

*** USER'S MANUAL ***

FCC ID : SBUFGPSBT04

The Federal Communication Commission Statement

This equipment has been tested and found to comply with the limits for a Class B Digital Device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction, may cause harmful interference to radio communication. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of more of the following measures: -

- **Reorient or relocate the receiving antenna.**
- **Increase the separation between the equipment and receiver.**
- **Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.**
- **Consult the dealer or an experienced Radio/TV technician for help.**

Use only shielded cables to connect I/O devices to this equipment. You are cautioned that change or modifications not expressly approved by the party responsible for compliance could void your authority to operate the equipment.

THIS DEVICE COMPLIES WITH PART 15 OF THE FCC RULES. OPERATION IS SUBJECT TO THE FOLLOWING TWO CONDITIONS: (1) THIS DEVICE MAY NOT CAUSE HARMFUL INTERFERENCE, AND (2) THIS DEVICE MUST ACCEPT ANY INTERFERENCE RECEIVED, INCLUDING INTERFERENCE THAT MAY CAUSE UNDESIRABLE OPERATION.

1. This device may not cause harmful interference and
2. This device must accept any interference received, including interference that may cause undesired operation.

Bluetooth GPS Receiver

BT1.5

User's Manual



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Caution

Read before you start to use:

- Global position system (GPS) is obtained by American Ministry of National Defense, and they got the full responsibility about the preciseness and the maintenance. Any changes may cause the capacity and preciseness of GPS differed.
- If you use this device inside of buildings, tunnels, or any huge objects beside you, the GPS signals might be cut-off or disturbed. Please do not consider that the receiver is malfunction.
- Sometimes the speed-test alarm system may interfere with GPS signal. If it really do, please suspend it temporary.
- The receiver is made by high-technology electronic components. Please do not make it exposed in sunshine for a long time.

0 、 Quick Start

0.1 Inside the Package

Thank you for purchasing our GPS product, and wish you have the best experience in using. Please open the package, and check if everything in the list exists once you got it. Please tell our salesman if anything missing.

A. Basic package

1. BT1.5 multi-purpose Bluetooth GPS Receiver x 1
2. High capacity rechargeable lithium-ion battery x 1
3. Manual/software CD-Rom x 1
4. Travel charger x1

0.2 Connect to your PC/PDA

- A.** Push the power button for 2 seconds, power on the Bluetooth GPS receiver.
- B.** Put the Bluetooth GPS receiver at proper place (open to sky) to receive the GPS signal.
- C.** Turn on the power of your PC/PDA.
- D.** Search for Blue tooth device by your Blue tooth manager on your PC/PDA. The GPS device required no passkey for connection. But some Blue tooth system is forced to enter passkey, please use [0000] in such case.
- E.** Connect to BT1.5 Bluetooth GPS Receiver and then make sure baud rate set at 9600 bps(standard) in your application program.
- F.** In firstly Use of this Bluetooth GPS Receiver, we strongly recommend you to bring your Bluetooth GPS receiver **outdoor or open sky at least 15~20 minutes for sure 3D position fixed and almanac updated.**

1. Introduction

BT1.5 Bluetooth GPS Receiver is a total solution of GPS receiver. High capacity rechargeable lithium-ion battery, GPS antenna, Blue tooth transmit/receive system are included. It is designed on the most advantage SiRF starIII chip solution, got the full-function, industry-level locating capacity and low prices.

You can use this Bluetooth GPS Receiver as vehicles navigator, security system, geographic measurement, investigations or agriculture purpose. BT1.5 Bluetooth GPS Receiver operation requirement is a proper power supply and the open sky-view. This Bluetooth GPS Receiver can communicate with other electronic devices by Blue tooth interface. Built-In Flash Memory can save satellite information and do almanac refresh periodically. This will shorten Time To First Fix (TTFF) effectively.

The Bluetooth GPS Receiver is designed as an ultra low power consumption device, and high position accuracy. It will update the satellite position every second. This Bluetooth GPS Receiver auto-locating feature is capable of automatically determining a navigation solution without intervention. However, acquisition performance could be interfered and do cold start if the receiver were initialized with occurrence of the following events:

- 1) First in use**
- 2) The GPS receiver is not in use for more than 3 months or transportation over distances further than 500 kilometers.**
- 3) Failure of the internal memory battery without system standby power.**

2. Features and Functions

- 1) Automatically almanac/ ephemeris update in flash memory**

Programmable flash utility to do refresh on satellite orbit data information every 10 minutes.

- 2) Smart power management solution.**

GPS Device will automatically shutdown in case of Bluetooth un-detected over default time.

- 3) Compatible with Bluetooth Serial Port Profile (SPP) completely.**

- 4) Easy to combine with the vehicle, voyage navigation, vehicle management, AVL, personal navigation, tracking system and map applications.**

3. Technical Specification

3.1. General

Core Module: Built-in high performance SiRF starIII chipset.

Satellite channel number: all-in-view 20 parallel satellites;

GPS frequency: 1575.42 MHz

Receiver: L1, C/A code.

Antenna type: Built in passive patch antenna

External connector: MMCX (standard)

3.2. Acquisition Time

Refresh: 0.1 sec

Cold start: 42 sec (average, **normally occurred in first use of GPS receiver life**)

Warm start: 38 sec (average)

Hot start: 1 sec (average)

Position information update period: 1 sec (average)

3.3. Precision/ Accuracy

Position accuracy: <10M(2D RMS) or <5M(WAAS enabled)

Velocity: 0.1 m/sec, without SA

Time: ± 1 ms synchronized to GPS time

3.4. Dynamic condition

Altitude: 18,000m(60,000 feet)

Velocity: 515m/sec(700knod)

Acceleration: 4G(G for gravity unit)

Jerk: 20m/sec

3.5. Power management

A) Applied External Voltage: 5V DC +/- 5%(via charge cable)

B) Power system: Rechargeable Lithium-ion 3.7V battery, as main power.

C) Power consumption: 110mA(typical)

D) Battery endurance: Charged with 4 hours (firstly in use), more than 9 hours of working time

3.6. Protocol &Interface

A) Output format

NMEA 0183,

Baud rate: 9600 bps(standard)

Data bit: 8

Parity: None

Stop bit: 1

B)NMEA code support:

GPGGA(1 sec interval)
GPGSV(5 sec interval)
GPGSA(1 sec interval)
GPRMC(1 sec interval)
GPVTG(1 sec interval)

C) Compatible with Blue tooth devices with Serial Port Profile (SPP)

- Blue tooth version 1.1 compliant
- Blue tooth **Class 2** operation (up to 10 meter range)
- Frequency : 2.400 to 2.480 GHz
- Input Sensitivity: -83dBm

3.7. Dimension/Environment Specification:

Dimension size: 86 × 45 × 23 mm

Weight: < 52g(battery excluded)

Operation temperature: -10°C to + 70°C

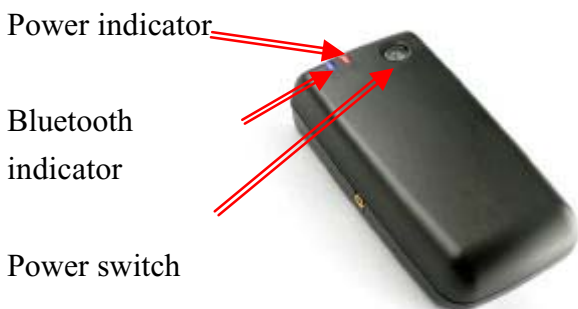
Storage temperature: -40°C to + 85°C

Operation humidity: 5%R.H. to 95%R.H. no compressed

4. Start to Use

Step 1: Charge the battery in first use

Please fully-charge the battery with at least 4 hours before you use the GPS receiver firstly.



Connect charge cable to the power plug at the bottom and start charging

Power Indicator:

- (1) Green LED blinking
→ Power low/charging (see below detail described)
- (2) Green LED stop to blink & light up
→ Charge completed (LED will vanish when cable away)

Step 2: Power on, connect with Bluetooth



Push the power switch 1~2 seconds to Power on
Bluetooth indicator:

- (1) Bluetooth host searching:
→ 3 pulses per second
- (2) Bluetooth host connected:
→ 1 pulse per second

Note: Some PDA needs to restart the Bluetooth function if you need to re-connect.

Step 3: GPS function test

In firstly Use of this Receiver ,we strongly recommend to bring your Bluetooth GPS Receiver outdoor and open sky at least 15~20 minutes for almanac update.



Power on the FGNBT03 Bluetooth GPS Receiver

GPS Acquisition Fix Indicator

- (1) Red LED lights up continuously: Inquiring
- (2) Red LED blinks (1 pulse/3 sec): Position fixed

5. Software/Hardware Usage

5.1. Hardware description

1). Bluetooth GPS Receiver device function description is shown as below:



2). LED display description

Symbol	Color	Behavior	Description
Blue tooth Indicator	Blue	Blinking in 3 pulses/sec	Searching for Bluetooth host
		Blinking in 1 pulse/sec	Connected with host& communicating
Power/GPS Acquisition LED (Red/Green combined)	Green	Blinking with 3 sec interval	Battery low
	Green	Blinking with 2 sec interval	Charging
	Green	Light up	Charge completed (LED off when cable away)
	Red	Light up continuously	Positioning
	Red	Blink in 1pulse/ 3secs	Position fixed

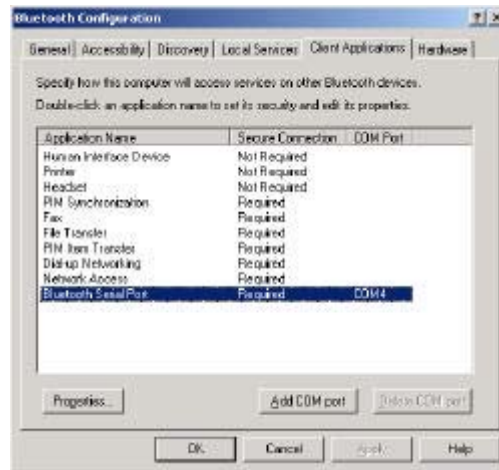
3).Power ON/OFF :

Push power switch 1~2 seconds to switch on/off the power.

5.2. Configuration setup with PC connection

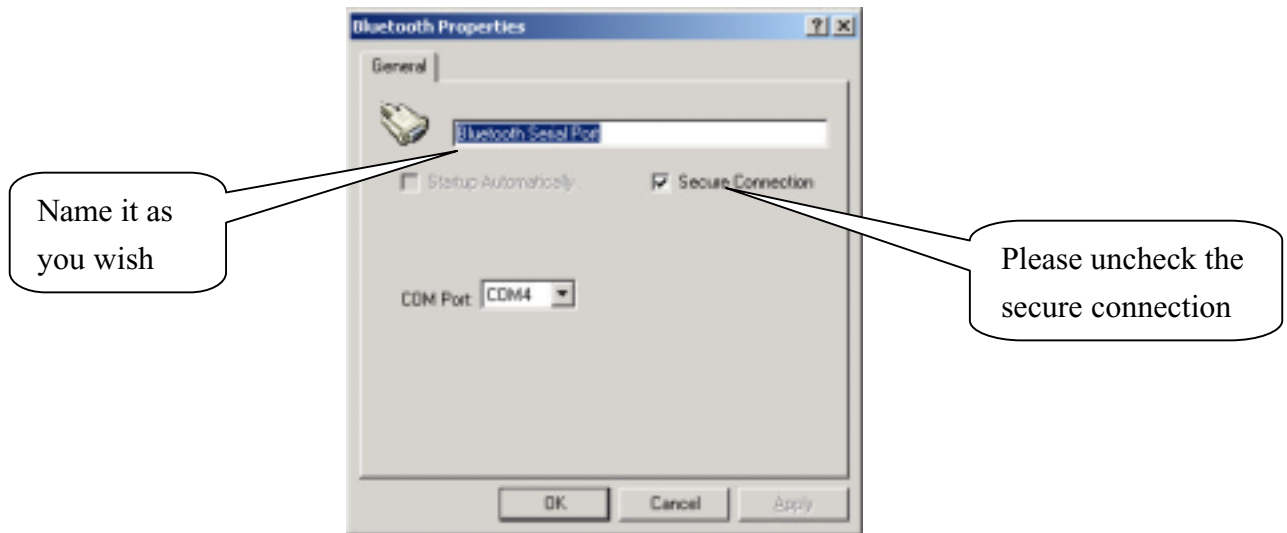
Here is a sample to show you how to connect the Bluetooth GPS Receiver with your PC, software install and basic function test.

- 1) First, select a PC with Bluetooth interface. Or you can purchase Bluetooth adapter for your PC. Please contact with your PC's sales about this.
- 2) Check your Bluetooth manager if there exist any configuration of Bluetooth Serial Port Profile like this:



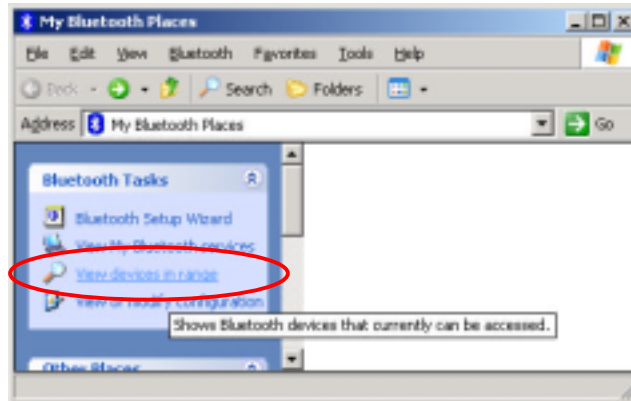
Note: this sample is for your reference only. The screen may be various between different models of Bluetooth manager software.

- 3) If not found, please create a Bluetooth serial port by yourself. The configuration should be like this:

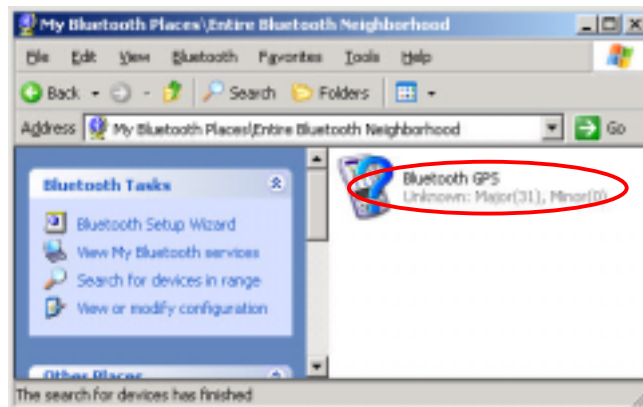


- 4) If there is already one, please check the content. Some Bluetooth device will enable the secure connection. Please refer to the configuration as above to uncheck it.
- 5) Power on your GPS Receiver. If the battery is ready, you should see 2 LED light up: the blue LED blink 3 times/sec means Bluetooth is activated and waiting for connection. Another static red LED shows the GPS module is started and is inquiring position information.

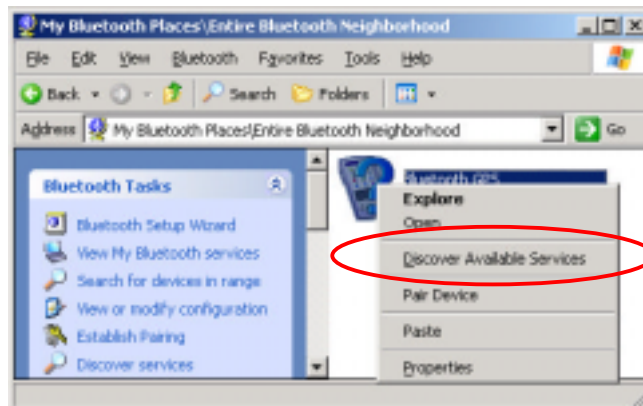
6) Open your Bluetooth places; you should see nothing while using firstly.



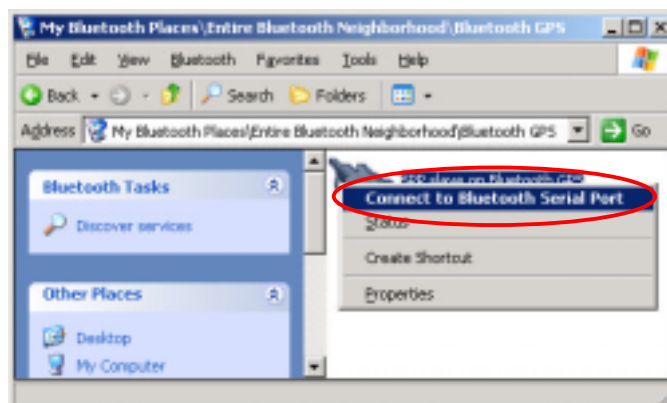
7) Click the [View devices in range] and you should find a [Bluetooth GPS] show as below:



8) Right click on the icon, select the [Discover Available Services]:

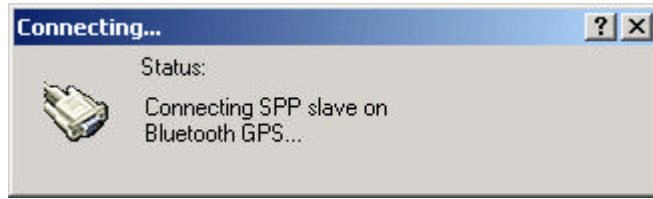


9) You should find the service SPP slave, right click and select [Connect to Bluetooth Serial Port]:

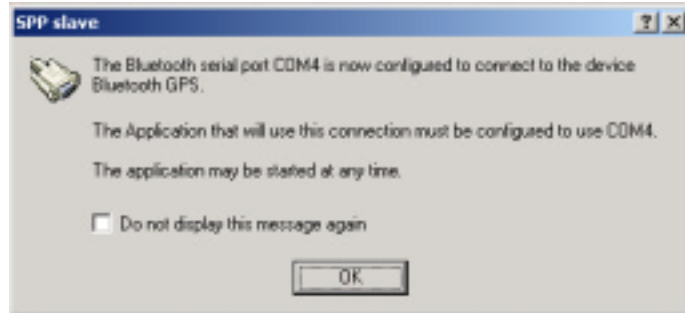


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10) The follow message will show:



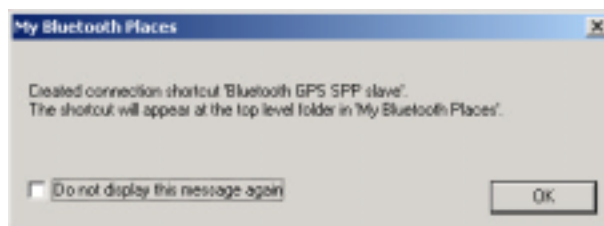
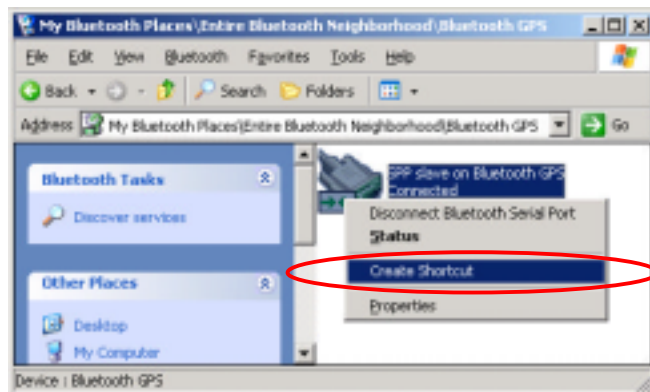
11) And the connection successful message:



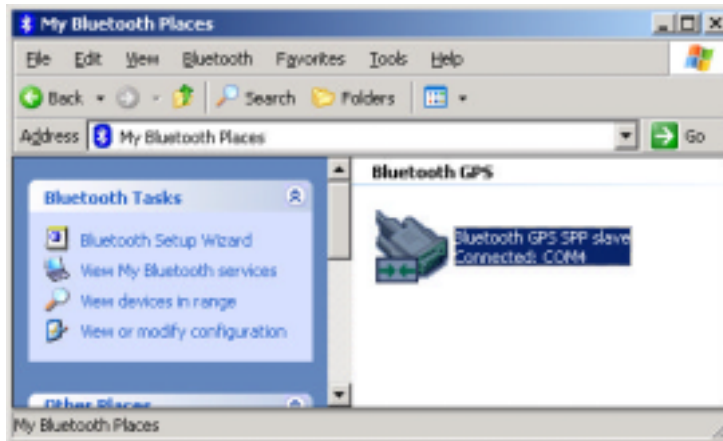
12) Back to the Bluetooth service view, you should see the icon changed to [Connected]:



13) If you wish to use the connection more easily next time, you can create a shortcut for this:



14) You will see the shortcut you just created:



5.3. Configuration setup with PDA connection

Following will show how to configure the Bluetooth connection on PDA. It may be different from other PDA models.

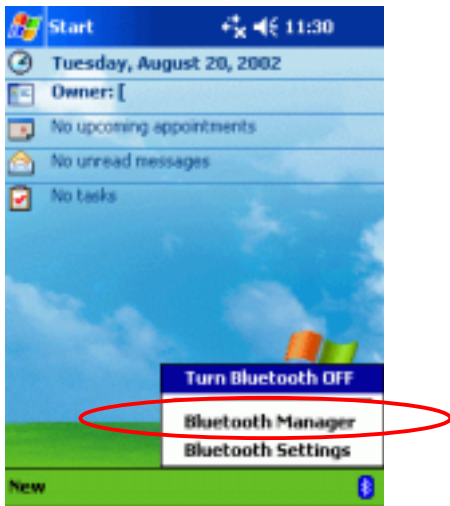
- 1) Power on your PDA and the Bluetooth host.
- 2) Power on the GPS Receiver. If the battery is ready, you should see 2 LEDs indication: the blue for Bluetooth blinks 3 times/sec. It means the Bluetooth module is activated and waiting for connection. The red LED for GPS, means the GPS module is activated and is inquiring GPS signal.

Blue LED blinks 3 times/sec

Red LED



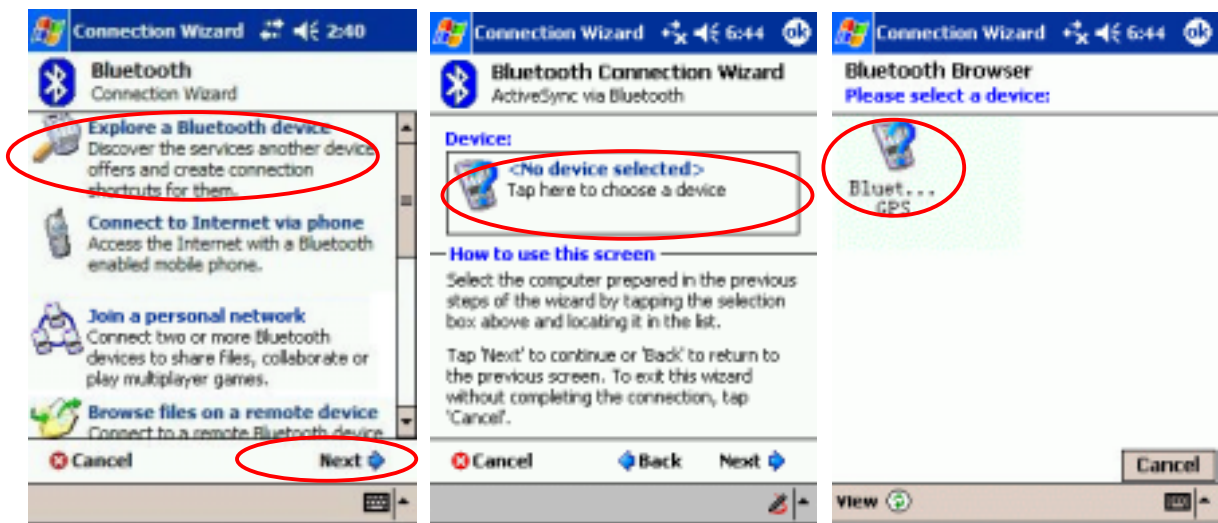
3) See the screen, click Bluetooth mark at bottom, and [Bluetooth Manager] as below:



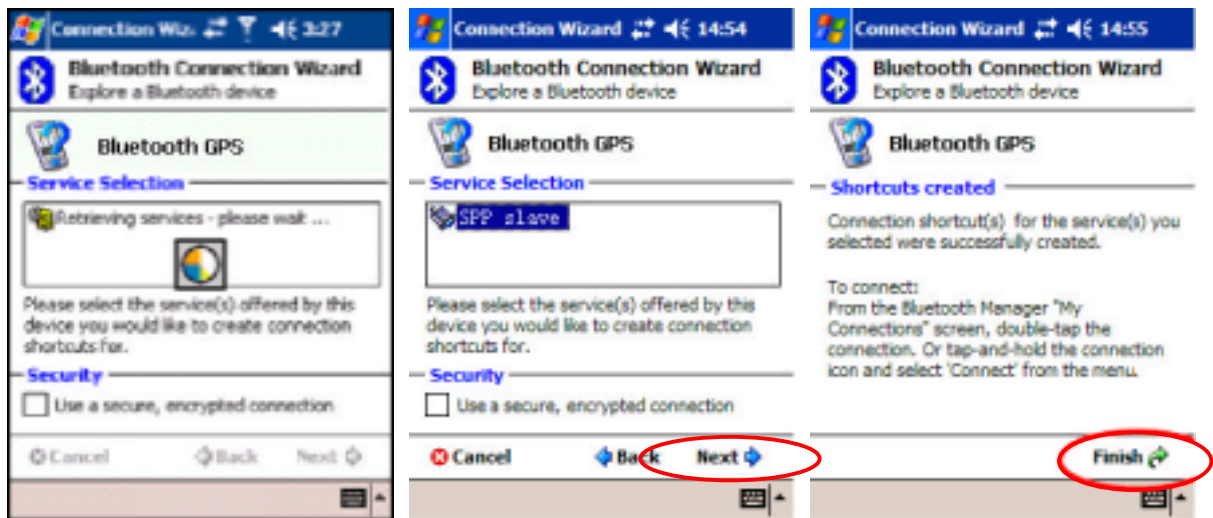
4) If this is your first time to use Bluetooth GPS, click the Bluetooth mark at the bottom as below:



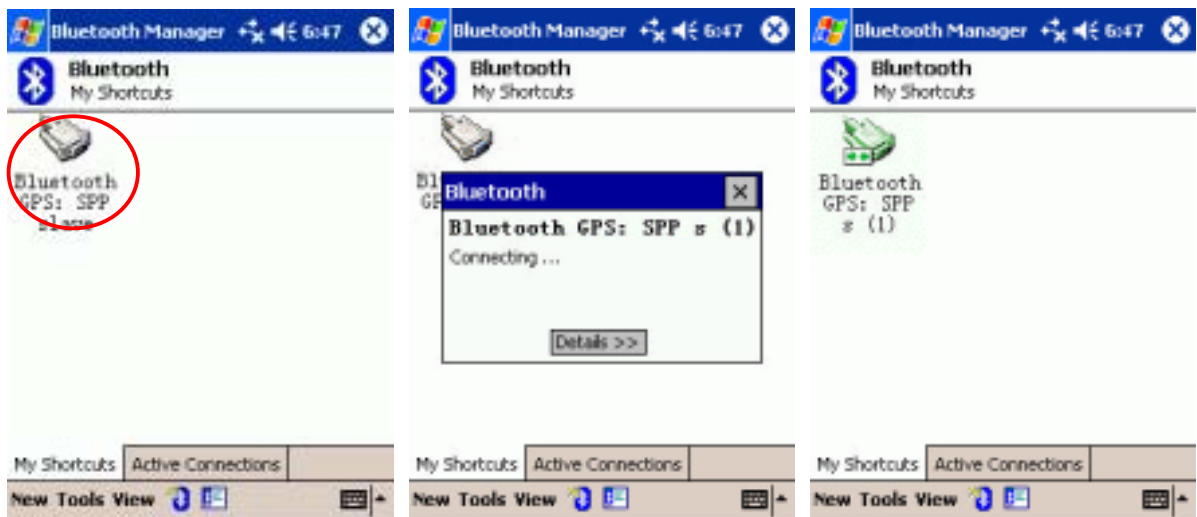
5) Then the Bluetooth connection wizard show up, select [Explore a Bluetooth device] and click [Next]. In the next page, click the box to search Bluetooth devices. Your PDA will find the Bluetooth GPS and show it in the window. Click the icon to search for service.



- 6) Back to the [Explore a Bluetooth device] as below. Click [Next] to list service on Bluetooth GPS. [SPP slave] should appear in the service list box, click it and click [Next] to finish shortcut creation. Don't forget to uncheck the secure connection box.



- 7) Back to the main screen of [Bluetooth manager] as below. Please double-click the icon to connect the Bluetooth GPS Receiver . If connection successful, a green arrow will show as below at right.



- 8) You may start to use any map/navigation software and use the GPS function now.

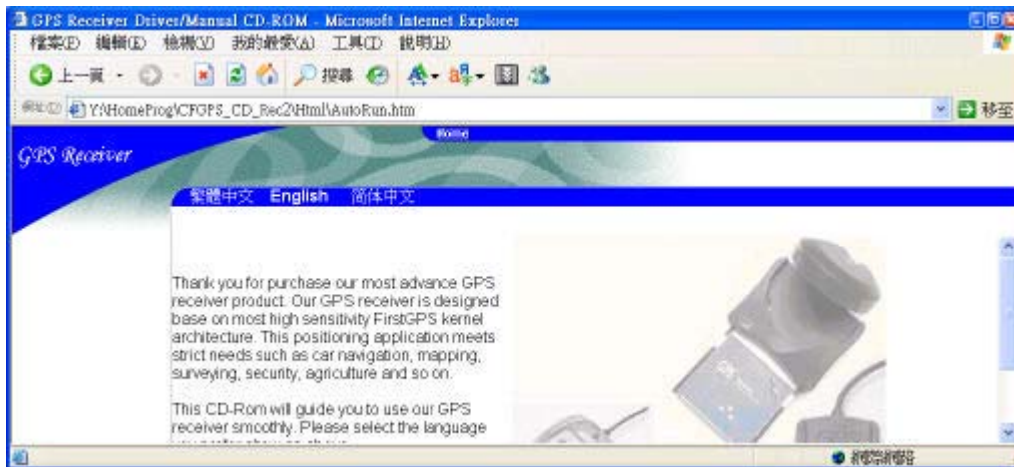
5.4. Software Install/Usage Guide

- 1) Please make sure your PDA is connected properly with your PC using Microsoft ActiveSync. If you have not install ActiveSync yet, you can install the copy from the bounded CD-Rom, version 3.7.1. Please connect your PDA with your PC by the cable/cradle for your PDA, it should be found in your PDA accessory pack.

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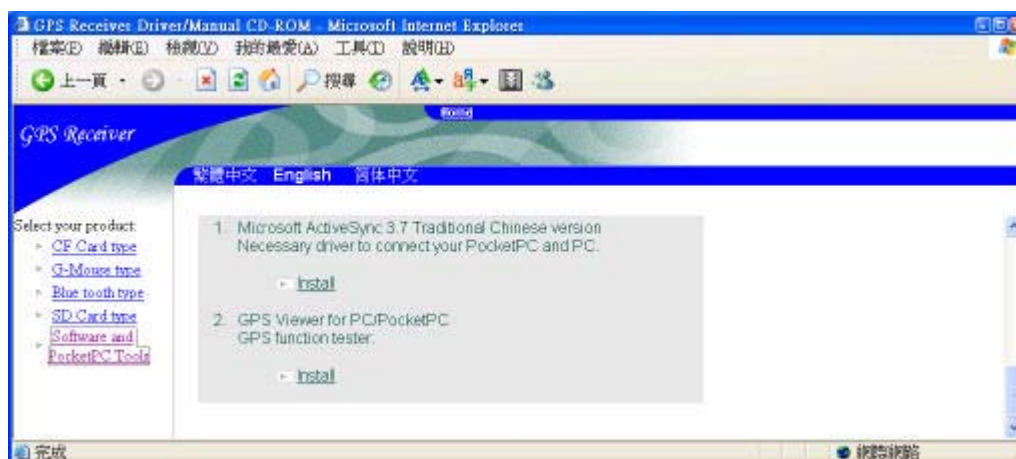
2) Insert the CD-Rom into your CD drive. If your auto-run function works, you will see the welcome screen as below:



3) Select the language you preferred. We choose the “English” here:



4) Click the [Useful tools and PocketPC utility] at the left:



6. Warranty

The Bluetooth GPS receiver is warranty for free from defect in material and function for 1 year from the date of purchase. Any failure of this product within the period under normal conditions will be replaced at no charge to the customers.

This warranty does not cover failures due to abuse, misuse, accident, or unauthorized alteration or repairs, inappropriate disassemble.

- Since the Bluetooth GPS Receiver got high performance rechargeable lithium-ion battery, we strongly recommend you not to place it under the sunshine for a long time.
- The warranty will become invalid if any miss-operation found.

7. Trouble Shooting

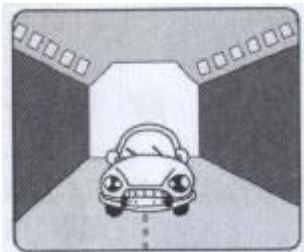
7.1 Problem of Setup

Error/Problem	Cause	Trouble shooting
Can not find the GPS device through Bluetooth interface	Install not correct or battery low	Check if FGPNBT03 Bluetooth GPS Receiver is installed properly, and confirm the battery level is suitable (green LED blinks or none LED)
Unable the connect through Bluetooth	Configuration incorrect	Please refer section 5.2 to re-install. Or refer to your PDA's user manual for configuration.
Fail to open COM Port	Bluetooth manager is not configured properly, or the COM port is adopted by another software.	Please check your Bluetooth manager settings, close the software may use COM ports and try again. Or check if there is any password protection.
No NMEA code (GPS data flow)	(1) Some PC/PDA will enter the power saving mode if you stop	(1) Disable the power saving mode, try to connect GPS receiver again.

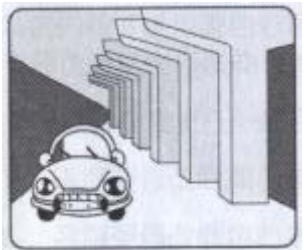
Error/Problem	Cause	Trouble shooting
	input for a few minutes. Bluetooth interface will be reset in such case. (2) Wrong baud rate or com port setting	(2) Correct with right baud rate & com port
Unstable GPS signal	(1) degrade by anti-sunlight film with receiver placed inside car (2) some cases described in sec7.2	Plug External antenna and place on car roof
Poor GPS signal	(1) FGNBT03 Storm effect (2) Atmosphere turbulences (3) SA ON by USA military.	NA

7.2 Concerning of Poor GPS Signal

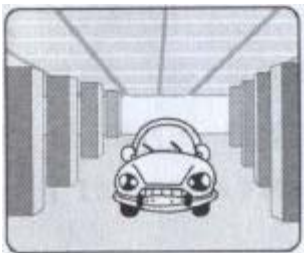
It is possible unable to receive GPS signal or signal low in these places:



➤ Inside the tunnel, GPS signal is blocked.



➤ Covers above, GPS signal is blocked.



➤ Inside buildings, GPS signal is blocked.



➤ Beside some buildings, GPS signal is disturbed.



➤ Inside forests, or too many covers, GPS signal is disturbed.

- If you use the Bluetooth GPS Receiver inside the car, some anti-sunlight windscreen film will make the GPS signal degraded or signal blank.
- GPS satellite is owned by America military, sometimes they will tune-down the accuracy by some reason. In such cases, the GPS position may not fixed exactly.