Dearborn Protocol Adapter
DPA 5 Series

Bluetooth Configuration Manual

I M P O R T A N T

To ensure your success with this product, it is essential that you read this document carefully before using the hardware. Damage caused by misuse of the hardware is not covered under product warranty.

When using this manual, please remember the following:

- ❑ This manual may be changed, in whole or in part, without notice.
- ❑ DG assumes no responsibility for any damage resulting from the use of this hardware and software.
- ❑ Specifications presented herein are provided for illustration purposes only and may not accurately represent the latest revisions of hardware, software or cabling.
- ❑ No license is granted, by implication or otherwise, for any patents or other rights of DG or of any third party.

The "DG" logo is a registered trademark of Dearborn Group, Inc. Other products that may be referenced in this manual are trademarks of their respective manufacturers.

The DPA Product line has been awarded the following U.S. Patents:

Patent #	Date	Patent Overview
6,772,248	08-03-04	Protocol adapter for in-vehicle networks.
7,152,133	12-19-06	Expanded functionality protocol adapter for in-vehicle networks.
7,337,245	02-26-08	Protocol Adapter for Passing Diagnostic Messages between Vehicle Networks and a Host Computer.

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1.   Table of Contents

2.   Bluetooth Overview for the DPA 5

Bluetooth (BT) has become a very popular short-range wireless protocol for devices such as cell phone headsets. The DPA 5 is equipped with a Bluetooth antenna that can be used instead of using a USB cable. The following are some very broad notes to be considered with using the DPA 5 in Bluetooth mode:

✓ The term "dongle" represents the PC to Bluetooth communications adapter that plugs into the USB port of a PC.

✓ Configuring of the DPA 5 to use Bluetooth is not "straightforward", nor is it easy with other Bluetooth PC to "any external device" communication adapters. We have made our best efforts to make it as easy as possible, and to document the steps to doing so as thoroughly as we can.

✓ Your DPA 5 can be *paired* with, and be used by any Bluetooth equipped PC throughout your shop. In simple terms, the DPA 5 in Bluetooth mode is not locked into one specific PC in the shop.

✓ The range of communication is dependent on Bluetooth PC dongle radio power output. Typically, micro-sized USB Bluetooth PC dongles do not transmit/receive as far as full-size USB Bluetooth PC dongles. There are even large differences in the power outputs of the full-size USB PC dongles. Range is also dependent on shop operating conditions and electromagnetic interference sources such as fluorescent lights, HVAC systems, and welding equipment. Therefore, a specific range for communications cannot be guaranteed.

   o We have noted that the Class I Bluetooth device IOGEAR GBU321 has an **effective** range of about 60 feet and the Class II IOGEAR GBU421 has an **effective** range of about 30 feet. The word **effective** meaning reliable communications without dropouts from external influences (fluorescent lights, HVAC systems, welders, etc).

✓ Note that the RP1210 committee, vehicle and component OEMs (Original Equipment Manufacturers), and DG, do not recommend reprogramming, reflashing, or recalibrating equipment using <u>any</u> type of wireless protocol. A physical cable is much more reliable and not as prone to the electromagnetic interference found in a shop floor environment.

Since Bluetooth has become so popular, there are literally hundreds of models of Bluetooth-to-PC dongles that can be used to communicate with the DPA 5 device. This large number makes it impossible to cover the configuration of each one in this manual, as the documentation for those models would be outdated in weeks or months. What we will try to accomplish in the next sections is to introduce you to the correct terminology that will be required to *pair* your DPA 5 with your PC and create a *Virtual COM Port* so that the DPA 5 Bluetooth Configuration Utility can be used to create an RP1210 DeviceID that can be used by your OEM application software.

We apologize in advance and request your understanding.

Because there are so many dongles on the market, we are unable to provide technical support for the installation and configuration of your Bluetooth dongle unless that dongle was purchased from DG. The Bluetooth dongle installations range from very simple and straightforward to extremely complex and time-consuming.

If you cannot get your dongle paired with the PC into what is called a *Virtual COM Port*, we suggest that you visit the website for the manufacturer of the dongle, or contact their help desk.

Once you have your DPA 5 *paired* and have a *Virtual COM Port* assigned to it, you can call our technical support department for assistance using the DPA 5 Bluetooth Configuration Utility (covered below).

2.1. Exiting Bluetooth Range and Re-Acquiring Signal

With the various operating systems we have tested with, Bluetooth operations have behaved somewhat differently and inconsistent. This has been especially so when using a Bluetooth Virtual COM Port for communications and when the DPA 5 exits signal range and then re-enters signal range. Sometimes the DPA 5 drivers have been able to re-establish communications, sometimes they have not. Because of this inconsistent behavior, we recommend staying within signal range during your diagnostic session. Our experience suggests that even with the short range mini-USB dongle you can circle the vehicle and trailer (if one is attached).

If your Bluetooth DPA 5 goes out of range during operations, the DPA drivers may not recover when the DPA 5 comes back into Bluetooth signal range. If it does go out of range, the easiest way to recover is:

1. Disconnect and exit from your OEM application.
2. Unplug the DPA from the vehicle, and unplug the USB BT dongle.
3. Insert the USB BT dongle into the same USB port and then reconnect the DPA 5 to the vehicle.
4. Run Adapter Validation Tool to check if the PC can see the vehicle. If the PC cannot see the vehicle, reboot the PC.
5. If rebooting the PC does not work, delete the DPA 5 RP1210 DeviceID (see section 9.2).
6. Delete the DPA 5 Bluetooth device using the Bluetooth icon in the icon tray.
7. Re-create the Virtual COM Port for the DPA (Add Bluetooth Device) using the operating system specific instructions below.
8. Re-create the RP1210 DeviceID (see section 9.1).
9. If these instructions do not work, please contact DG Technical Support. We will be glad to help get your DPA 5 communicating through Bluetooth.

3. Steps in Using the DPA 5 in Bluetooth Mode

3.1. Install Your DPA 5 Drivers from CD, from Download

Before you install your Bluetooth dongle, ensure that you have first installed the DPA 5 drivers.

3.2. Installing Your Bluetooth-to-PC Dongle Drivers

Ensure that when you install the Bluetooth-to-PC dongle that you select any option that says create/configure/install a *Virtual COM Port*. A *Virtual COM Port* is what will be used by the DPA 5 Bluetooth Configuration Utility to create an RP1210 DeviceID that can be used by your OEM application software.

3.3. Pairing Your DPA 5 Device and Creating a Virtual COM Port

Creating a *Virtual COM Port* and *pairing* your device requires two things you have to provide to your Bluetooth dongle configuration utility. Both of these appear on the back of the DPA 5.

1. DPA 5 Bluetooth ID
2. DPA 5 Bluetooth Passkey

   ✓ Note that the DPA 5 must have power to be paired.

When you use the Bluetooth dongle configuration utility to discover/pair new devices in order to create a *Virtual COM Port*, have your DPA 5 powered up and you will see the DPA 5 device and the DPA 5 Bluetooth ID that is written on the back of the DPA. When asked for the passkey/password/passcode to create the *Virtual COM Port* pairing, enter **dgtech** in all lower case letters. Once you have successfully created the Virtual COM Port, continue to the next step.

3.4. Turning a Virtual COM Port into an RP1210 DeviceID

What is an RP1210 DeviceID and Why Is it Necessary?

An RP1210 DeviceID is a VDA (Vehicle Datalink Adapter) device's entry in the VDA vendor's RP1210 INI file. These entries are read by OEM software applications and displayed in a list to the user so they can be chosen and used. For example, the following is how DG's AVT (Adapter Validation Tool) displays the following entry (for the DPA 5 in USB mode) from the DGDPA5SA.INI file:

```
[DeviceInformation1]
DeviceID=1
DeviceDescription=DG DPA 5 Dual-CAN USB,USB
DeviceName=DG DPA 5 Dual-CAN USB
DeviceParams=DG USB
```
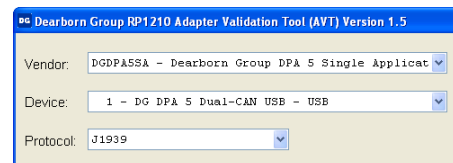

The DG Bluetooth Configuration Utility is used to create these RP1210 DeviceID entries in the DGDPA5SA.INI file with DPA 5 units that have been paired with a PC into Virtual COM Ports. The below example shows how the DPA 5 with the DPA 5 Bluetooth ID "0000-0D8F-E378" became DeviceID=160, and the DeviceParams=/B,COM10 reflected the Virtual COM Port that was assigned to that entry (COM10). The illustration on the right shows what AVT would show.

```
[DeviceInformation160]
DeviceID=160
DeviceDescription=DG DPA 5 #0000-0D8F-E378 Bluetooth,Wireless
DeviceName=DG DPA 5 #0000-0D8F-E378 Bluetooth
DeviceParams=/B,COM10
```
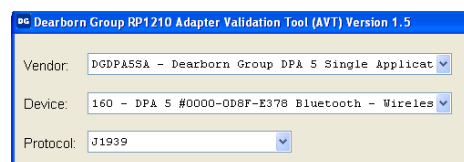
4. Using Multiple DPAs in Bluetooth Mode on One PC

As noted above, there are many different possibilities for Bluetooth PC dongles and their PC installations. There are also major differences in the Bluetooth protocol stack (drivers) on various operating systems. The Bluetooth protocol stack on the different operating systems is what the DPA 5 drivers use to communicate with the DPA 5.

Depending on the Bluetooth protocol stack that is being used, some will only pair a device to a single Virtual COM Port. This would mean that if you wanted to use more than one DPA with one specific PC, you would have to do the following (the example uses DPA 5 #1 and DPA 5 #2):

1. Use the DPA 5 Bluetooth Configuration Utility to remove DPA #1's RP1210 DeviceID.
2. Use the Bluetooth software provided with the PC dongle to remove DPA #1 from the Virtual COM Port.
3. Use the Bluetooth software provided with the PC dongle to pair DPA #2 to the Virtual COM Port.
4. Use the DPA 5 Bluetooth Configuration Utility to create an RP1210 DeviceID for DPA #2.

Our experiences have shown that if you use the PC dongles that DG is distributing in conjunction with the Microsoft Bluetooth stack, these steps are not necessary and multiple adapters can be paired to different COM ports (which is the easiest way to communicate with multiple devices). These two Bluetooth devices being distributed are:

- o IOGEAR GBU321 – a Bluetooth Class I (full size, longer range) adapter
- o IOGEAR GBU421 – a Bluetooth Class II (small size, short range) adapter

4.1. Trademarks

Windows and all operating systems are registered trademarks of Microsoft Corporation.

4.2. Windows XP Notes

If you are using Windows XP, the Microsoft Bluetooth stack works with these devices only when Service Pack 3 (SP3) is installed. For more information on downloading SP3, visit www.microsoft.com. Remember to not install the software that comes with these devices. Instead plug the BT dongle into the PC and use the Microsoft Bluetooth stack that is distributed with SP3.

4.3. Windows 2000 Notes

If you are using Windows 2000 you must have Service Pack 4 or higher.

4.4. Windows Vista Notes

An install on any Windows Vista machine should look about the same. If you note differences on a particular Vista version that are not covered in this manual, please contact our technical support department. We would like to include these screen snapshots in the next version of this manual.

4.5. Windows 7 Notes

An install on any Windows 7 machine should look about the same. If you note differences on a particular Vista version that are not covered in this manual, please contact our technical support department. We would like to include these screen snapshots in the next version of this manual.

5. Detailed Install – Windows XP Pro – Service Pack 3

NOTES:
- ❑ IOGEAR Installation CD not required
- ❑ Service Pack 3 must be installed

Insert GBU321 dongle into USB port and the hardware wizard screen appears:

Select "Install the software automatically (Recommended)". Select "Next" button.

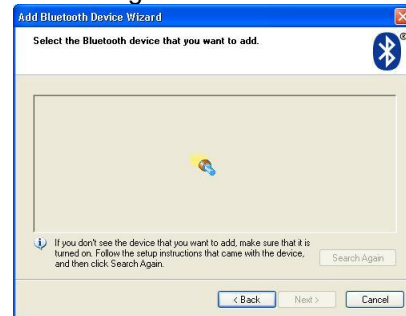
Searching…

Installing…

Select the "Finish" button.

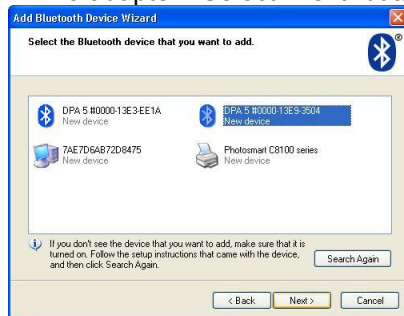Right click on Bluetooth icon, choose "Add a Bluetooth Device".

Turn on DPA 5 adapter. Check box "My device is set up…" then select "Next" button.

Searching for Bluetooth devices.

Match device shown with serial number labeled on DPA5 adapter. Select "Next" button.

Enter "dgtech" then select "Next" button.

Installing…
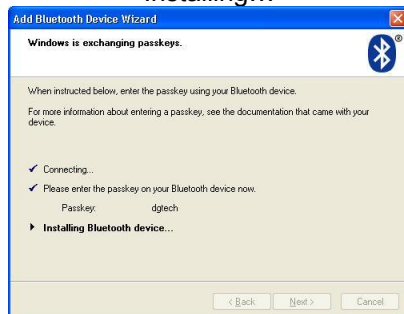
Bluetooth Device installed. Select "Finish".

Continue to Chapter 9 - Running The Bluetooth Configuration Utility.

6. Detailed Install – Windows 7 Pro (32 and 64-bit)

NOTES
- ❑ IOGEAR Installation CD not required
- ❑ Not certain if all steps apply to Windows 7 Home Versions

Insert GBU321 dongle into USB port:
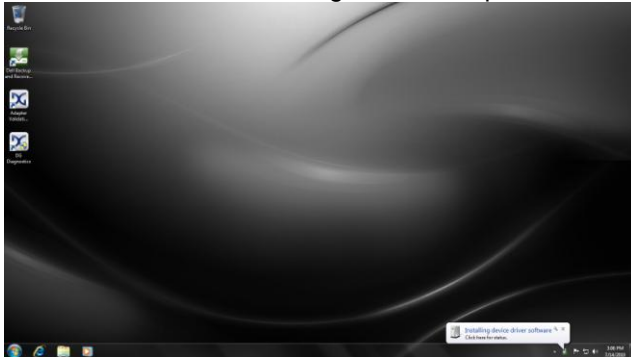
Device "Ready to use":
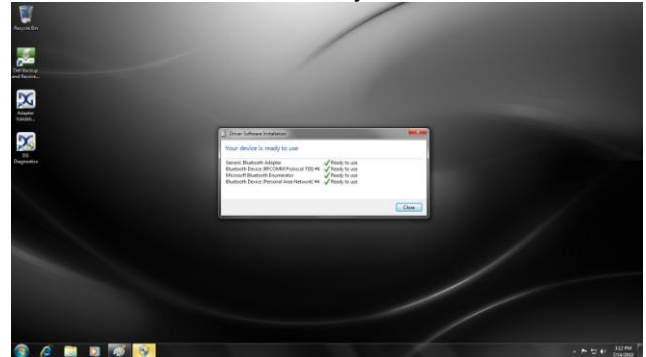
Status balloon displayed:
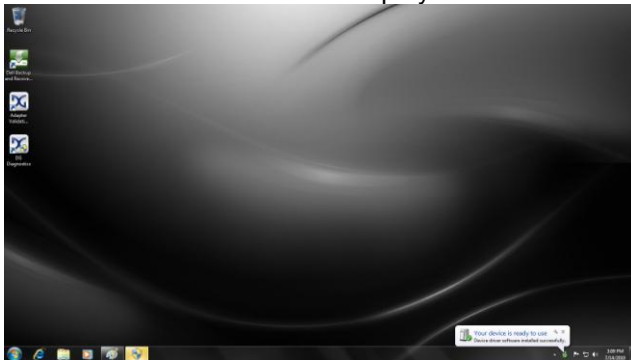
Bluetooth icon in icon tray:
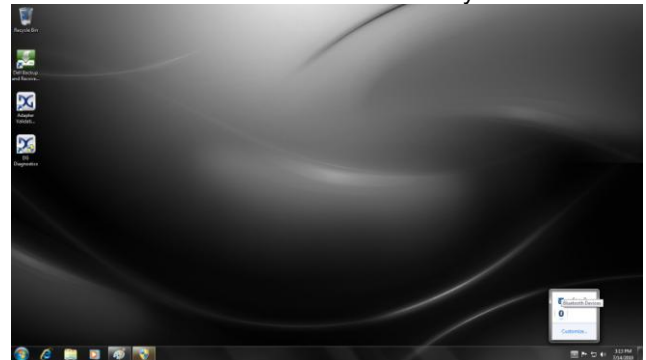
Right-click on Bluetooth icon, choose "Add a device":
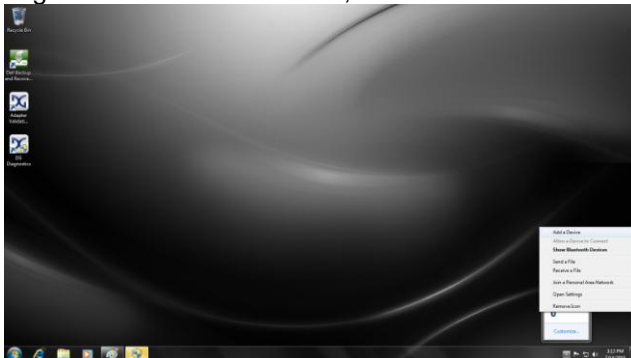
Match serial number displayed here with label on DPA 5 adapter. Select "Next" button.
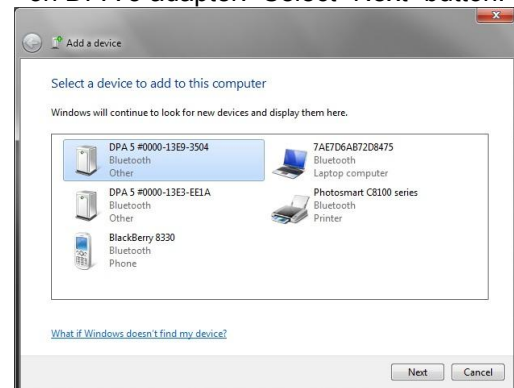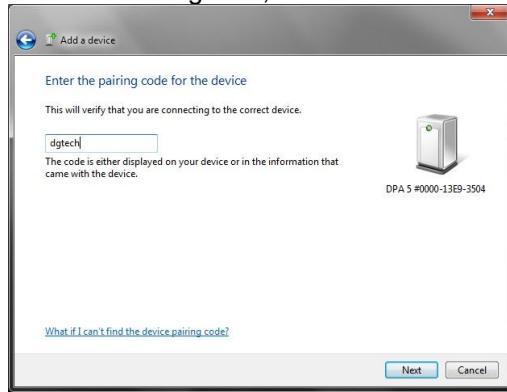
Enter "dgtech", select "Next"   Successful install. Select "Close".

Continue to Chapter 9 - Running The Bluetooth Configuration Utility.

7. Detailed Install - Vista 32 Business and Vista 64 Home Premium

NOTES

❑ IOGEAR Installation CD required. Run the installation from the CD before continuing.
❑ Not certain if all steps apply to other Windows Vista Versions

Insert GBU321 dongle into USB port.
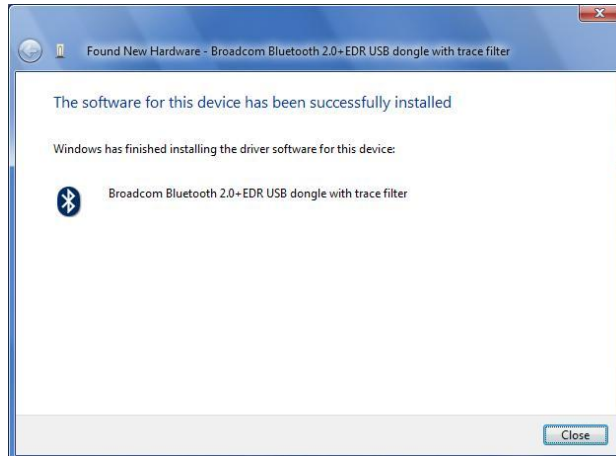

Installing…
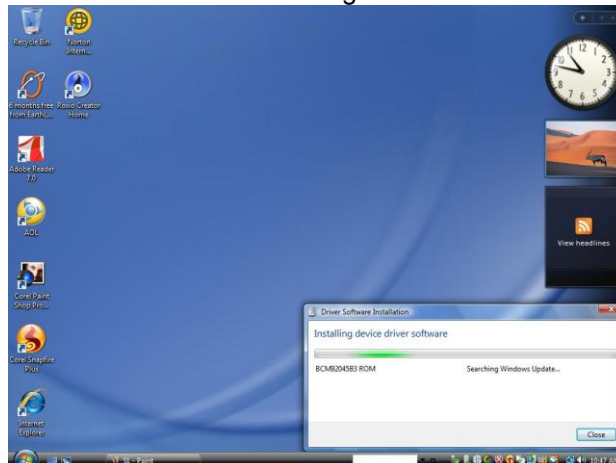
Insert IOGEAR CD into CD tray of PC:
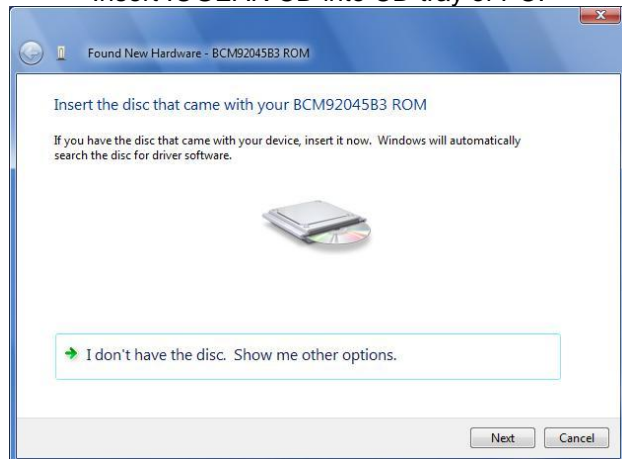
Searching for drivers…
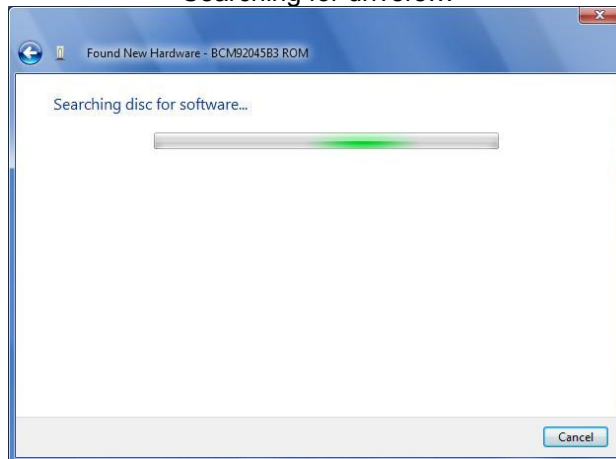
Installing…
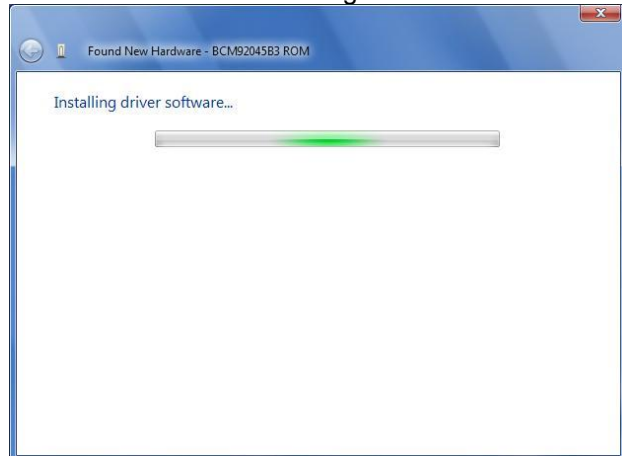
Successful…

Right-click on Bluetooth icon, select
"Add a Bluetooth Device"
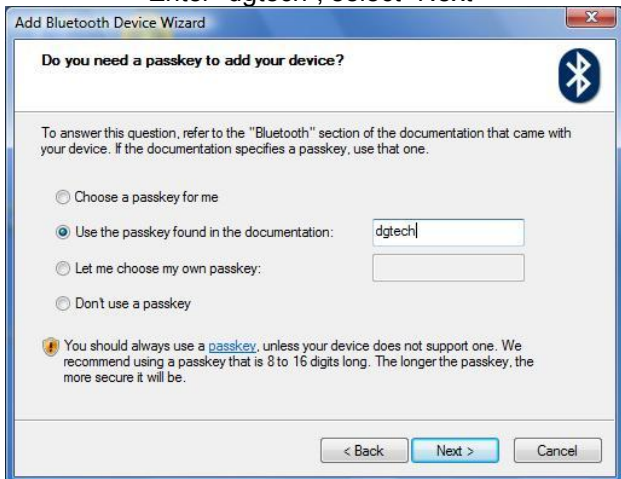
Turn on the DPA 5. Check box "My device is on…"
Select "Next" button:

Searching…

Select DPA 5 with serial number located
on the label:
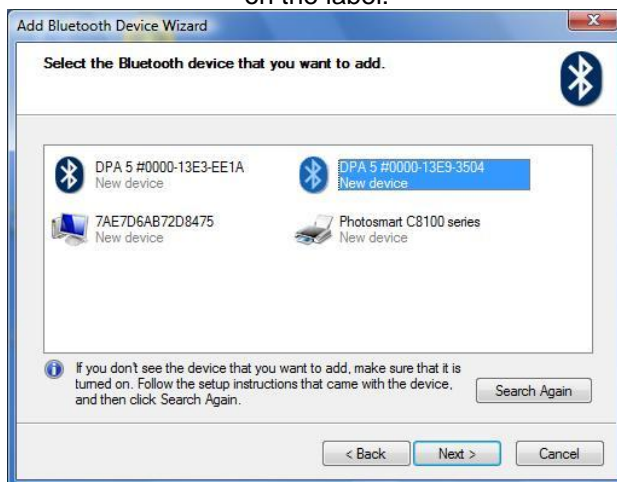
Enter "dgtech", select "Next"

Installing…

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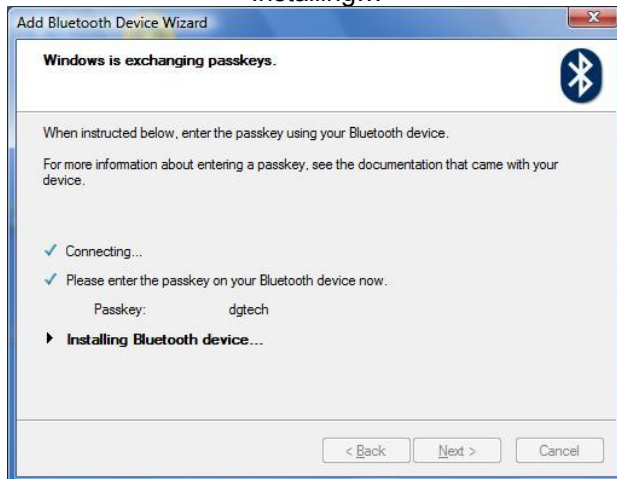
Select "Finish"

Continue to Chapter 9 - Running The Bluetooth Configuration Utility.
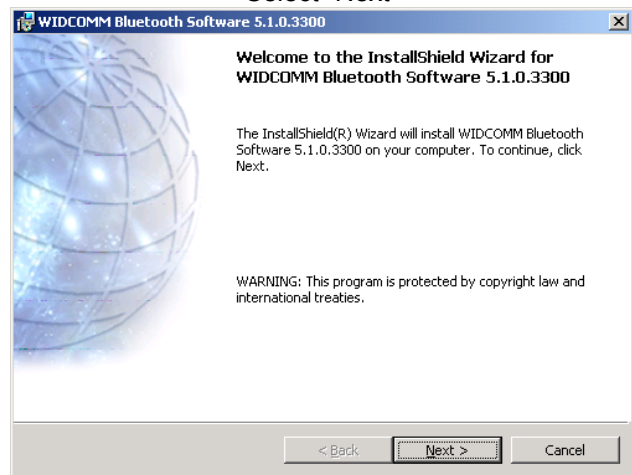
8. Detailed Install - Windows 2000 SP4

NOTES

- ❑ IOGEAR Installation CD required
- ❑ Service Pack 4 or higher is required

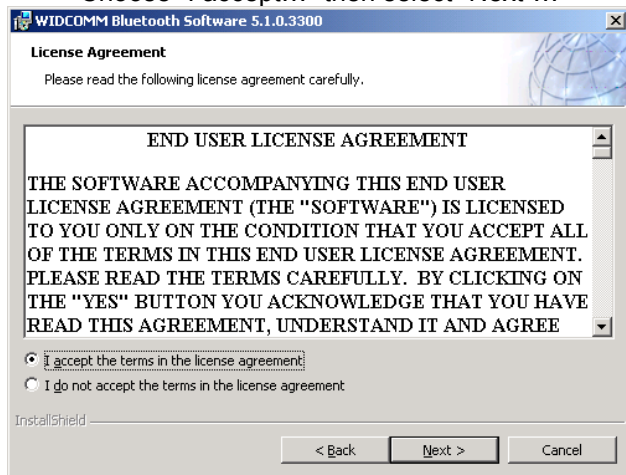Insert CD into computer, this screen will pop-up after a few seconds.

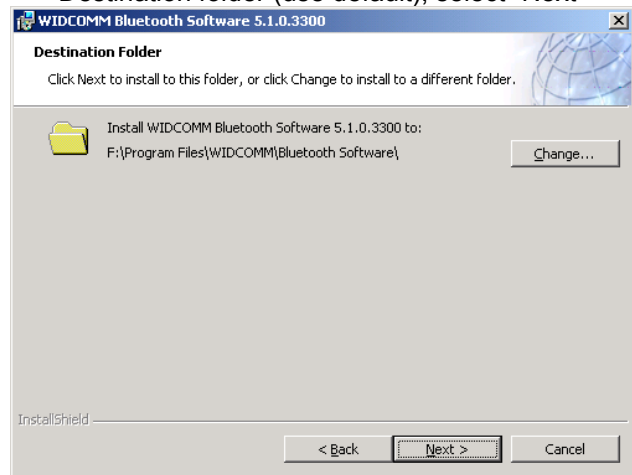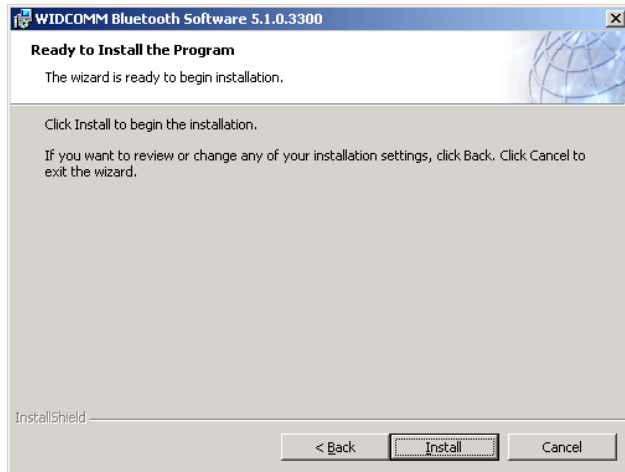Select "Windows XP / 2000 Installation":   Select "Next"

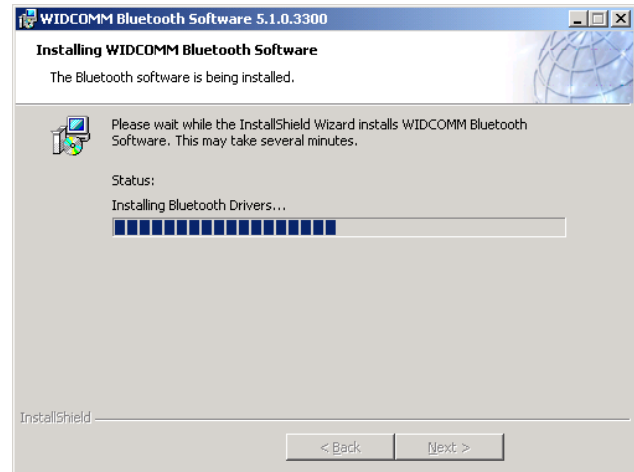Choose "I accept…" then select "Next"…   Destination folder (use default), select "Next"
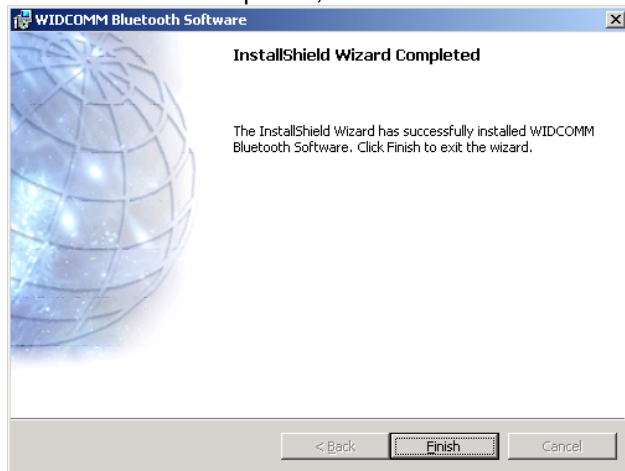
Select "Install"…

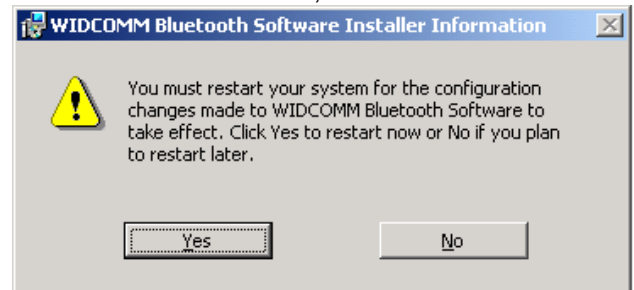Install WIDCOMM Bluetooth software:

Install completed, select "Finish"…
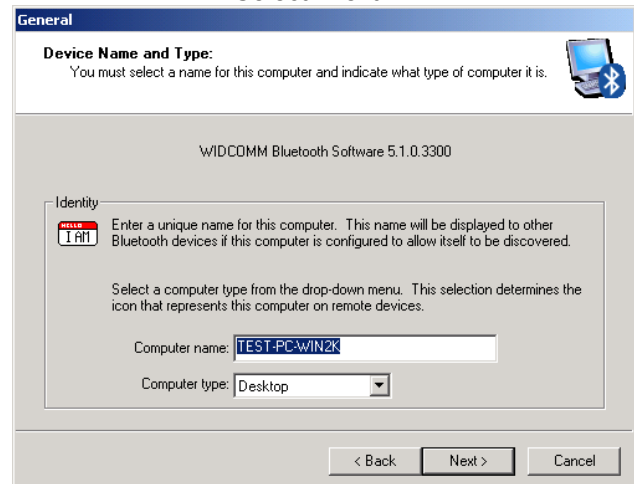

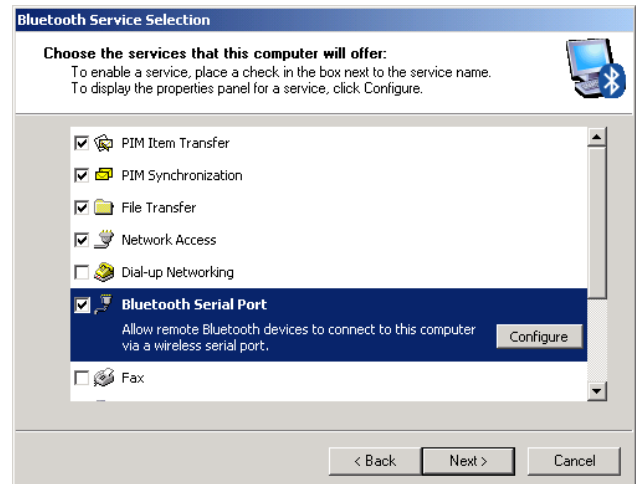Re-boot PC, Select "Yes"

Configure Bluetooth, select "Next"…

Select "Next"…

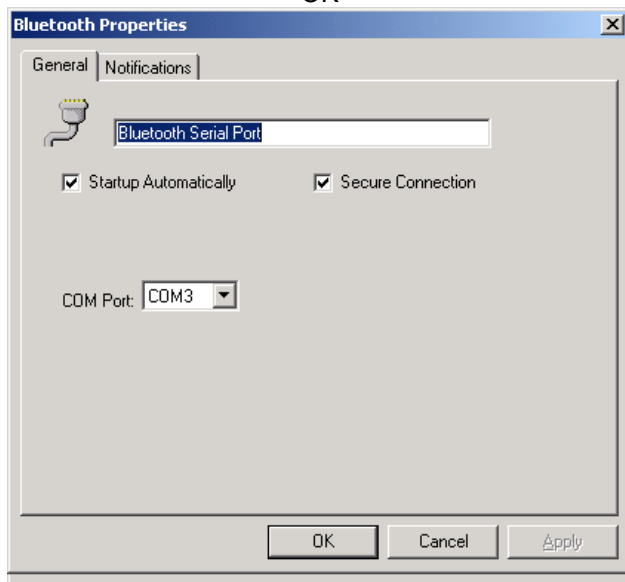Select "Next"…

Highlight "Bluetooth Serial Port", select "Configure" button, then select "Next"…

Displays which port will be assigned to Bluetooth, select "OK"

Select "Next"
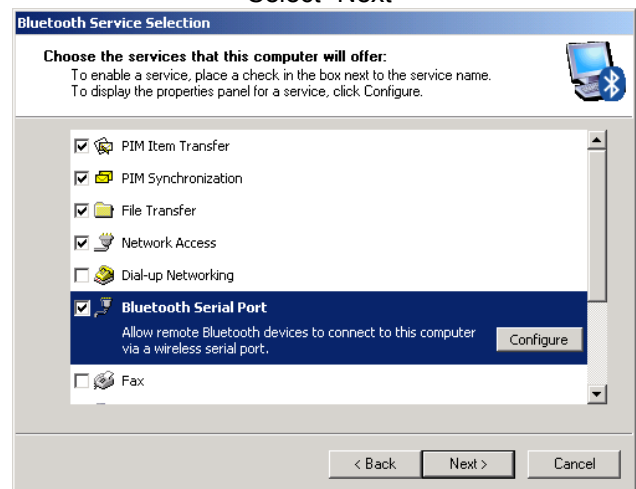
Select "Next"

Highlight the DPA 5 with the matching serial number from the label located on the adapter. Select "Next"

Enter "dgtech", select "Pair Now"

Highlight "Bluetooth Serial Port", select "Next"

Select "OK", then "Next"

Select "Finish"

DPA 5 Bluetooth device highlighted:

Continue to Chapter 9 - Running The Bluetooth Configuration Utility.

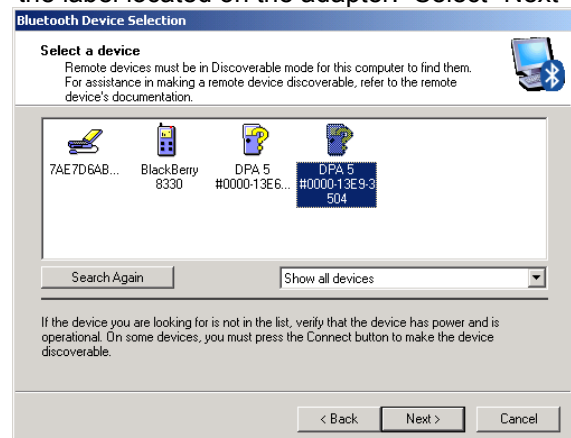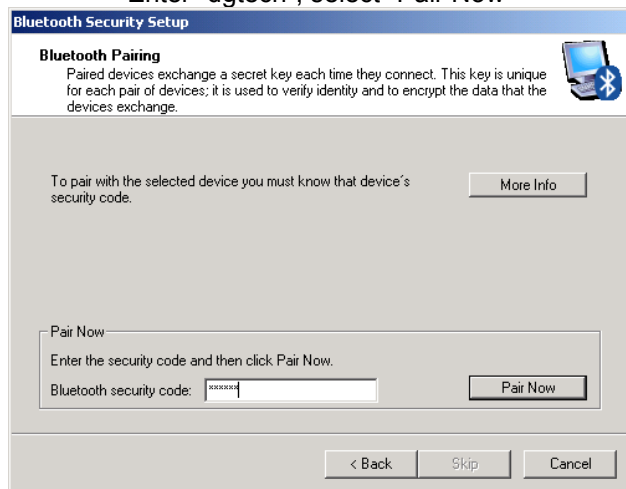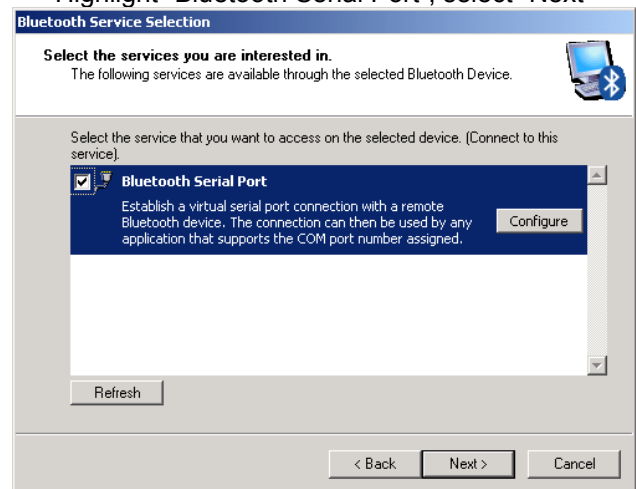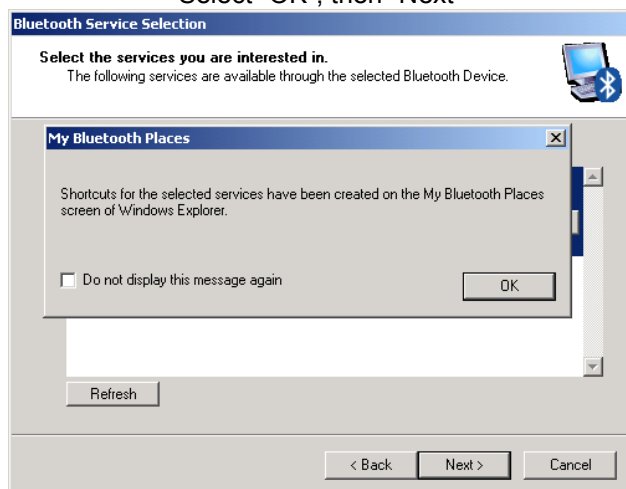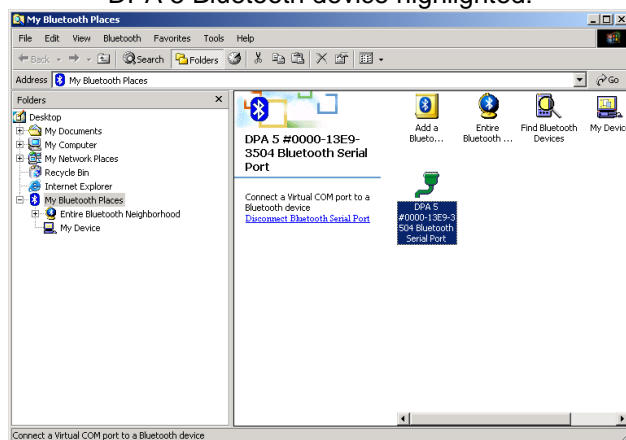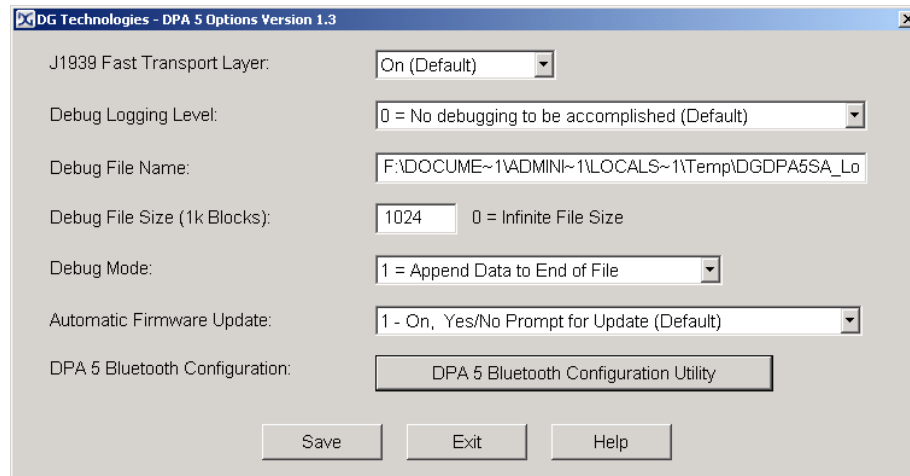## 9.　　Running the Bluetooth Configuration Utility

After you have successfully paired your DPA 5 with the Bluetooth dongle and have created the *Virtual COM Port*, run the DG Bluetooth Configuration Utility to create an RP1210 DeviceID entry that can be seen by OEM software applications:

❑ Start ➔ Programs ➔ Dearborn Group Products ➔ DPA 5 ➔ DPA 5 Options

DPA 5 Options Program

❑ Ensure the Bluetooth dongle is connected to the PC and that the DPA 5 has power

❑ Then press the button **DPA 5 Bluetooth Configuration Utility**

You must go through this configuration utility to create RP1210 DeviceID entries. If you do not, the DPA 5 in Bluetooth mode will not work with your OEM applications!

What the DG Bluetooth Configuration Utility does is:

✓ Display existing DPA 5 Bluetooth RP1210 DeviceID pairings that are found in the DGDPA5SA.INI file, allowing you to delete an RP1210 DeviceID pairing if you wish.

✓ Discover DPA 5 Bluetooth devices on Virtual COM Ports and create a new RP1210 DeviceID pairing that can be used by OEM software applications.

Note: The DPA 5 must have power in order to create the Virtual COM Port and RP1210 DeviceID pairing.

　　　　　　　　　　　　　　　　　　　　　　　　© 2010 Dearborn Group, Inc.
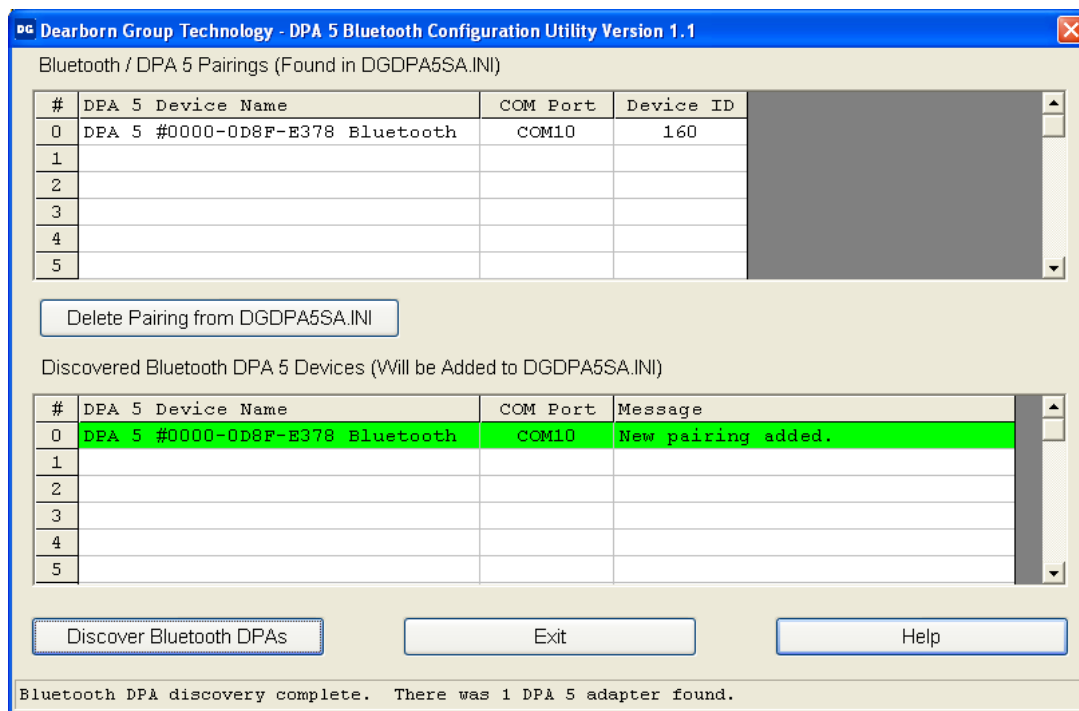
Image showing a newly discovered DPA 5.

9.1.   Creating a New RP1210 DeviceID from a Newly Paired DPA 5

After you have paired a DPA 5 with you PC and created a Virtual COM Port click the Discover Bluetooth DPAs button. Any Bluetooth DPAs that you have paired with will be automatically added to the DGDPA5SA.INI file.   Above is an illustration as to how it would look. OEM applications will now be able to see and use that particular DPA 5 as RP1210 DeviceID=160.

9.2.   Deleting an RP1210 DeviceID

If you want to delete an RP1210 DeviceID, simply select that entry and click the Delete Pairing from DGDPA5SA.INI file. Note that after the RP1210 DeviceID has been deleted, it will NOT appear in OEM software applications for selection.

10. Technical Support and Return Merchandise Authorization (RMA)

10.1. Technical Support

For users in the United States, technical support is available from 9 a.m. to 5 p.m. Eastern Time. You may also fax or e-mail your questions to us. For prompt assistance, please include your voice telephone number.

Users not residing in the United States should contact your local Dearborn Group, Inc. representative.

DG Technologies Support

Phone:	(248) 888-2000
Fax:	(248) 888-1188
E-mail:	techsupp@dgtech.com
Web site:	www.dgtech.com

10.2. Return Merchandise Authorization (RMA)

If technical support has deemed that there may be a physical problem with your DPA, you will be issued you an RMA (Return Merchandise Authorization) number. You would then return the product along with any documentation of ownership you have (proof of purchase/price) to the following address:

DG Technologies
Product Service/Repairs
Attn: RMA# xxxxxxx
Dearborn Group, Inc.
33604 West 8 Mile Road
Farmington Hills, MI 48335

11. Appendix – FCC and Certification Industry Canada Information

The DPA 5 has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules (see the back of the DPA 5 for FCC and IC specific identifications). These limits are designed to provide reasonable protection against harmful interference in a residential installation. The DPA 5 uses and generates radio frequency energy. If not installed and used in accordance with the instructions, it may cause harmful interference to radio communications. If the DPA 5 does cause harmful interference to radio or television reception, which can be determined by turning the affected equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving and/or sending antennas.
- Increase the separation between the DPA 5 and the affected receiving equipment.
- 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.

This product complies with FCC OET Bulletin 65 radiation exposure limits set forth for an uncontrolled environment.

11.1. Industry Canada

Operation of the DPA 5 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 undesired operation.

Changes not expressly approved by Dearborn Group, Inc. to the DPA 5 could void the user's authority to operate the DPA 5. The following is a sample rear label from the DPA 5 depicting the FCC and IC identifiers.
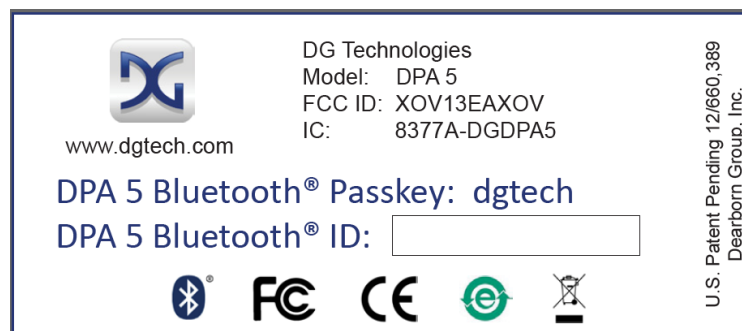
The following are the DPA 5 Bluetooth details as required to be published by the FCC.

Operating Frequency	2.4GHz
Power Output Maximum	< 4.4dBi
Contains Transmitter Module FCC ID:	QOQWT11
Transmitter Bluetooth QDID	B012647