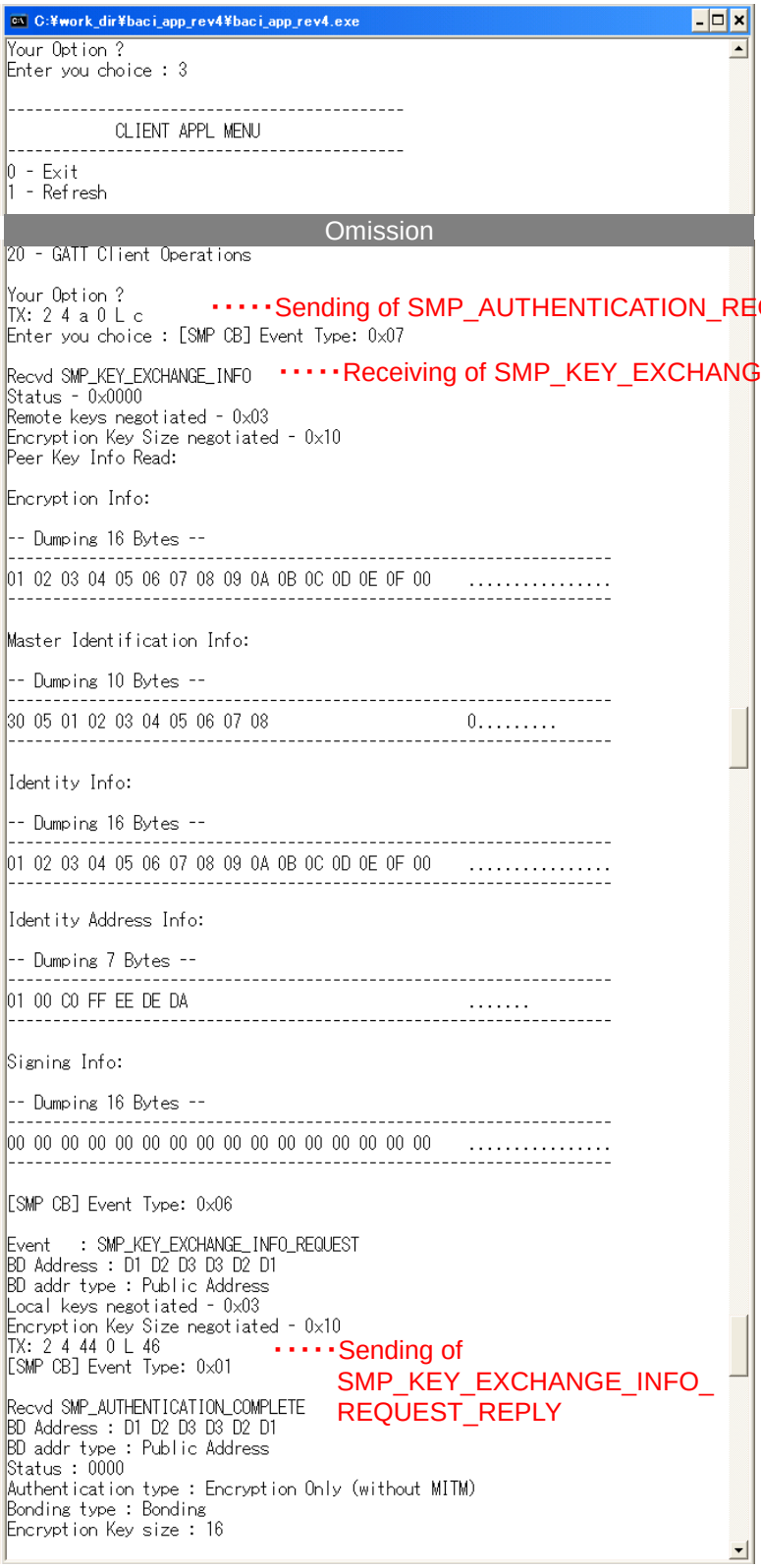

Figure 2.7.1 Bonding with Unbonded device

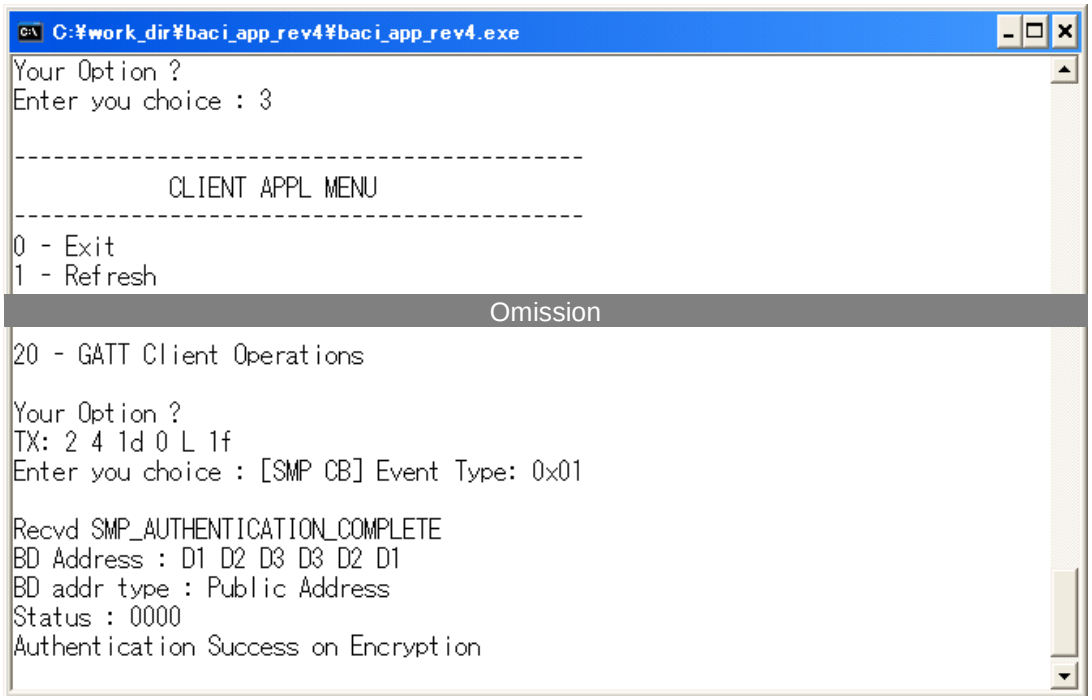

Figure 2.7.2 Bonding with Bonded device

Figure 2.7.3 shows MSC when making SMP pairing, as device information is not registered (UnBonded), pairing process has to be done prior to encryption proess. On the other hand, Figure 2.7.4 shows MSC when start encryption with Bonded device. No implicit SMP process performed because SMP pairing information has been registered already.

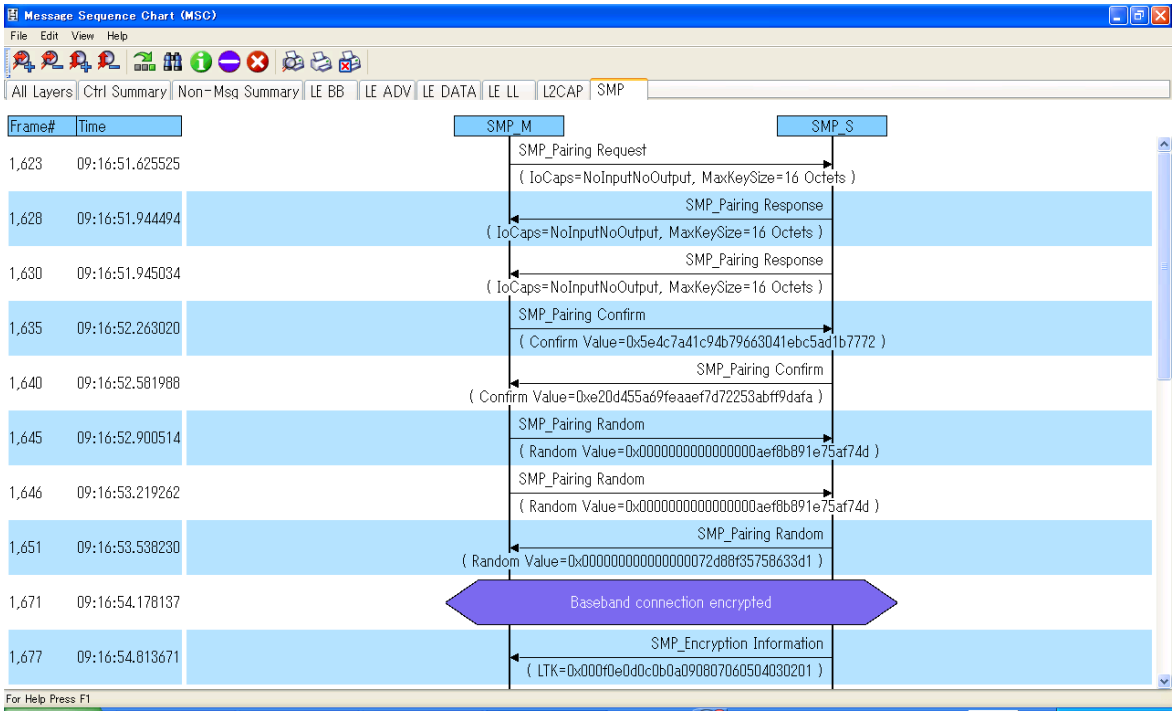

Figure 2.7.3 Making SMP Pairing

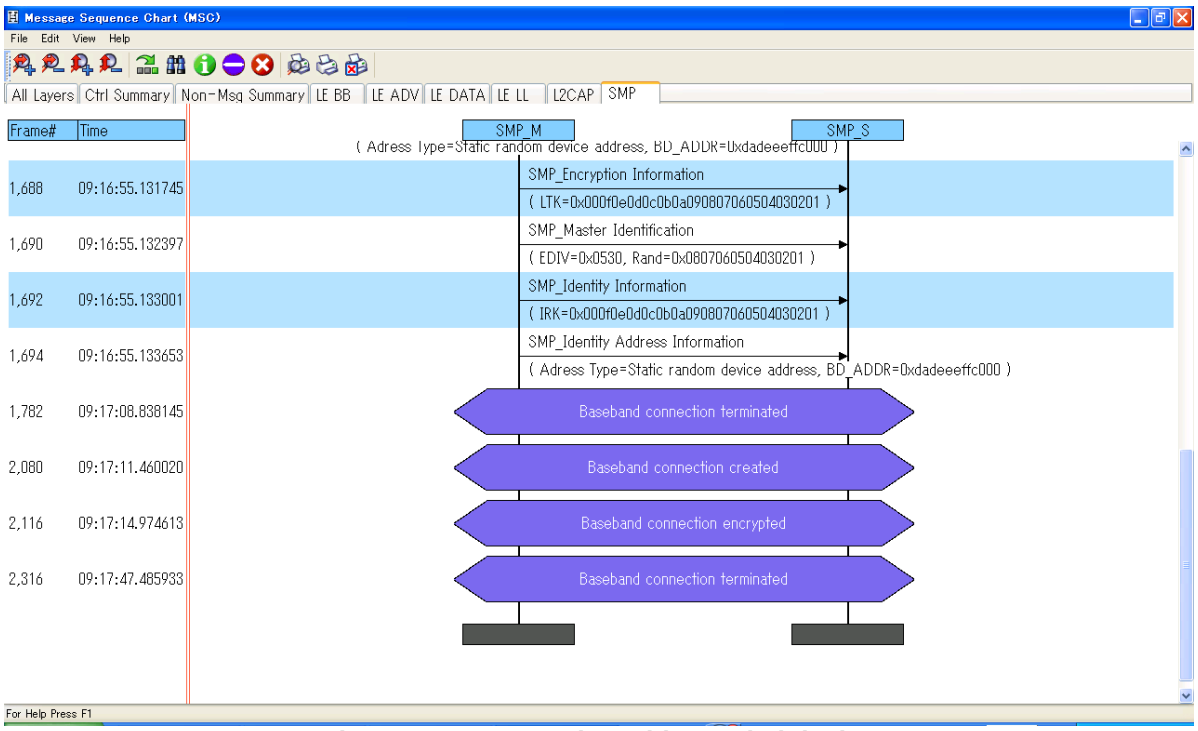

Figure 2.7.4 Encryption with Bonded device

2.8 GATT services

Following sub state will describe services supported by Sensor Node device in evaluation kit ML7105. They are Heart Rate Service (HRS), Temperature Service (HTS), Battery Service (BAS), Acceletometer Service (VSP), LED control (VSP)

2.8.1 Heart Rate Services

Figure 2.8.1.1 shows screenshot when performing Discover HRS menu. GATT service and Characteristics are found.

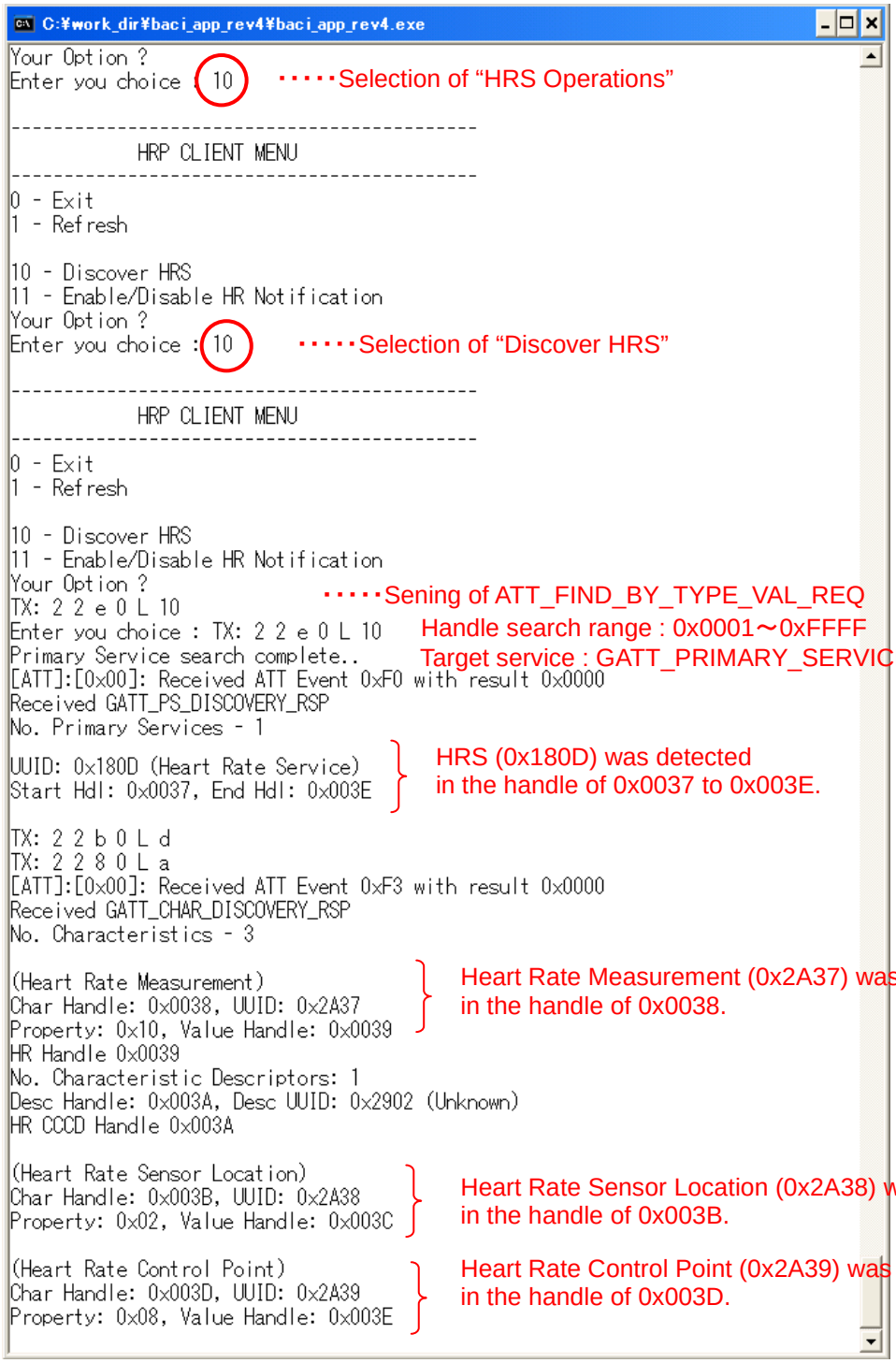

Figure 2.8.1.1 Discover HRS

Figure 2.8.1.2 shows Heart Rate data (dummy data with inclemental values) are shown after enabled HR notification by typing "11". Notification will be kept running until user disable notification by typing "11" again.

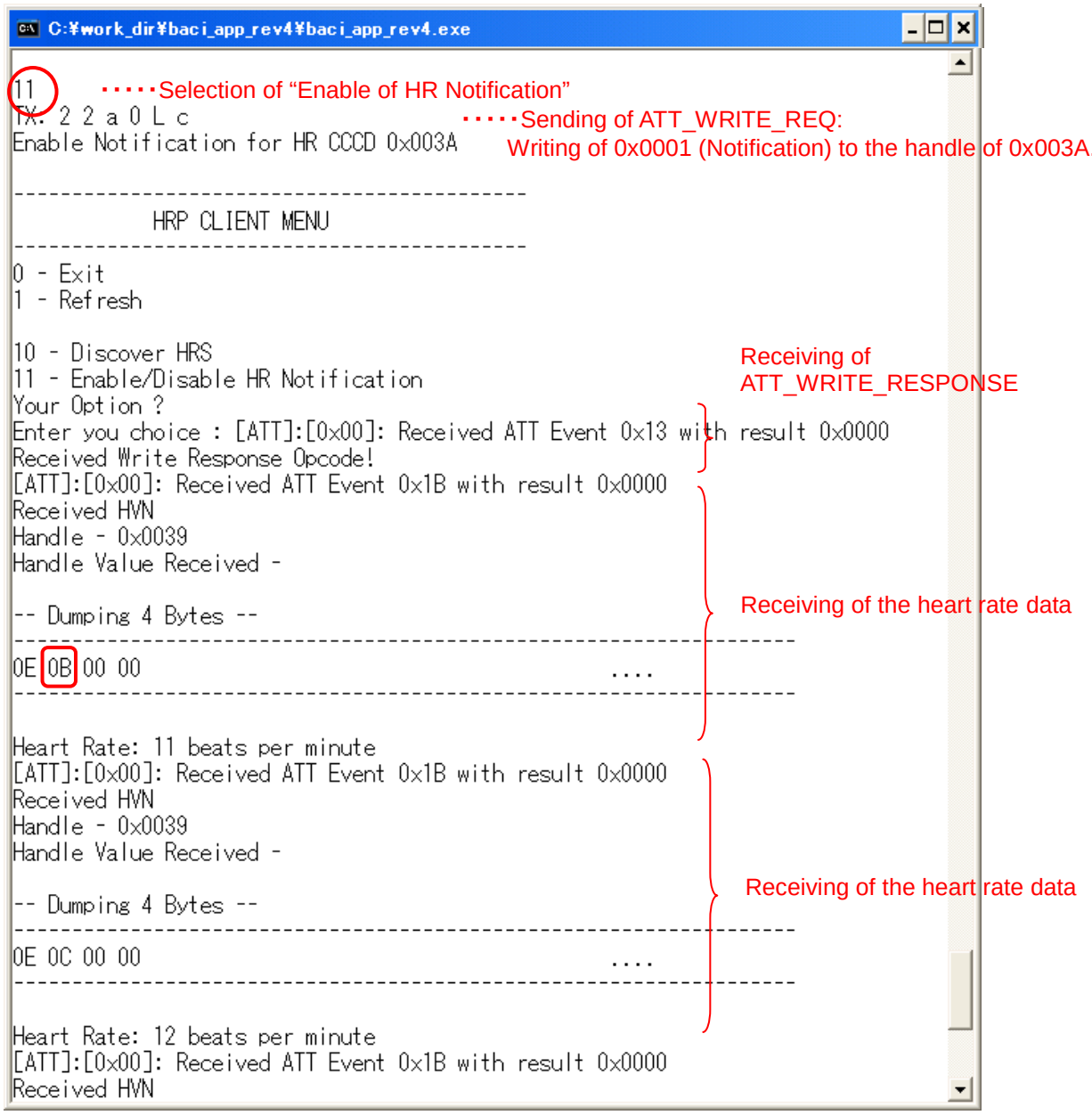

Figure 2.8.1.2 Enable/Disble HR Notification

Figure 2.8.1.3 shows MSC while finding HRS service and characteristics.

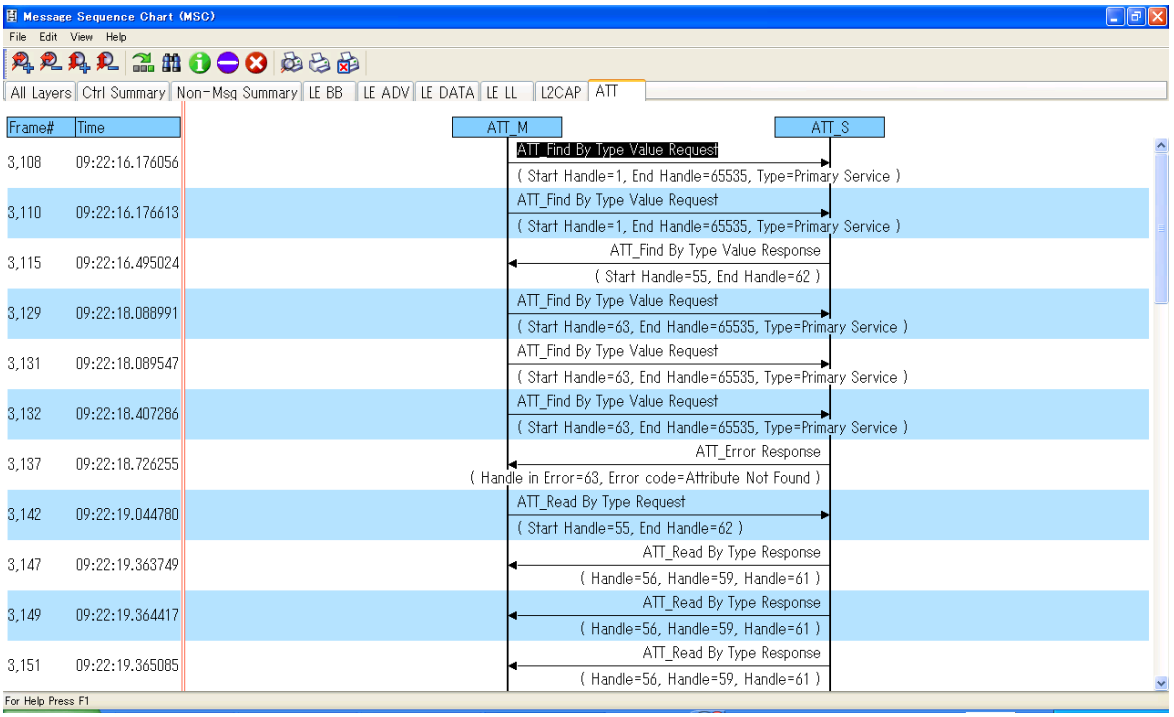

Figure 2.8.1.3 Finding HRS service and characteristics

Figure 2.8.1.4 shows MSC while receiving notification of HRS service.

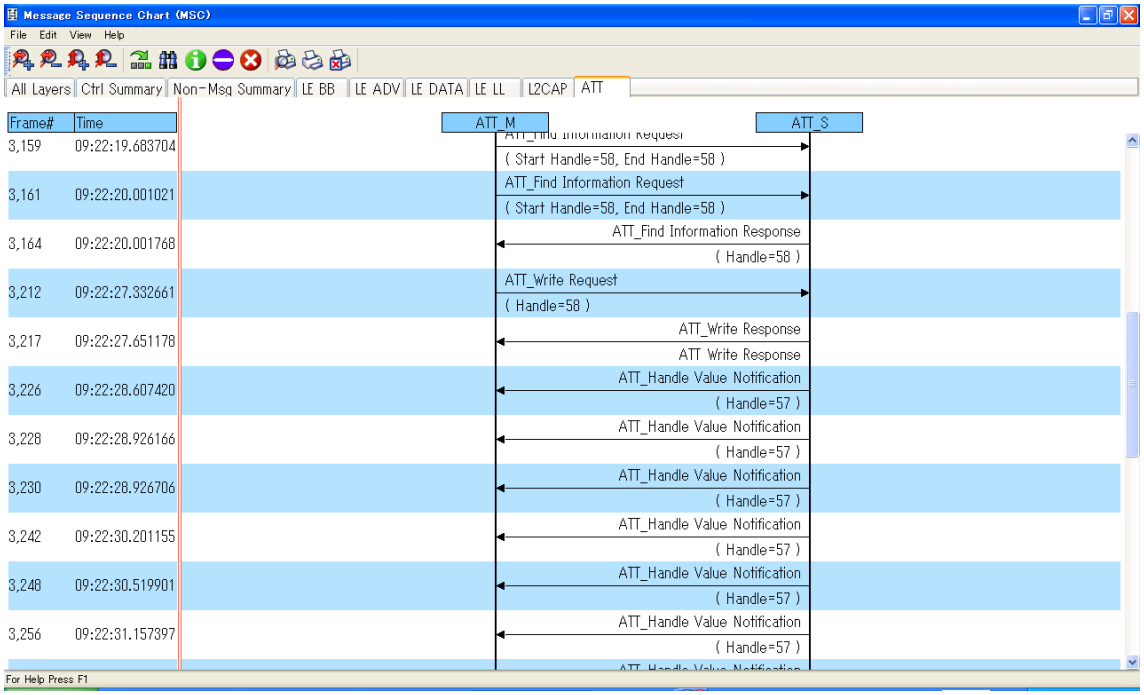

Figure 2.8.1.4 HRS notification

2.8.2 Temperature Services

Figure 2.8.2.1 shows screenshot when performing Discover HTS menu. GATT service and Characteristics are found.

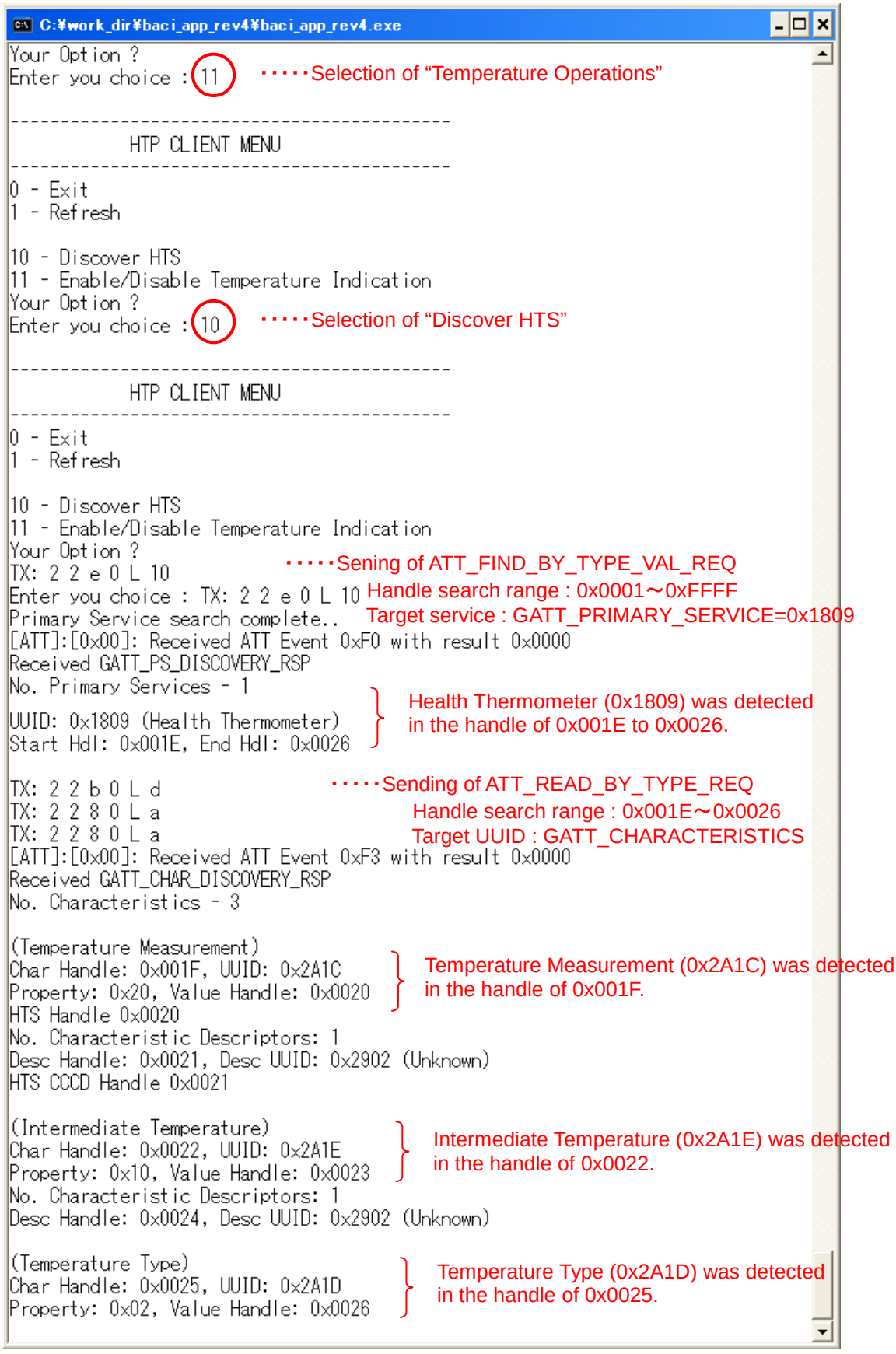

Figure 2.8.2.1 Discover HTS

Figure 2.8.2.2 shows Temperature data (Raw data from sensor) are shown after enabled Temperature indication by typing "11". Data indication will be kept running until user disable notification by typing "11" again.

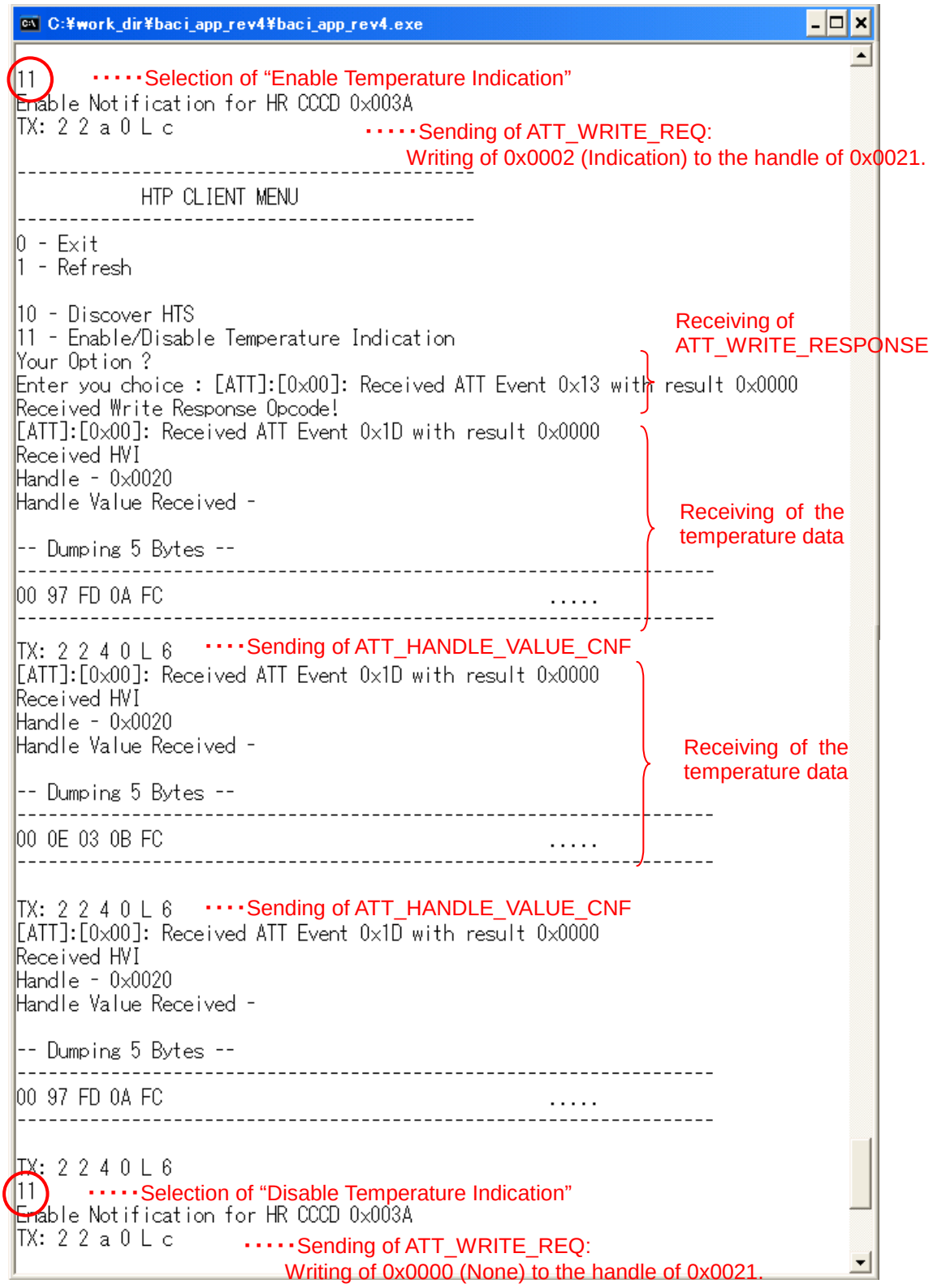

Figure 2.8.2.2 Enable/Disble Temperature Indication

Figure 2.8.2.3 shows MSC while finding HTS service and characteristics.

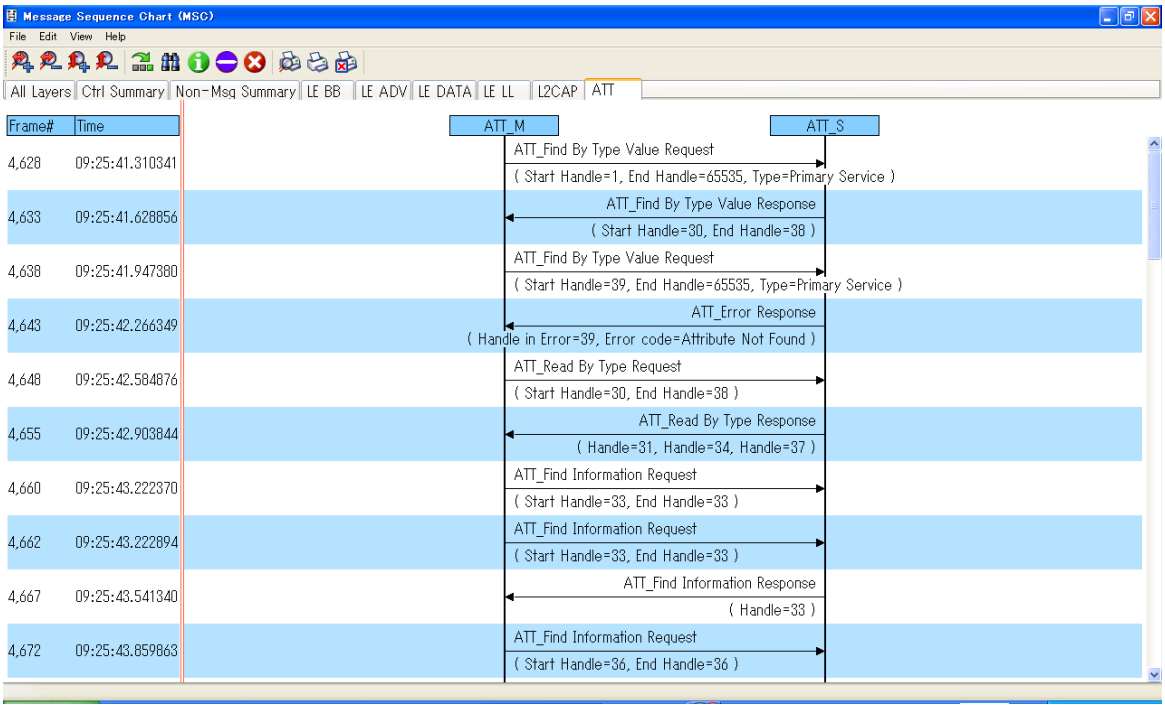

Figure 2.8.2.3 Finding HTS service and characteristics

Figure 2.8.2.4 shows MSC while receiving HTS indication, there are corresponding confirmation from HOST.

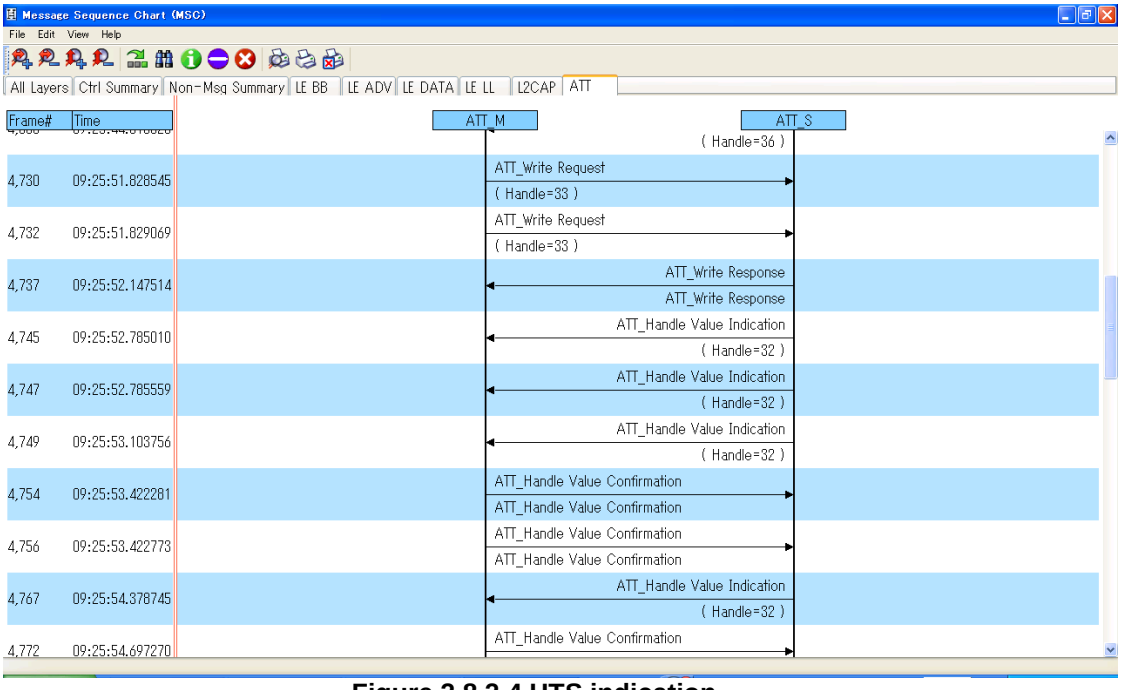

Figure 2.8.2.4 HTS indication

2.8.3 Battery Services

Figure 2.8.3.1 shows screenshot when performing Discover Battery Service menu. GATT service and Characteristics are found.

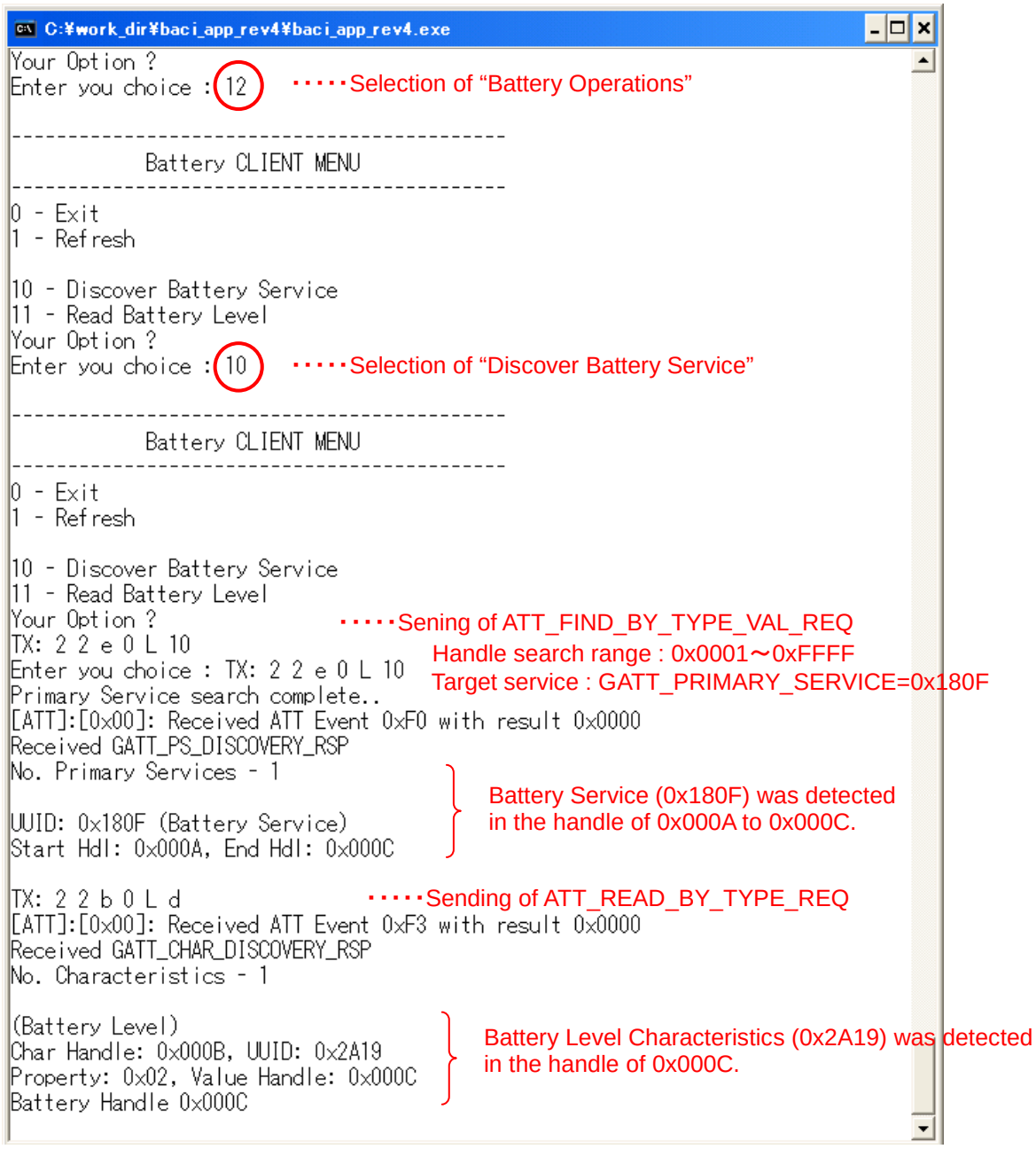

Figure 2.8.3.1 Discover Battery Service

Figure 2.8.3.2 shows screen shot whenever read Battery data by typing "11".

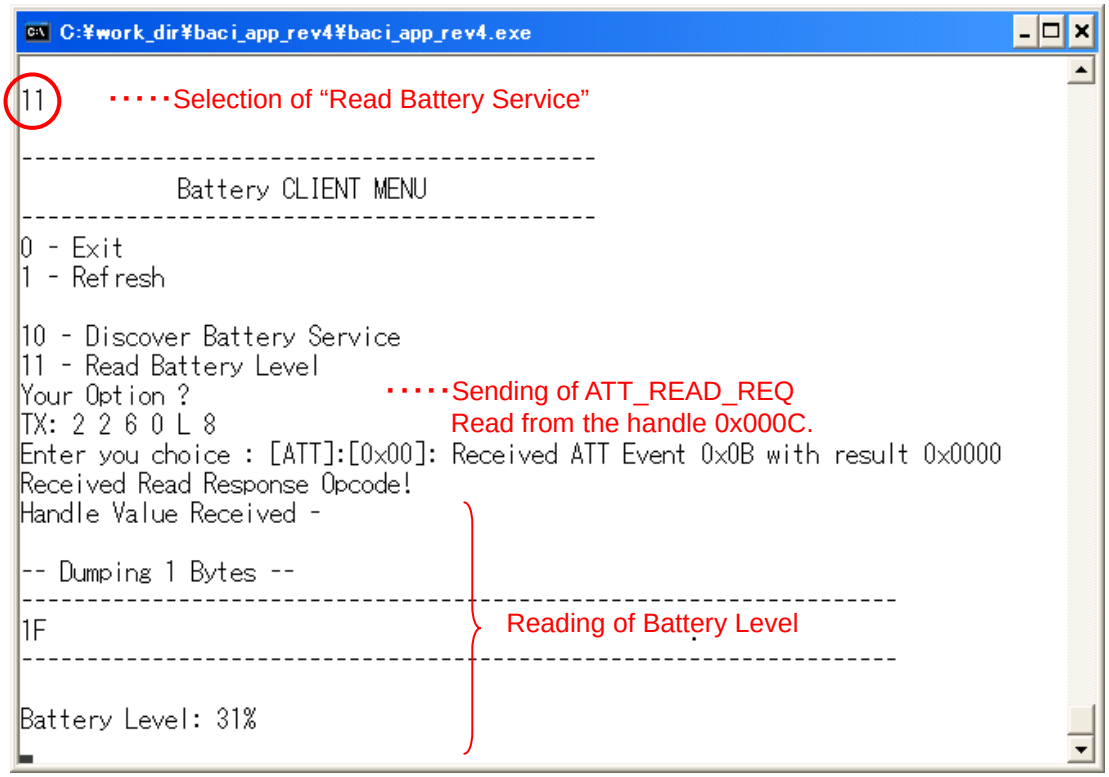

Figure 2.8.3.2 Read Battery Level

Figure 2.8.3.3 shows MSC while finding BAS service and characteristics.

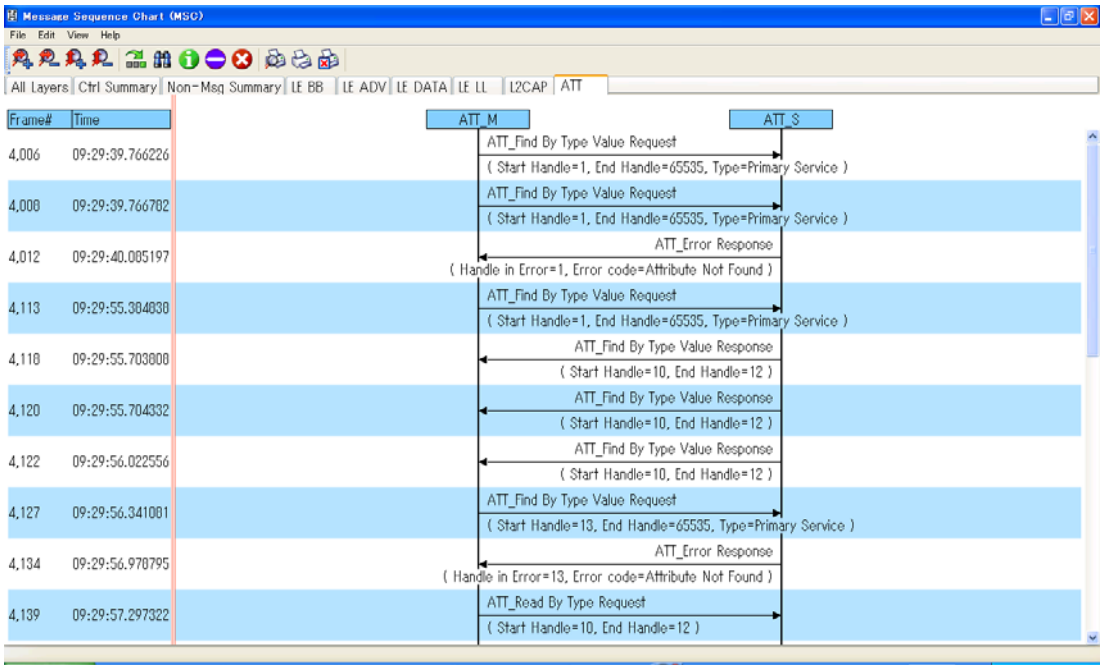

Figure 2.8.3.3 Finding BAS service and characteristics

Figure 2.8.3.4 shows MSC while reading battery level from Sensor Node.

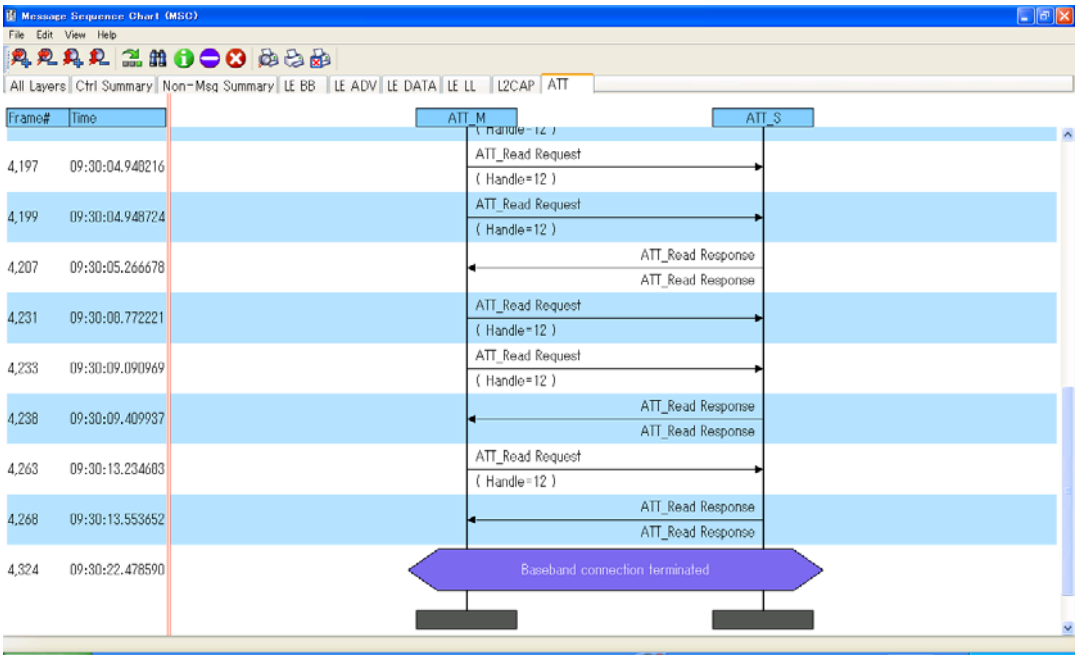

Figure 2.8.3.4 Reading Battery level

2.8.4 Accelerometer Services

Figure 2.8.4.1 shows screenshot when performing Discover Accelerometer menu. GATT service and Characteristics are found.

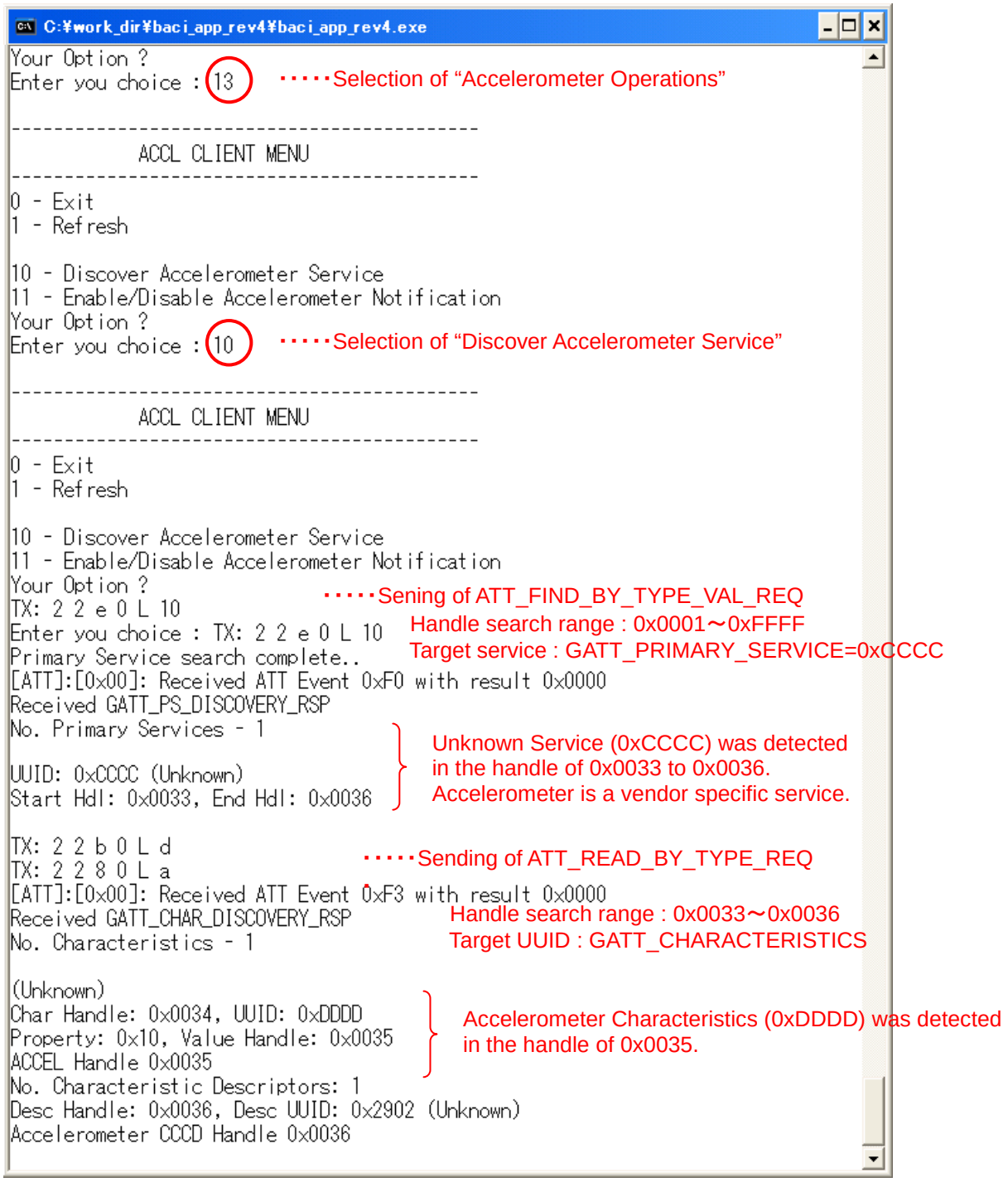

Figure 2.8.4.1 Discover Accelerometer Service

Figure 2.8.4.2 shows Accelerometer data (data from Sensor on board) are shown after enabled Accelerometer notification by typing "11". Notification will be kept running until user disable notification by typing "11" again.

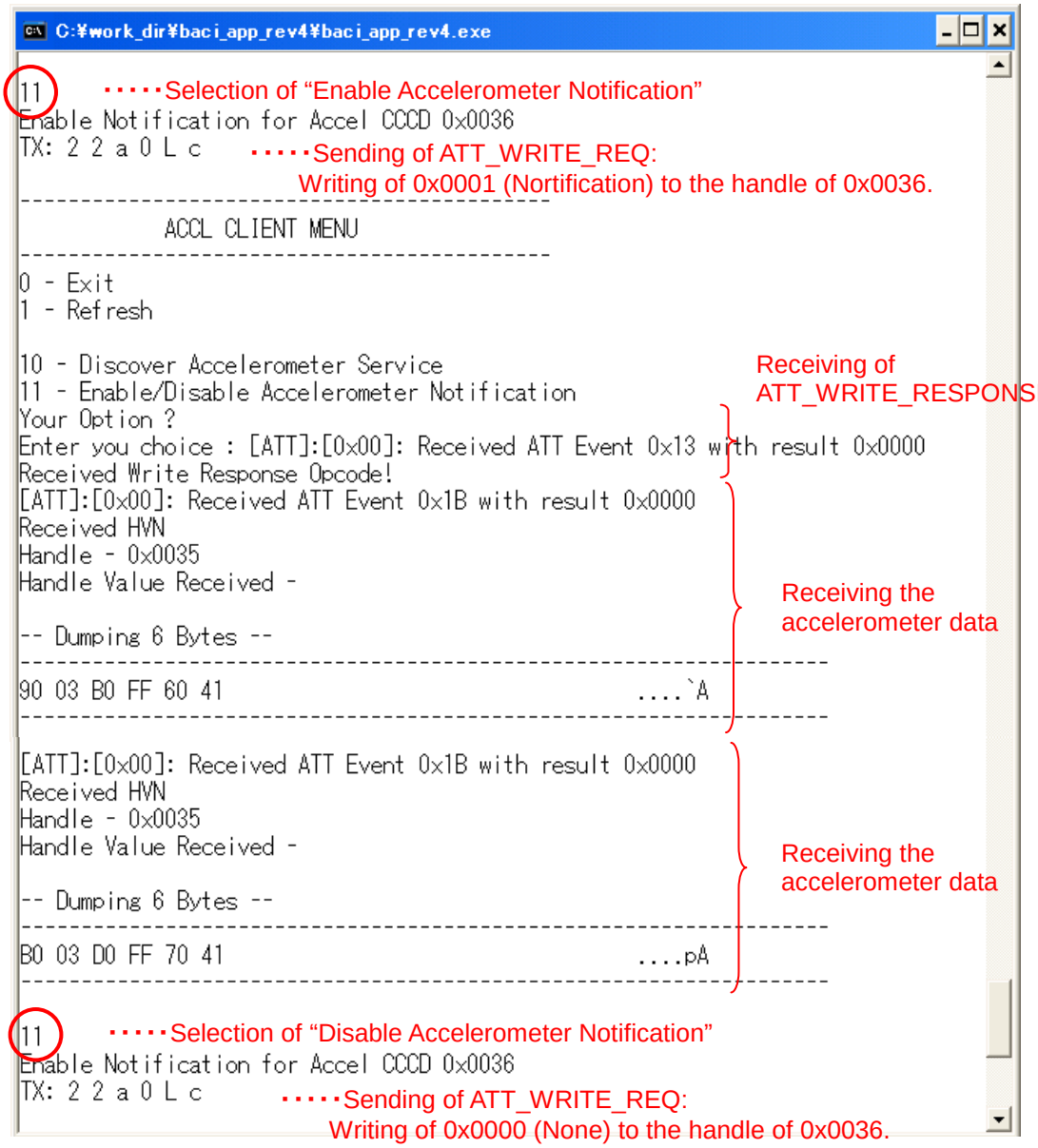

Figure 2.8.4.2 Enable/Disble Accelerometer Notification

Figure 2.8.4.3 shows MSC while finding service and characteristics for Acceleromter data.

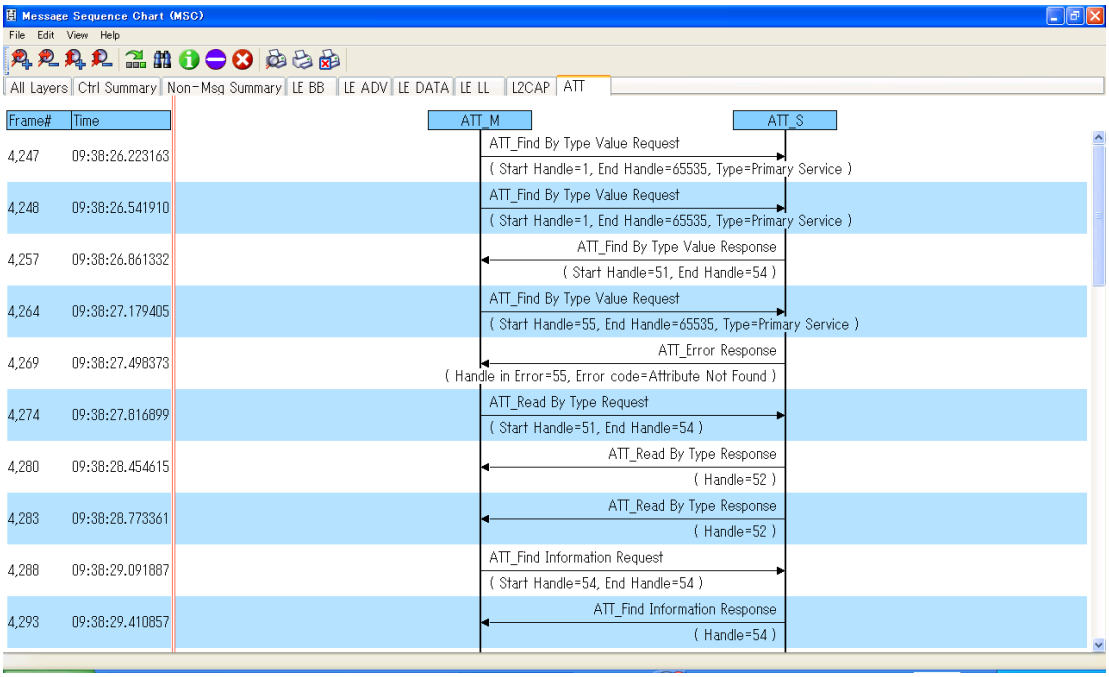

Figure 2.8.4.3 Finding accelerometer service and characteristics

Figure 2.8.4.4 shows MSC while receving accelerometer data from Sensor Node.

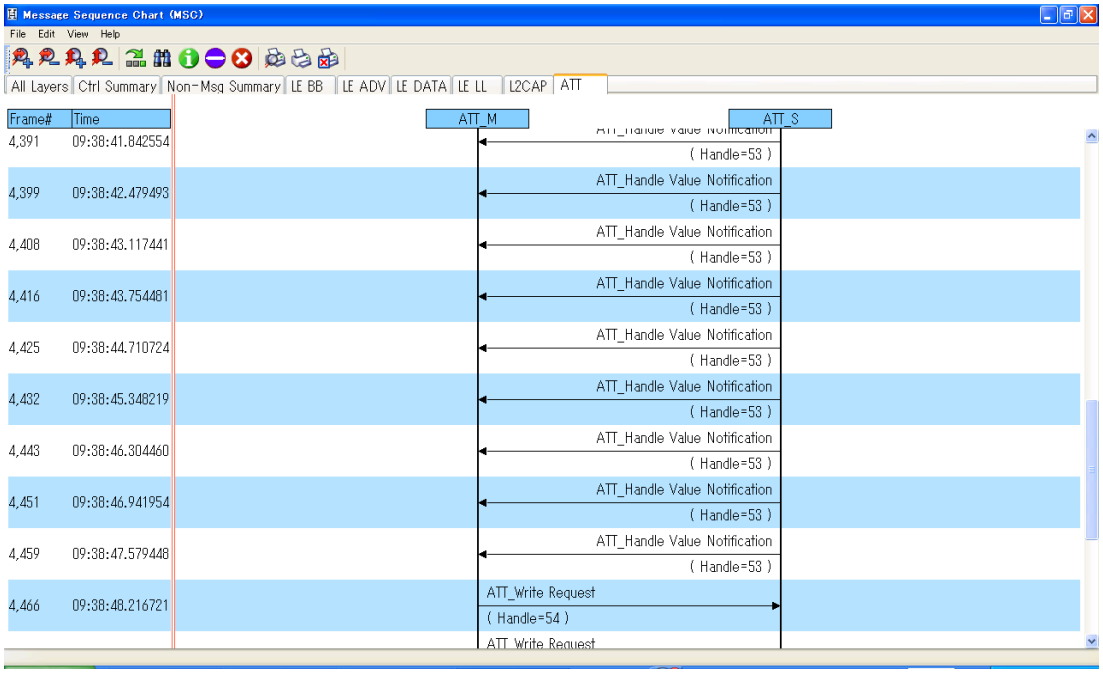

Figure 2.8.4.4 Receiving notification for accelerometer data

2.8.5 LED control Services

Figure 2.8.5.1 shows screenshot when performing Discover LED service menu. GATT service (VSP) found but characteristics is not defined in this service.

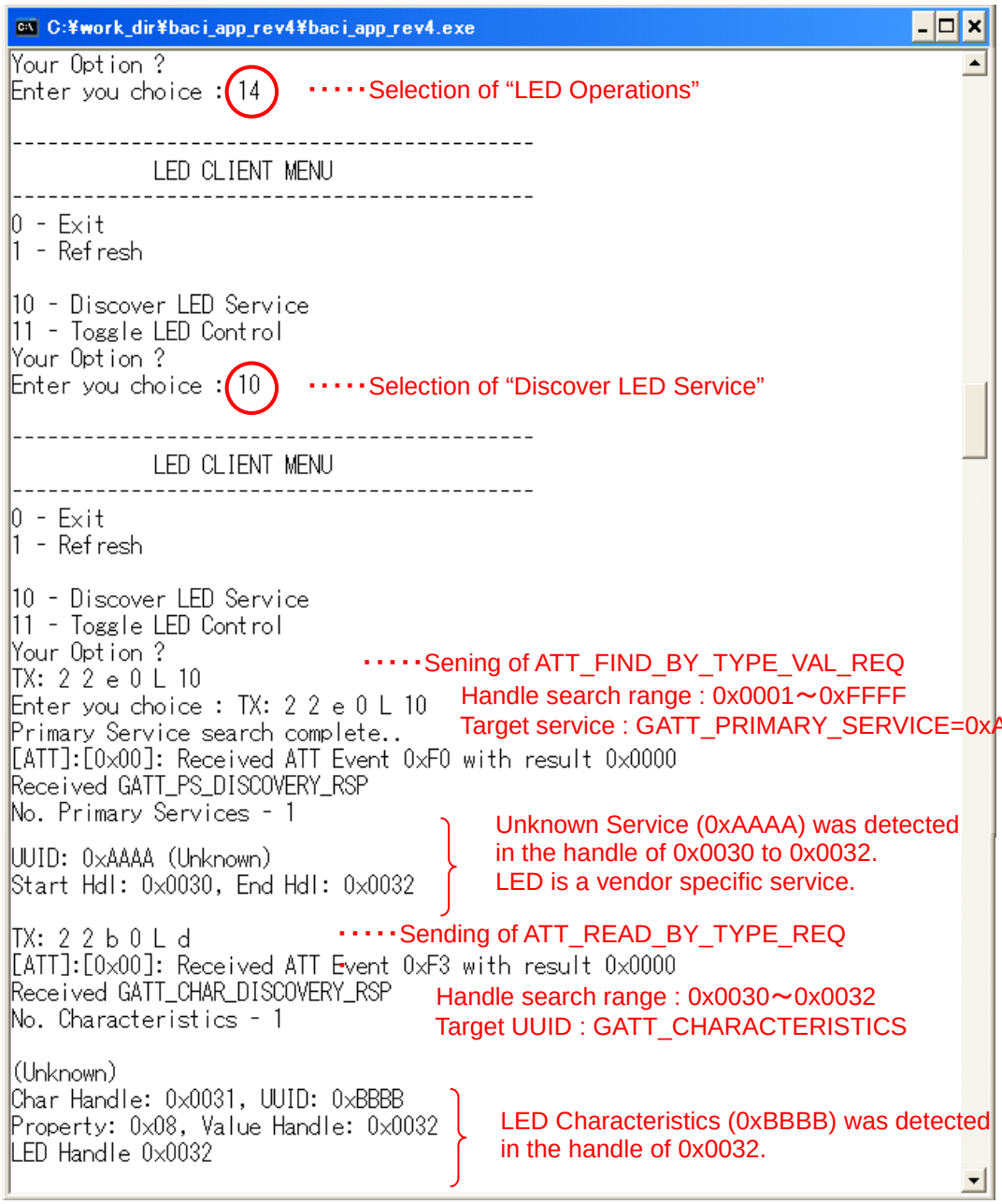

Figure 2.8.5.1 Discover LED Service

Figure 2.8.5.2 shows screenshot whenever typing "11" as toggle LED control. Each time write operation performed, LED on Sensor Node Board is toggled his state.

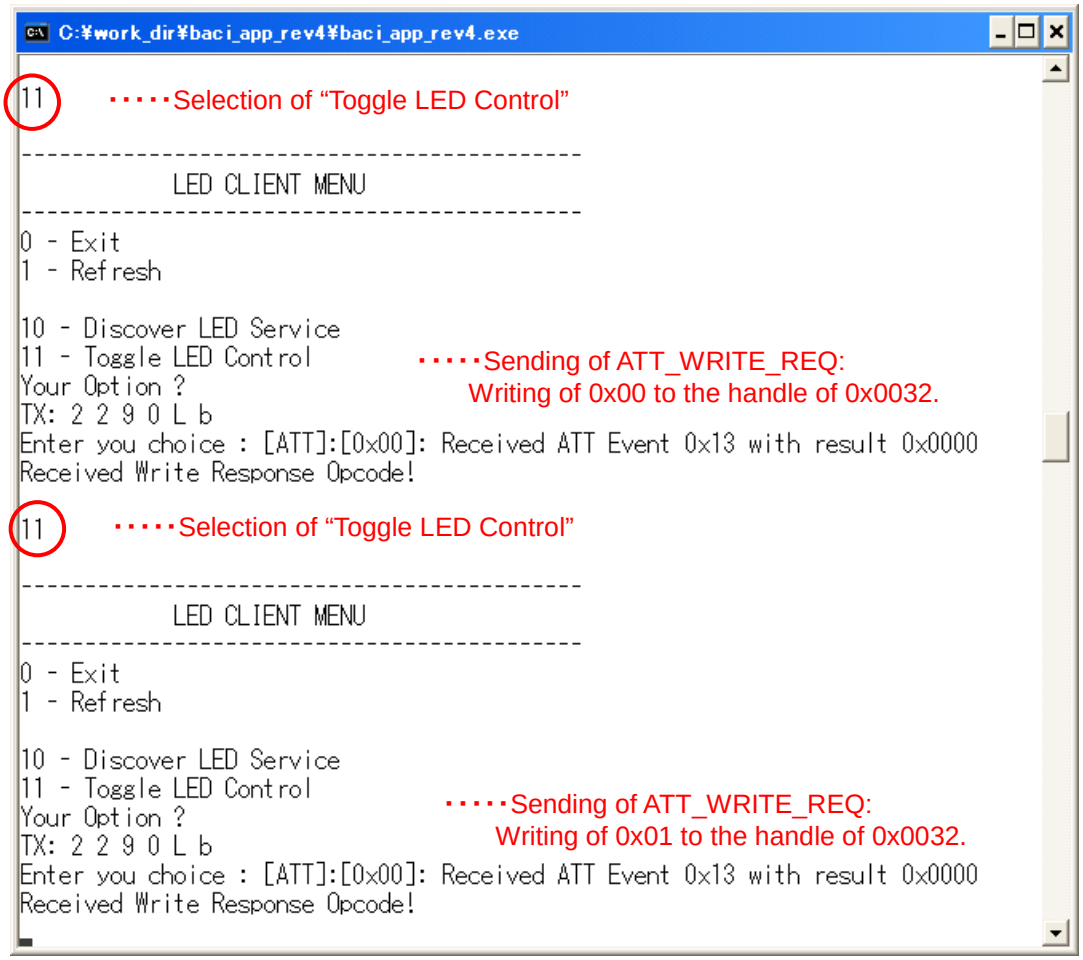

Figure 2.8.5.2 Toggle LED

Figure 2.8.5.3 shows MSC while finding LED service related information.

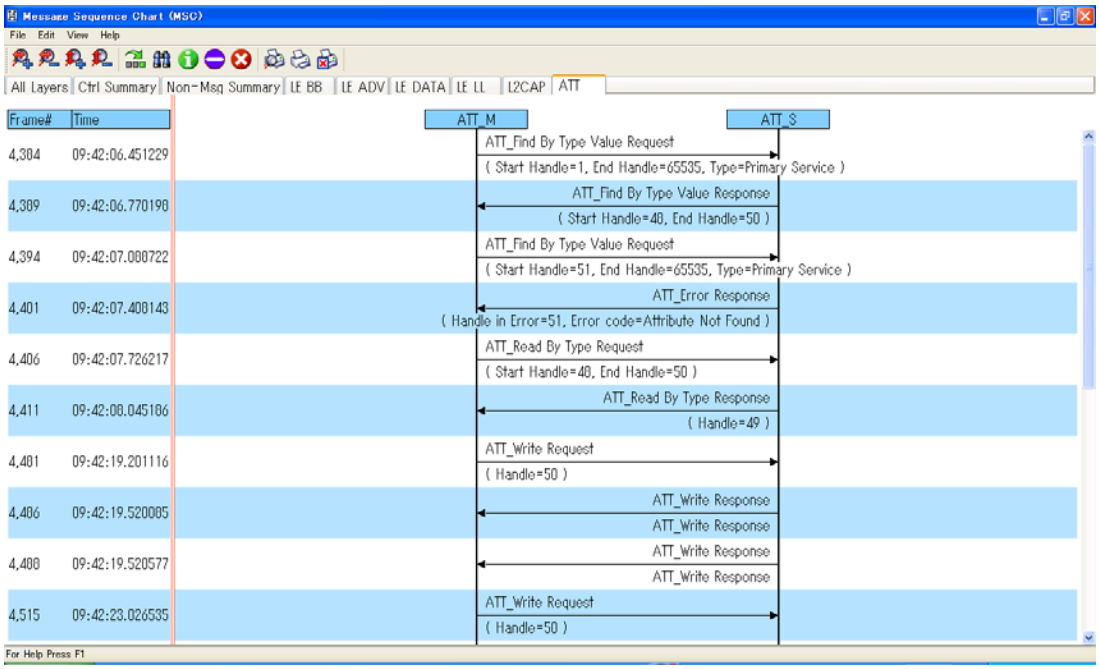

Figure 2.8.5.3 Finding LED services characteristics

Figure 2.8.5.4 shows MSC while writing command to control LED status. Each time, write command received by sensor node, LED mounted on the board change his status (on, off, …)

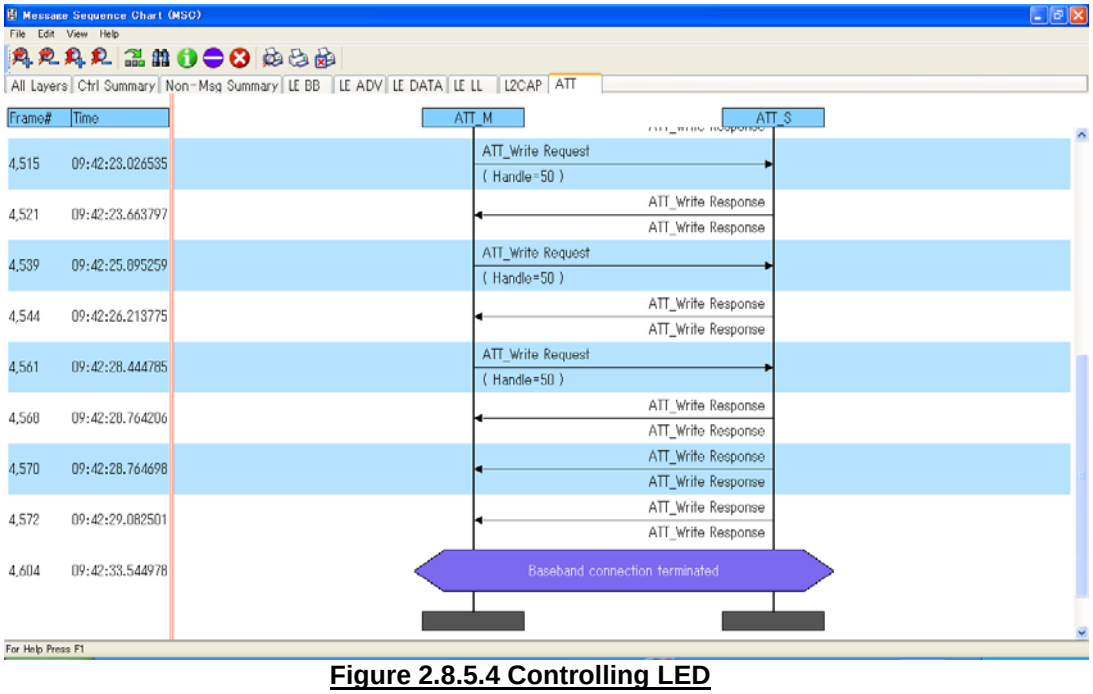

Figure 2.8.5.4 Controlling LED

2.9 GATT client operation

Figure 2.9.1 shows GATT client menu supported by PC application for evaluation kit ML7105. Most of GATT/ATT operation can be controlled by this menu.

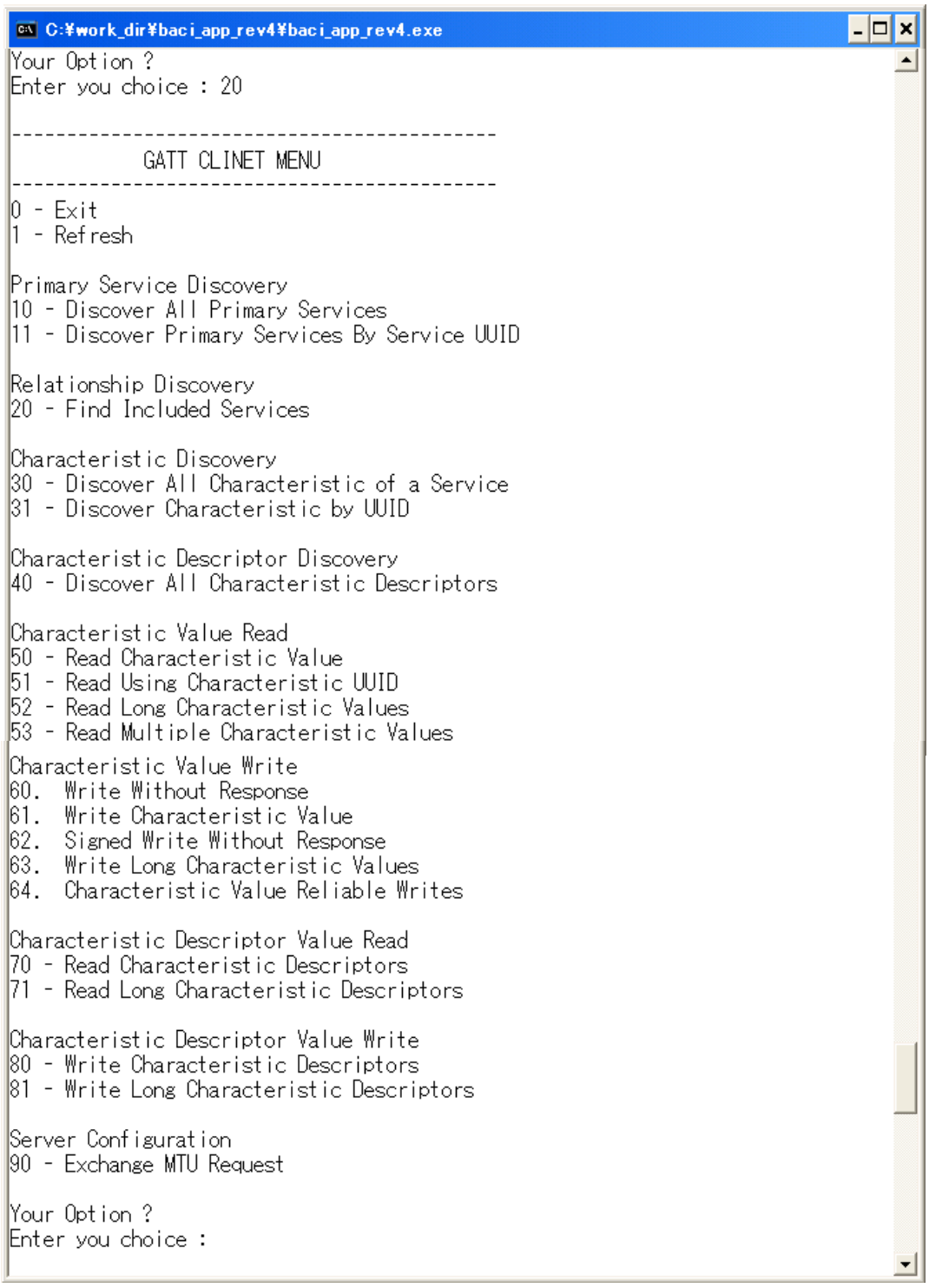

Figure 2.9.1 GATT client menu

Example shown in Figure 2.9.2 is screenshot when performing "Discover all primary services". Primary service supported by Sensor Node Board were found.

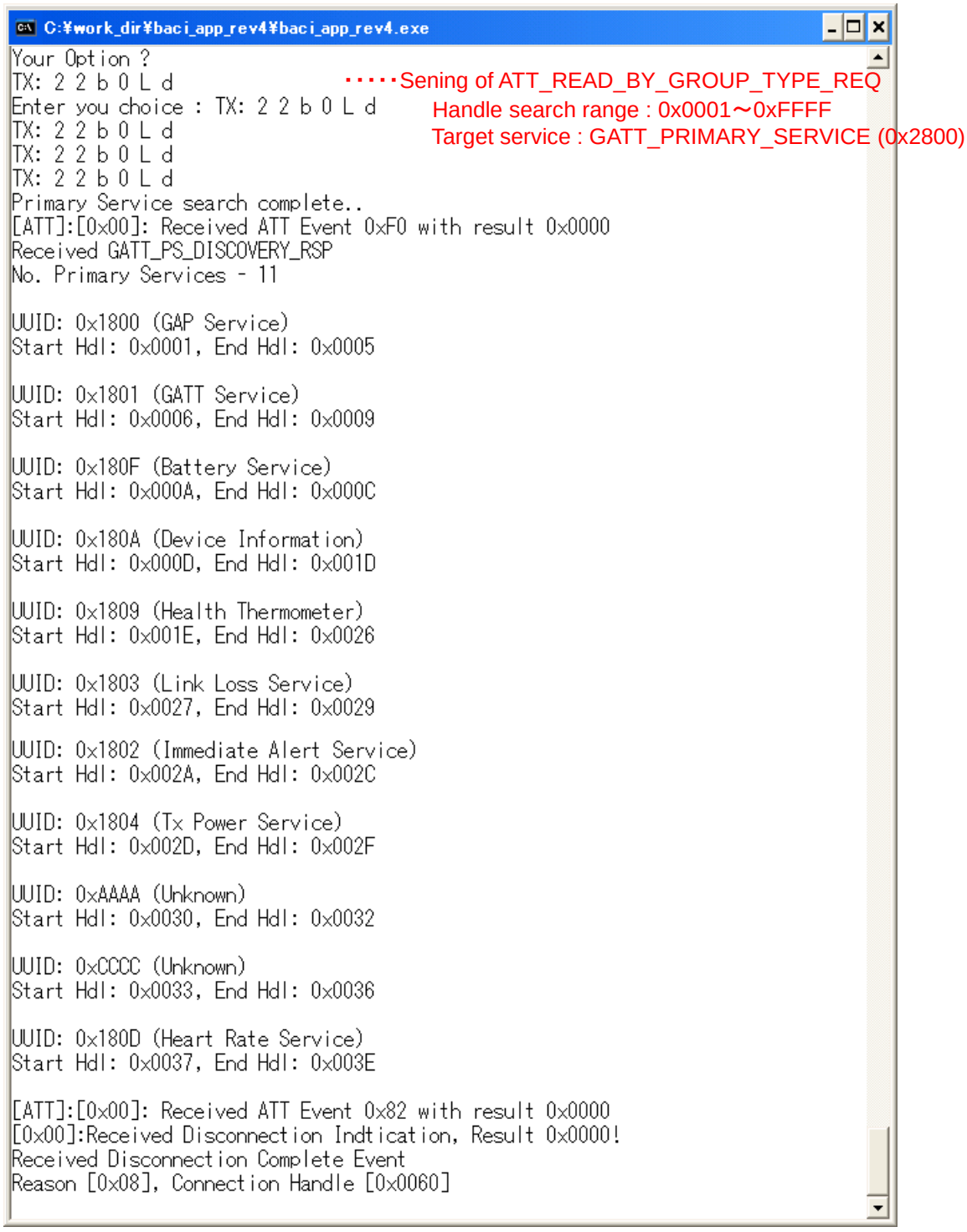

Figure 2.9.2 Finding primary services

2.10 Connection Update

Figure2.10.1 shows screenshot when PC application perform connection update event by typing "8". Figure 2.10.2 shows MSC of the connection update. The connection update can be executed from the slave side, too.

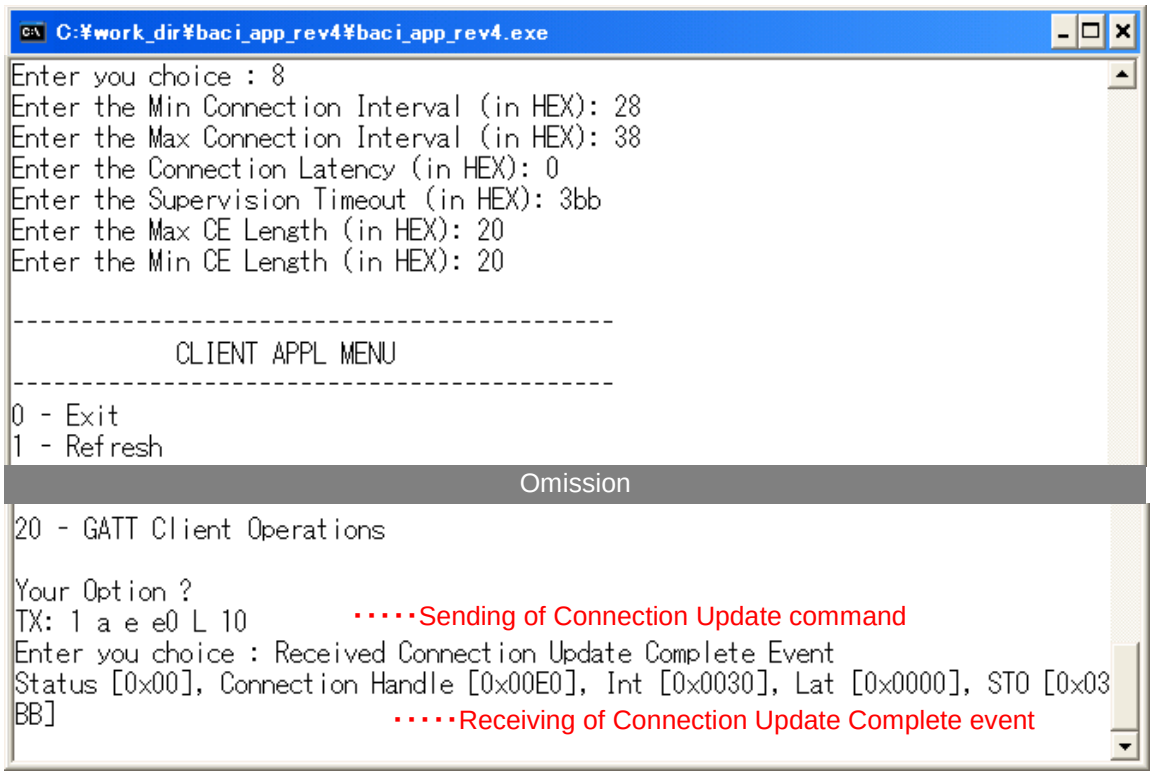

Figure 2.10.1 Connection Update

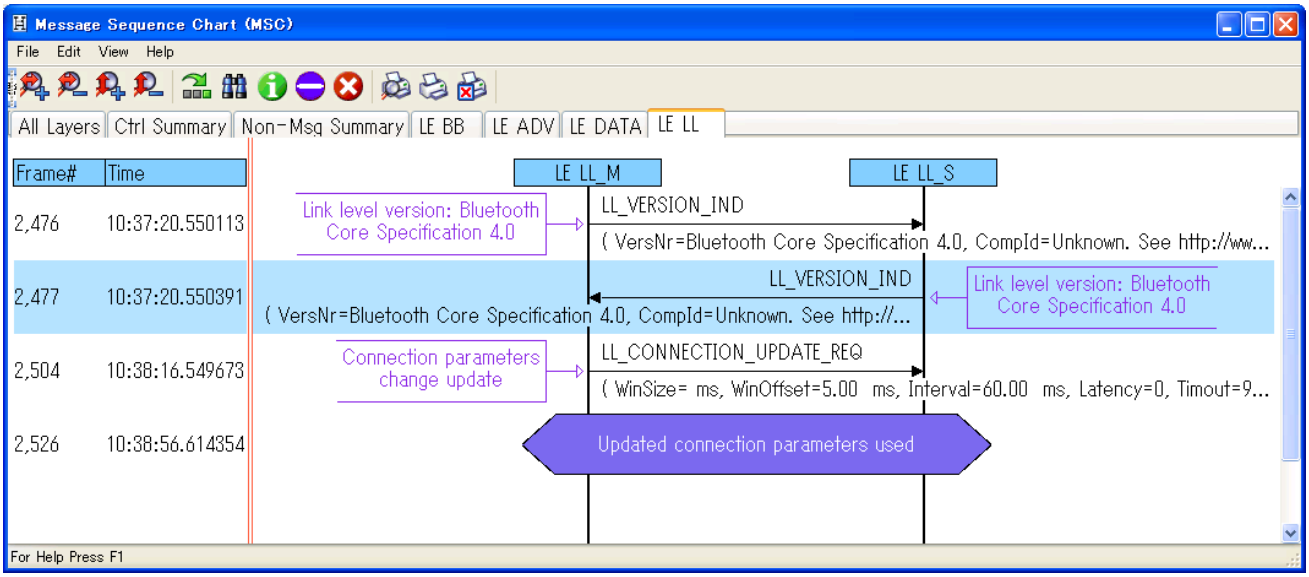

Figure 2.10.2 MSC Connection Update

2.11 Reading of RSSI value

Figure2.11.1 shows screenshot when PC application perform reading of RSSI (Received Signal Strength Indication) value by typing "5". In this example, "0xD4" is indicated. This value is signed 1 byte data, so this means "-44 dBm" in this example.

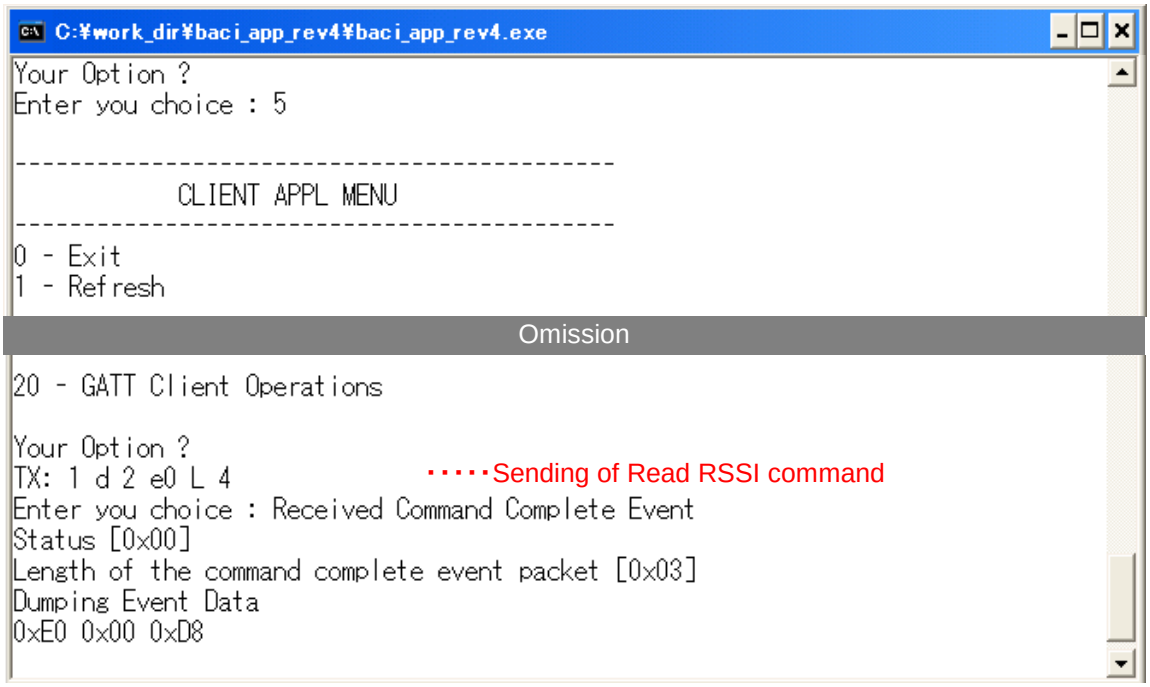

Figure 2.11.1 Reading of RSSI value

Revision History

Document No.	Issue date	Page		NOTE
		Before	After	
PEXL7105_PCapp-01	2012.08.17	–	–	Preliminary 1st version
PEXL7105_PCapp-02	2012.08.20	–	–	Added MSCs
PEXL7105_PCapp-03	2012.09.04	10	10-14	Updated Connection Setup section, added 3options for scanning and connection.
PEXL7105_PCapp-04	2013.03.26	16	16	Added option to change connection parameter.
PEXL7105_PCapp-05	2013.05.31	9	9	Modified 2.2 Navigation Menu
		–	15	Added 2.4.4 Advertising
		–	31	Added 2.9 Connection Update
FEXL7105_PCapp-01	2013.05.31	–	–	Final 1st Edition
FEXL7105_PCapp-02	2013.08.01	8	7	Modified 2.1 Command Window
		–	8	Added 2.2 Debug Messages
		9 - 31	9 - 38	Correction of the chapter number due to the addition of chapter 2.2
		–	39	Added 2.11 Reading of RSSI value
		10 - 31	10 - 38	Added the explanation for the command/event