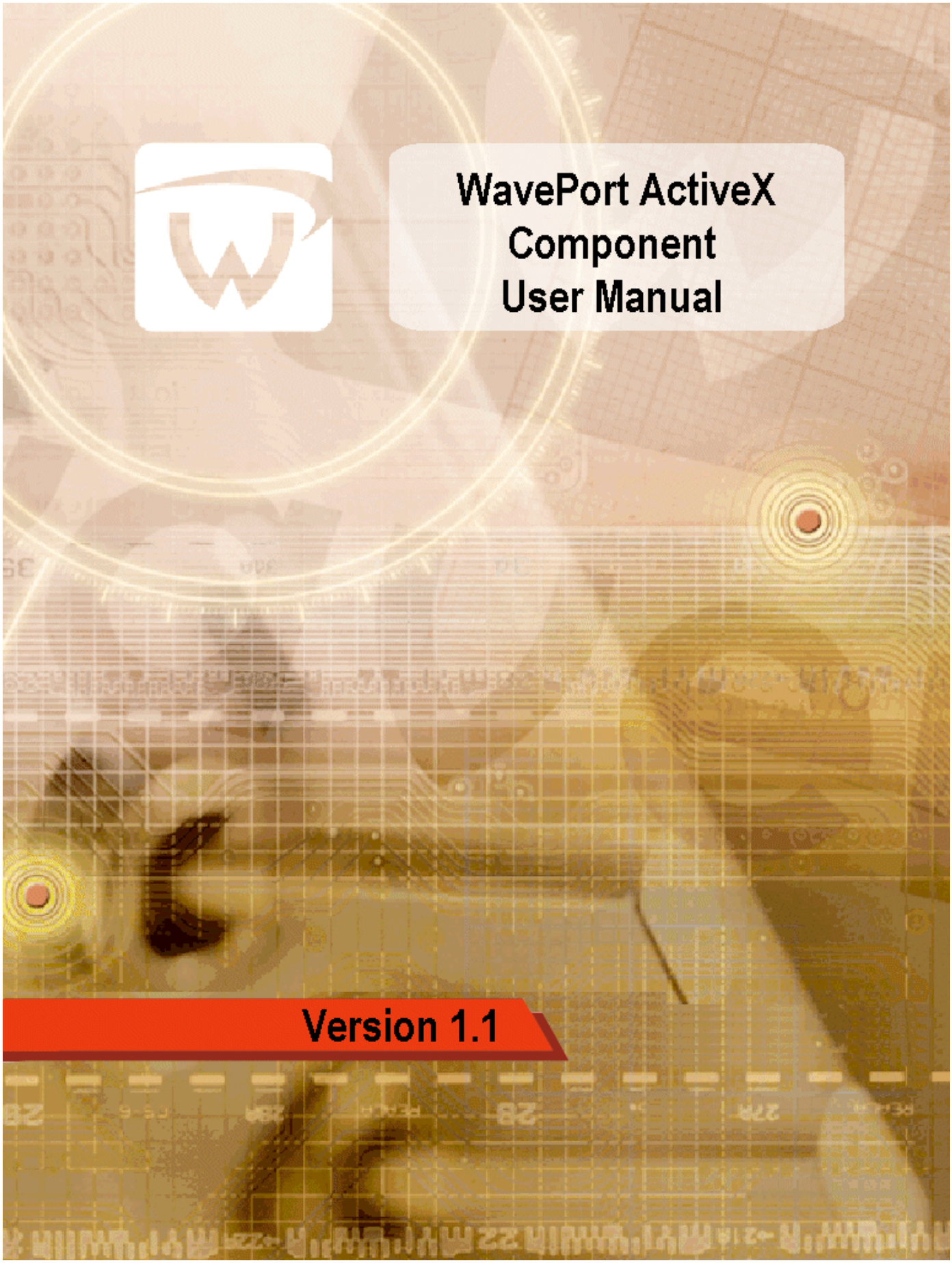

WavePort ActiveX
Component
User Manual
Version 1.1

# REVISIONS HISTORY

| Revision | Description | Author | Date | Comments |
|---|---|---|---|---|
| 0 | Original document | RCS | 20/01/05 | Version 1 |
| 1 | Correction repeater format | RCS | 27/01/05 | Version 1 |
| | | | | |
| | | | | |

# ACTIVEX VERSIONS

**Wavenis.System component** **V 1.0.0.1**

**Wavenis.Waveport component** **V 1.0.0.1**

## ➢ FIRMWARE VERSIONS SUPPORTED

**WavePort / WaveCard :** **Compatible with previous versions until the version 2.01**

**Is)XPort :** **Compatible with all the versions, except for the following functions which are not supported:**

- **GetSwitchMode**
- **SetSwitchMode**
- **GetErrorStatus**
- **SetErrorStatus**
- **RadioPacket**

# TABLE OF CONTENTS

# 1 PRESENTATION OF THE WAVENIS.NET ACTIVEX

This document presents the Wavenis.Net activeX component, and its integration in user applications. This ActiveX supports the following environments :

- Visual Studio**.NET** environment (C#.net ; VB.net ; C++.net ; ASP.net ; J#.net)
- Visual Studio 6 environment (VC++ 6 ; VB6)

But it can be also used under the environments Borland C++ Builder; Borland Delphi; LabView; and generally, under any environment supporting dotNet ActiveX.

***Compatibility :***

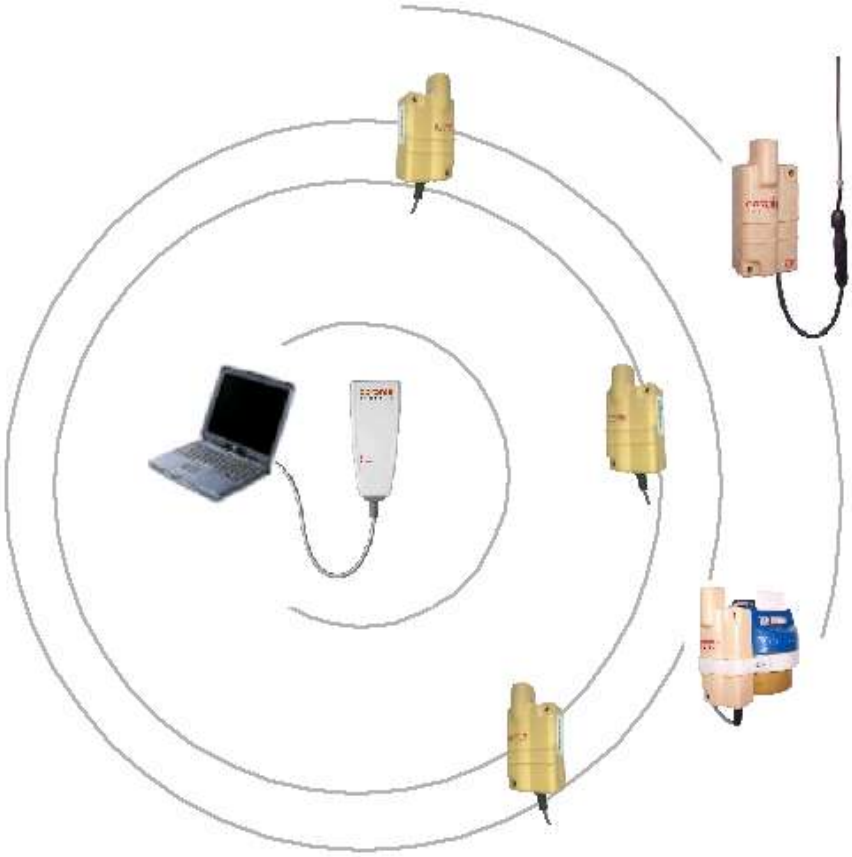
***- under Win32 : Windows 2000 ; Windows Millenium ; Windows 2003 server ; Windows XP (Pro, et Family edition);***

***- under WinCE : Pocket PC 2002 ; Pocket PC 2003 ; Windows CE 4.2 ; Windows CE 5.0***

***The activeX is not compatible with WinCE 3.0, and Windows 98.***

The activeX Wavenis.Net is composed:

- With **Waveport** component allowing to initialize the dialogue between the host, and WavePort (or WaveCard); and to communicate with one (or several) distant equipment.



***Attention this handbook presents only the use of the ActiveX.Net component, and the detail of the associated functions. To have information about the principles of operation, and the formats of the data, it will imperatively be necessary to refer to the application handbook of the equipments concerned.***

# 2 INTEGRATION OF THE WAVENIS.NET ACTIVEX UNDER VISUAL STUDIO

This chapter describes the integration method of Wavenis.Net ActiveX in Visual Studio environment.

The DLL Wavenis.Waveport provides a COM interface (IWavePort) which allows to use .NET DLL in an user application VB6 and C++6.
The COM component is associated a file (Wavenis.Waveport.tlb) which allows Visual BASIC 6 to refer the component ; and Visual C++ 6 to generate the proxy class interface IWavePort.

## 2.1 UNDER VISUAL BASIC 6

➢ **Creation of a new project :**

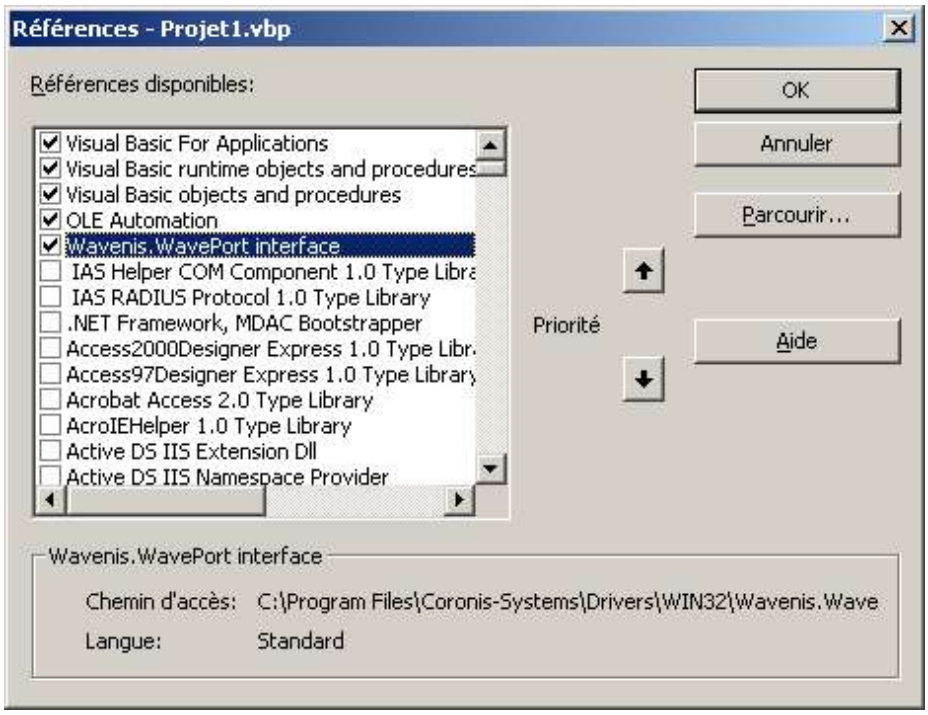
Select menu *File* , *New project*, *EXE Standard*.

➢ **ActiveX integration :**

- under Visual Basic 6, select menu ***Project – References***.
- Select the *Browse* button, and select the file **Wavenis.Waveport.tlb.**

***Make sure to choose the folder corresponding to the environment in which the activeX will be used :***
***- under Win32 : C:\Program Files\Coronis-Systems\Drivers\WIN32***
***- under WinCE : C:\Program Files\Coronis-Systems\Drivers\WINCE***

- In the available references, please check the new option *"Wavenis.WavePort interface*".



- Select menu *View* – *Objects explorer*, and choose the library **Wavenis_Waveport**

The Wavenis_Waveport library contains the following objects :

- Com component interface **IWavePort** to use under VB6;
- .NET component **WavePort**;
- alarm management : **alarmHandler**;
- event object : **IWavenisEvent** ;
- object containing enumeration of error codes : **reason**.

**VB6**

**Visual Basic 6 Example :**

```
'Declaration of the interfaces
Dim WPort1 As IWavePort

' Creation of the Waveflow object
Set WPort1 = New Wavenis_WavePort

' Initialization of the WavePort object to the RS232 communication port COM1
Dim bSuccess As Boolean
 'Initialize the WPort1
bSuccess = WPort1.Init(9600, 8, 0, 1, 0)

'Obtaining the firmware version of the Waveflow module whose radio address is "011604303220" :
Dim firmware As String
Dim rep As String
Dim strError As String

firmware = WPort1.RadioExchange("011604303220", "28", rep, strError)
```

## 2.2 UNDER VISUAL C++ 6

- **Creation of a new project :**

Select menu *File* , *New project*, *EXE Standard*.

- **ActiveX integration :**

Contrary to the Microsoft Visual BASIC clients who can post a .NET object in the objects explorer, thus exposing the object functions, syntax, properties and the fields, exactly as if it acted of any other object COM. The importation process of types library is slightly more complicated for the C++ clients, even if you use the same tools to export "metadata" towards a library of COM types.

To refer .NET members objects starting from a C++ client not managed, refer file .TLB with directive **#import** (see C++ example in appendix 2, line 12)

***Make sure to choose the folder corresponding to the environment in which the activeX will be used :***

***- under Win32 : C:\Program Files\Coronis-Systems\Drivers\WIN32***

***- under WinCE : C:\Program Files\Coronis-Systems\Drivers\WINCE***

# 3 INTEGRATION OF THE WAVENIS.NET ACTIVEX UNDER VISUAL STUDIO.NET

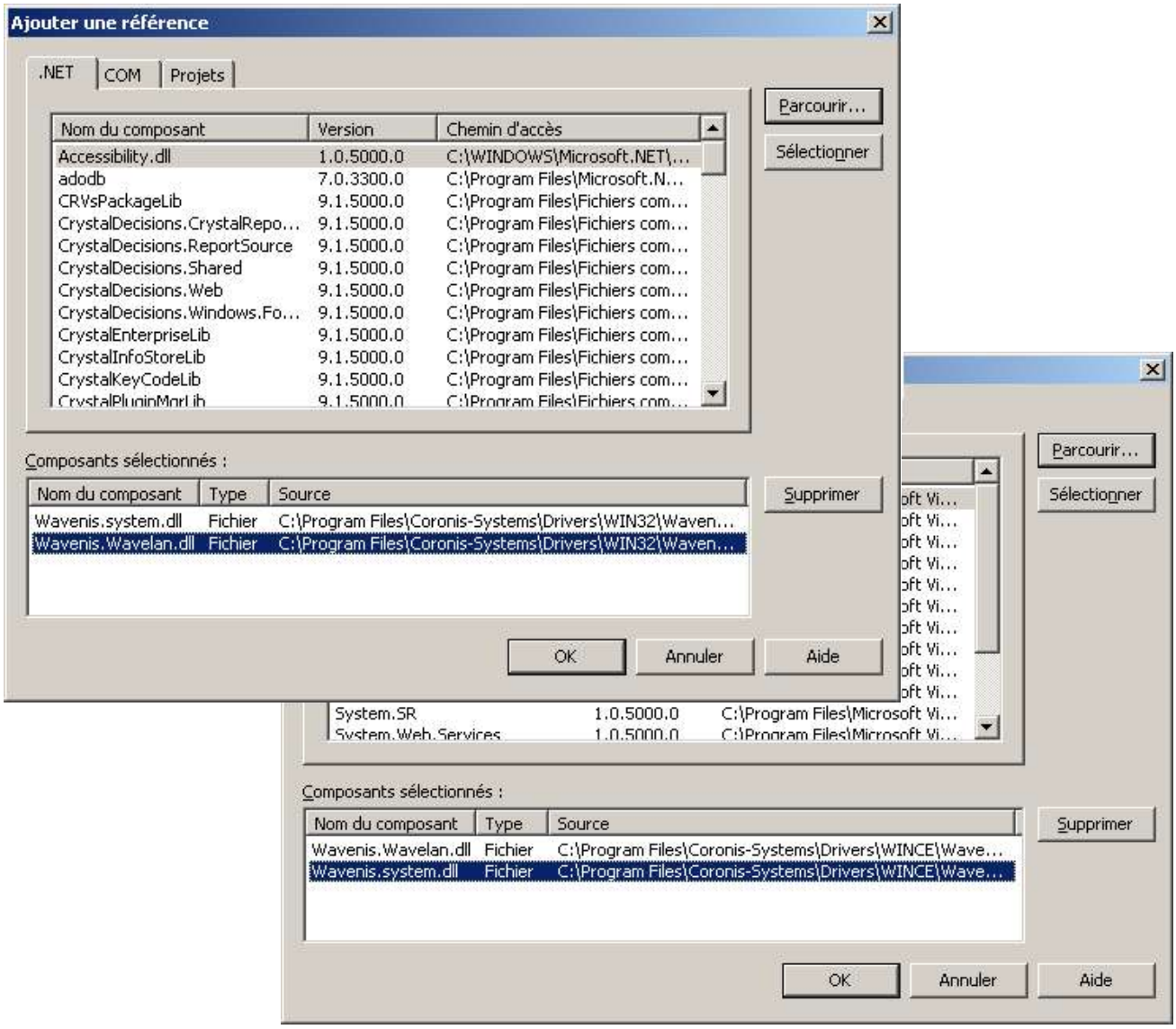
This chapter describes the method to integrate ActiveX Wavenis.Net in the Visual Studio.NET environment. The same method is applied whatever the language used (C#.net; VB.net; C++.net; ASP.net; J#.net)

- **Creation of a new project :**

Select menu *File* , *New project*, *EXE Standard*.

- **ActiveX integration :**

Select menu *Project,* then *Add a reference*.




***Make sure to choose the folder corresponding to the environment in which the activeX will be used :***

***- under Win32 : C:\Program Files\Coronis-Systems\Drivers\WIN32***

***- under WinCE : C:\Program Files\Coronis-Systems\Drivers\WINCE***

# 4 INITIALIZATION OF THE WAVENIS ACTIVEX UNDER VISUAL STUDIO 6

The initialization of the Wavenis.Net activeX is composed at least of the following parts :

- Opening and initialization of the COM port,
- Definition, and connection of the events manager.

Examples codes illustrate in the various supported languages, the implementation of the activex. They are available in appendix; and under the following folder :

*C:\Program Files\Coronis-Systems\Wavenis.net\Applications\Win32*

*or* *C:\Program Files\Coronis-Systems\Wavenis.net\Applications\WinCE*

## 4.1 INITIALIZATION, AND OPENING OF THE COM PORT

First of all, it is necessary to define the WavePort object, and to create its instance before being able to use it. The definitions of the object, and its instance are illustrated in appendix 1, and appendix 2 :

- under Visual Basic 6, lines 1, and 5

```
1  Dim WPort As IWavePort
5  Set WPort = New Wavenis  Waveport.WavePort
```

- under Visual C++6, line 42, and from line 357 to 374

```
42   Wavenis_Waveport::IWavePortPtr Wport;
370  hr = ::CoCreateInstance(CLSID_WavePort,
371                          NULL,
372                          CLSCTX_INPROC_SERVER,
373                          IID_IWavePort,
374                          reinterpret_cast<void**>(&WPort));
```

Then, open the COM port COM by using the following functions,

- **SetCommPortNumber** (port number) : *This function selects the COM port to be used for the communication between WavePort and its host. See details in chapter 6.2.3.*
- bool **Init** (baudrate, databits, parity, stopbit, mask) : *configure, and opens the port COM selected with SetCommPortNumber. See details in chapter 6.2.1.*

Examples of initialization, and opening of the COM port are available in VB6, and VC++6 in appendix 1, and 2 :

- under VB6, lines 30, and 33

```
30  WPort.SetCommPortNumber (iCom)
33  bSuccess = WPort.Init(9600, 8, 0, 1, 0)
```

- under VC++6, lines 277, and 280

```
277  hr = WPort->SetCommPortNumber(iCom);
280  hr = WPort->Init(9600,8,0,1,0,&bSuccess);
```

## 4.2 EVENTS MANAGEMENT

WavePort (or WaveCard) is likely to receive spontaneous messages from distant modules. To recover these messages under user application, it is necessary to create an events manager.

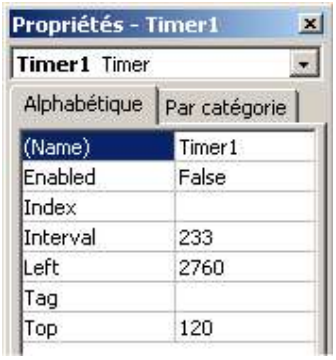
In Visual Studio 6 environment, the events manager is controlled by a timer scanning the serial connection periodically, in waiting of a possible message (see example of code in appendix 1, and 2).

When the WavePort module receive an event, and send it to its host, it awaits a RS232 acknowledgement from the host. If the acknowledgement does not arrive at the end of 500ms, then the module re-emits the event (see manual application of the WavePort modules).

**The scanning controlled by a timer must be carried out every 200ms (230ms max) so that the user application has time to send the acknowledgement to the initiator equipment of the event.** The alarm acknowledgement is sent by using *ResetAlarm* function. *(see chapter 6.3.1)*.

***Attention, currently when the initiator equipment of the event is accessible via repeaters. It is possible to acknowledge the event only if the repeater route is known by the user; else the acknowledgement is impossible.***
***This is due to the fact that the repeater route is not contained in the alarm frame.***

In VB6, when creating the timer, the user has to disable the timer starts in the timer configuration box. It will be enable by the user, when creating the instance of the WavePort object.




### 4.2.1 Definition and polling of the event

In the periodic function of the timer, an event object is declared according to the **Wavenis_Waveport.IWavenisEvent** class. Then, this periodic function make a call to the **WatchLink** function which will check the arrival of an event; and will store it in the event object created (WEvent).
See the detail of the **WatchLink** function in chapter 6.3.2 and examples code en appendix 1, and 2 :

- under VB6, lines 64, and 66

```
64  Dim WEvent As Wavenis_Waveport.IWavenisEvent
66  If (WPort.WatchLink(WEvent)) Then
```

- under C++6, lines 391, and 393

```
391 Wavenis_Waveport::IWavenisEventPtr WEvent=NULL;
393 HRESULT hr = WPort->WatchLink(&WEvent,&result);
```

### 4.2.2 Processing of the event

When an event was detected by the WatchLink function, the event is stored in the instance of the IWavenisEvent object.

Consequently, the user has access to a certain number of information about the event, accessible via the following functions: GetAddress; GetStatus; GetTime; GetDayOfWeek; GetValue;GetSensorType; GetSensor. The detail of these functions is described in chapter 6.3.

# 5 INITIALIZATION OF THE WAVENIS ACTIVEX UNDER VISUAL STUDIO.NET

The initialization of the Wavenis.Net activeX is composed at least of the following parts :

- Opening and initialization of the COM port,
- Definition, and connection of the events manager.

Examples codes illustrate in the various supported languages, the implementation of the activex. They are available in appendix; and under the following folder :

*C:\Program Files\Coronis-Systems\Wavenis.net\Applications\Win32*

*or* *C:\Program Files\Coronis-Systems\Wavenis.net\Applications\WinCE*

## 5.1 INITIALIZATION, AND OPENING OF THE COM PORT

First of all, it is necessary to define the WavePort object, and to create its instance before being able to use it. The definitions of the object, and its instance are illustrated in appendix 3, 4 and 5 :

- under VB.net, lines 3, and 14 :

```
3   Dim WPort As Wavenis.WavePort
14  WPort = New Wavenis.WavePort
```

- under VC#.net, lines 7, 21, and 39 :

```
7   using Wavenis;
21  private Wavenis.WavePort WPort;
39  WPort = new WavePort();
```

Then, open the COM port by using the following functions,

- **SetCommPortNumber** (port number) : *This function selects the COM port to be used for the communication between WavePort and its host. See details in chapter 6.2.3.*
- bool **Init** (baudrate, databits, parity, stopbit, mask) : *configure, and opens the port COM selected with SetCommPortNumber. See details in chapter 6.2.1.*

Examples of initialization, and opening of the COM port are available in VB.net, and VC#.net in appendix 3, 4, and 5.

- under VB.net, lines 149, and 152 :

```
149  WPort.SetCommPortNumber(iCom)
152  If (WPort.Init(9600, 8, 0, 1, 0)) Then
```

- under VC#.net, lines 195, and 198 :

```
195  WPort.SetCommPortNumber(sCom);
198  bool bresult = WPort.Init(9600,8,0,1,0);
```

## 5.2 EVENTS MANAGEMENT

WavePort (or WaveCard) is likely to receive spontaneous messages from distant modules. To recover these messages under user application, it is necessary to create an events manager.

The events management is done by two methods, applied according to the language used :

- connection of the events to an handler sending the event to the application. This method is applicable under VB.Net; and VC#.Net.
- Use of a periodic function scanning the serial port, and waiting for an event. This method is used with the VC++.Net language

The VC++.Net language being very close to the VC++, it also uses the events management per periodic scanning.

When the WavePort module receive an event, and send it to its host, it awaits a RS232 acknowledgement from the host. If the acknowledgement does not arrive at the end of 500ms, then the module re-emits the event (see manual application of the WavePort modules).

***Attention, currently when the initiator equipment of the event is accessible via repeaters. It is possible to acknowledge the event only if the repeater route is known by the user; else the acknowledgement is impossible.***

***This is due to the fact that the repeater route is not contained in the alarm frame.***

### 5.2.1 Connection to an event handler

The event class IWavenisEvent contains the data of the alarm transmitted by the distant module. This class provides a delegate *'alarmHandler'* to connect the alarm manager of Waveport to a function defined by the application which will receive the event.

When using an event handler, the application comes to scan periodically the serial port, automatically every 230ms. If a spontaneous message is detected, the function *'alarmRang'* is called.

Connection to the handler is done in the following way :

- under VB.Net : by the use of the function '*AddHandler*' (appendix 3, line 155) :

```
155 AddHandler WPort.Alarm, AddressOf Me.alarmRang
```

- under VC# .Net : by the creation of an event object *'alarmhandler'* (appendix 4, line 205)

```
205 WPort.Alarm += new Wavenis.alarmHandler(alarmRang);
```

### 5.2.2 Periodic scanning

The events manager is controlled by a timer scanning the serial connection periodically, in waiting of a possible message.

The scanning controlled by a timer, must be carried out every 200ms (230ms max) so that the user application has time to send the acknowledgement to the initiator equipment of the event. The alarm acknowledgement is sent by using *ResetAlarm* function. *(see chapter 6.3.1)*.

In the periodic function of the timer, an event object is declared according to the **Wavenis_Waveport.IWavenisEvent** class. Then, this periodic function make a call to the **WatchLink** function which will check the arrival of an event; and will store it into the event object created (WEvent).

### 5.2.3 Processing of the event

Whatever the event management method used, when an event was detected, it is stored in the instance of the IWavenisEvent object.

Consequently, the user has access to a certain number of information about the event, accessible via the following functions: GetAddress; GetStatus; GetTime; GetDayOfWeek; GetValue;GetSensorType; GetSensor. The detail of these functions is described in chapter 6.3.

# 6 SPECIFIC FUNCTIONS TO THE WAVEPORT EQUIPMENTS

## 6.1 CONFIGURATION FUNCTIONS OF THE INTERNAL PARAMETERS

For the detail of operation relative to each parameter, please refer to the application handbook of the WavePort (WaveCard).

### 6.1.1 GetWakeUp : *Reading of the polling period of RF medium radio*

**VB6**

```
GetWakeUp (     (out) wakeUpInterval as Integer ) as Boolean
```

**C# .Net**

```
bool GetWakeUp (ref int wakeUpInterval)
```

- Parameters :

  ***none***

- Returned values :

  **wakeUpInterval** : polling period of RF medium radio, in multiples of 100ms

  **bResult** : returned value *'OK' = 1*
  *'NOK' = 0*

### 6.1.2 SetWakeUp : *modification of the polling period of RF medium radio*

**VB6**

```
SetWakeUp (     (in) wakeUpInterval as Short ) as Boolean
```

**C# .Net**

```
bool SetWakeUp (short wakeUpInterval)
```

- Parameters :

  **wakeUpInterval** : polling period of RF medium radio, in multiples of 100ms
  By default : = 10 , for 1 seconds (if = 0, then quasi-permanent reception)

- Returned values :

  **bResult** : returned value *'OK' = 1*
  *'NOK' = 0*

### 6.1.3 GetWakeUpLong : *reading of the WakeUp type to be used*

This function allows to read the WakeUp type to be used to transmit a frame.

**VB6**

```
GetWakeUpLong (        (out) wakeUpLong as Boolean ) as Boolean
```

**C# .Net**

```
bool GetWakeUpLong (ref bool wakeUpLong)
```

- Parameters :

  ***none***

- Returned values :

  **wakeUpLong** : *0 : Long Wake Up (default value)*
  *1 : Short Wake Up*

  **bResult** : returned value *'OK' = 1*
  *'NOK' = 0*

### 6.1.4 SetWakeUpLong : *selection of the WakeUp type to be used*

This function allows to configure the WakeUp type to be used to transmit a frame.

**VB6**

```
SetWakeUpLong (        (in) wakeUpLong as Boolean ) as Boolean
```

**C# .Net**

```
bool SetWakeUpLong (bool wakeUpLong)
```

- Parameters :

  **wakeUpLong** : *0 : Long Wake Up (default value)*
  *1 : Short Wake Up*

- Returned values :

  **bResult** : returned value *'OK' = 1*
  *'NOK' = 0*

### 6.1.5 GetWakeUpLength : *reading of the length of Long WakeUp.*

**VB6**

```
GetWakeUpLength (      (out) wakeUpLength as Short ) as Boolean
```

**C# .Net**

```
bool GetWakeUpLength (ref short wakeUpLength)
```

- Parameters :

  ***none***

- Returned values :

  **wakeUpLength** : duration of the Long WakeUp in multiples of 1ms.

  **bResult** : returned value *'OK' = 1*
  *'NOK' = 0*

### 6.1.6 SetWakeUpLength : *modification of the length of Long WakeUp.*

This method modifies the length of Long WakeUp, when this one is used. In general, it is equal to the polling period of RF medium radio + 100ms.

**VB6**

```
SetWakeUpLength (      (in) wakeUpLength as Short ) as Boolean
```

**C# .Net**

```
bool SetWakeUpLength (short wakeUpLength)
```

- Parameters :

  **wakeUpLength** : duration of the Long WakeUp in multiples of 1ms.

  *Default value : = 1100 ms ( min. = 20ms ; max. = 10 sec )*

- Returned values :

  **bResult** : returned value *'OK' = 1*
  *'NOK' = 0*

### 6.1.7 GetGroupNumber : *reading of the group number to be interrogated, in Polling mode*

**VB6**

```
GetGroupNumber (        (out) groupNumber as Short ) as Boolean
```

**C# .Net**

```
bool GetGroupNumber (ref short groupNumber)
```

- Parameters :

  ***none***

- Returned values :

  **groupNumber** : group number to be interrogated

  **bResult** : returned value *'OK' = 1*
  *'NOK' = 0*

### 6.1.8 SetGroupNumber : *modification of the group number to be interrogated, in Polling mode*

This function modifies the group number to be interrogated on selective Polling request (refer to the parameter 0x09 in the application handbook of WaveCard/ WavePort).

**VB6**

```
SetGroupNumber (        (in) groupNumber as Short ) as Boolean
```

**C# .Net**

```
bool SetGroupNumber (short groupNumber)
```

- Parameters :

  **groupNumber** : group number to be interrogated

- Returned values :

  **bResult** : returned value *'OK' = 1*
  *'NOK' = 0*

### 6.1.9 GetRadioAck : *reading of the radio acknowledgement configuration*

**VB6**

GetRadioAck ( (out) **bRadioAck** as Boolean ) as Boolean

**C# .Net**

bool GetRadioAck (ref bool **bRadioAck**)

- Parameters :

  ***none***

- Returned values :

  **bRadioAck** : radio acknowledgement configuration
  *0 : no radio acknowledgement (default value)*
  *1 : radio acknowledgement activated*

  **bResult** : returned value *'OK' = 1*
  *'NOK' = 0*

### 6.1.10 SetRadioAck : *modification of the radio acknowledgement configuration*

**VB6**

SetRadioAck ( (in) **bRadioAck** as Boolean ) as Boolean

**C# .Net**

bool SetRadioAck (bool **bRadioAck**)

- Parameters :

  **bRadioAck** : radio acknowledgement configuration
  *0 : no radio acknowledgement (default value)*
  *1 : radio acknowledgement activated*

- Returned values :

  **bResult** : returned value *'OK' = 1*
  *'NOK' = 0*

### 6.1.11 GetPollingTable : *reading of the addresses table used in polling mode*

This function allows to read the table containing the radio addresses of the distant equipments having to be interrogated in Polling mode (refer to the parameter 0x08 in the application handbook WaveCard/ WavePort). The maximum number is of 40 equipments being able to be interrogated.

**VB6**

```
GetPollingTable (          (out) pollingTable as String ) as Boolean
```

**C# .Net**

```
bool GetPollingTable (ref string pollingTable )
```

- Parameters :

  ***none***

- Returned values :

  **pollingTable** : List containing the radio addresses of the equipments to interrogated
  *1st byte: number of recipients (max = 40)*
  *following bytes : radio addresses of the recipient ( 6 bytes per address )*

  **bResult** : returned value *'OK' = 1*
  *'NOK' = 0*

### 6.1.12 SetPollingTable : *modification of the addresses table used in polling mode*

This function allows to modify the table containing the radio addresses of the distant equipments having to be interrogated in Polling mode (refer to the parameter 0x08 in the application handbook WaveCard/ WavePort). The maximum number is of 40 equipments being able to be interrogated.

**VB6**

```
SetPollingTable (          (in) pollingTable as String ) as Boolean
```

**C# .Net**

```
bool SetPollingTable (string pollingTable)
```

- Parameters :

  **pollingTable** : List containing the radio addresses of the equipments to interrogated
  *1st byte: number of recipients (max = 40)*
  *following bytes : radio addresses of the recipient ( 6 bytes per address )*

- Returned values :

  **bResult** : returned value *'OK' = 1*
  *'NOK' = 0*

### 6.1.13 GetPollingTime : *reading of the delay between two consecutive emissions in radio polling mode*

This function reads the value of the delay separating two consecutive emissions, in radio polling mode (refer to the parameter 0x0A in the application handbook of the WaveCard/ WavePort).

**VB6**

```
GetPollingTime ( (out) pollingTime as Short ) as Boolean
```

**C# .Net**

```
bool  GetPollingTime ( ref short pollingTime)
```

- Parameters :

  ***none***

- Returned values :

  **pollingTime** : time separating two consecutive emissions, in multiple of 100ms
  *by default PollingTime = 10 , for a delay of 1 second.*

  **bResult** : returned value *'OK' = 1*
  *'NOK' = 0*

### 6.1.14 SetPollingTime : *modification of the delay between two consecutive emissions in radio polling mode*

This function configures the delay separating two consecutive emissions, in radio polling mode (refer to the parameter 0x0A in the application handbook of the WaveCard/ WavePort).

**VB6**

```
SetPollingTime ( (in) pollingTime as Short ) as Boolean
```

**C# .Net**

```
bool SetPollingTime (short pollingTime)
```

- Parameters :

  **pollingTime** : time separating two consecutive emissions, in multiple of 100ms
  *by default PollingTime = 10 , for a delay of 1 second.*

- Returned values :

  **bResult** : returned value *'OK' = 1*
  *'NOK' = 0*

### 6.1.15 GetFirmware : *reading of the firmware version of the WaveCard/ WavePort*

**VB6**

GetFirmware ( **(out)** **firmware** as String ) as Boolean

**C# .Net**

bool GetFirmware ( ref string **firmware** )

- Parameters :

  ***none***

- Returned values :

**firmware** : firmware version of the equipment (on 5 bytes : [B4:B0])

| | |
|---|---|
| byte*B4 :* | *character 'V' in ASCII format* |
| *bytes [B3:B2] :* | *radio transmission mode of the equipment* |
| *bytes [B1:B0] :* | *firmware version* |

**bResult** : returned value *'OK' = 1*
*'NOK' = 0*

### 6.1.16 GetRadioAddress : *reading of the radio address of the WaveCard/ WavePort*

**VB6**

GetRadioAddress ( **(out)** **radioAddress** as String ) as Boolean

**C# .Net**

bool GetRadioAddress ( ref string **radioAddress**)

- Parameters :

  ***none***

- Returned values :

**radioAddress** : radio address of the WaveCard / WavePort

**bResult** : returned value *'OK' = 1*
*'NOK' = 0*

### 6.1.17 GetSwitchMode : *reading of the SWITCH_MODE_STATUS parameter configuration*

When the SWITCH_MODE_STATUS is activated, the WavePort automatically selects the transmission mode of a radio request, according to the address of the recipient.

**VB6**

```
GetSwitchMode ( (out) switchMode as Boolean ) as Boolean
```

**C# .Net**

```
bool GetSwitchMode ( ref bool switchMode)
```

- Parameters :

  ***none***

- Returned values :

  **switchMode** : *0 : automatic selection deactivated (default value)*
  *1 : automatic selection activated*

  **bResult** : returned value *'OK' = 1*
  *'NOK' = 0*

### 6.1.18 SetSwitchMode : *configuration of the SWITCH_MODE_STATUS parameter*

When the SWITCH_MODE_STATUS is activated, the WavePort automatically selects the transmission mode of a radio request, according to the address of the recipient.

**VB6**

```
GetSwitchMode ( (in) switchMode as Boolean ) as Boolean
```

**C# .Net**

```
bool SetSwitchMode ( bool switchMode)
```

- Parameters :

  **switchMode** : *0 : automatic selection deactivated (default value)*
  *1 : automatic selection activated*

- Returned values :

  **bResult** : returned value *'OK' = 1*
  *'NOK' = 0*

### 6.1.19 GetExchangeStatus : *reading of the EXCHANGE_STATUS parameter configuration*

When parameter EXCHANGE_STATUS is activated, the WavePort send to its host a status message, if it encounters an error during transmission of a frame.

**VB6**

GetExchangeStatus ( **(out)** **exchangeStatus** as Short ) as Boolean

**C# .Net**

bool GetExchangeStatus ( ref short **exchangeStatus** )

- Parameters :

  ***none***

- Returned values :

  **exchangeStatus** : *0 : status message disabled (default value)*
  *1 : status message enabled*

  **bResult** : returned value *'OK' = 1*
  *'NOK' = 0*

### 6.1.20 SetExchangeStatus : *configuration of the EXCHANGE_STATUS parameter*

When parameter EXCHANGE_STATUS is activated, the WavePort send to its host a status message, if it encounters an error during transmission of a frame.

**VB6**

SetExchangeStatus ( **(in)** **exchangeStatus** as short ) as Boolean

**C# .Net**

bool GetExchangeStatus ( short **exchangeStatus** )

- Parameters :

  **exchangeStatus** : *0 : status message disabled (default value)*
  *1 : status message enabled*

- Returned values :

  **bResult** : returned value *'OK' = 1*
  *'NOK' = 0*

## 6.2 FUNCTIONS RELATED TO MANAGEMENT OF A COM PORT

### 6.2.1 Init : *Initialization of the internal parameters, and opening of the COM port selected*

Refresh the internal parameters of WavePort (or WaveCard) with the default values, and opens the port COM selected with the *SetCommPortNumber* function.

In the case of a second call to this method, the previous port is automatically closed, and the new COM port is opened.

**VB6**

```
Init (    (in) dwBaud as Short,
          (in) dataBits as Short,
          (in) parity as Short,
          (in) stopbit as Short,
          (in) mask as Integer ) as Boolean
```

**C# .Net**

```
bool Init (short dwBaud, short dataBits, short parity, short stopbit, int dcbMask )
```

- Parameters :

| | |
|---|---|
| **dwBaud** | : serial baudrate, |
| **dataBits** | : number of data bytes, |
| **parity** | : *0 : no parity* ***only value currently authorized,***<br>*1 : odd parity,*<br>*2 : even parity,*<br>*3 : 'mark' parity (parity bit always at 1),*<br>*4 : 'space' parity (parity bit always at 0)* |
| **stopbit** | : number of stop bit, |
| **dcbMask** | : *this mask allows to configure the signals of control of the serial connection. In standard operation, no control signal is used, so the mask is set to the value 0. For any other use, please consult us (technicalsupport@coronis.com).* |

- Returned values :

| | | |
|---|---|---|
| **bResult** | : returned value | *'OK' = 1*<br>*'NOK' = 0* |

### 6.2.2 GetCommPortNumber : *reading of the selected COM port*

This function returns the COM port number selected by *SetCommPortNumber* function.

**VB6**

```
GetCommPortNumber ( ) as Short
```

**C# .Net**

```
short GetCommPortNumber ()
```

- Parameters :

***none***

- Returned values :

**sResult** : COM port number

### 6.2.3 SetCommPortNumber : *selection of the COM port to be used*

**VB6**

```
SetCommPortNumber (    (in) portNumber as Short ) as void
```

**C# .Net**

```
void SetCommPortNumber (short portNumber)
```

- Parameters :

  **portNumber** : COM port number to be used

- Returned values :

  ***no value returned***

### 6.2.4 Open : *Opening of the selected COM port*

This function opens the selected COM port by the *SetCommPortNumber* function. In the case of a second call to this method, the previous port is automatically closed.

Attention, contrary to the *Init* function, the *Open* function does not update the internal parameters with their default value.

**VB6**

```
Open (   (in) dwBaud as Short,
         (in) dataBits as Short,
         (in) parity as Short,
         (in) stopbit as Short,
         (in) dcbMask as Integer ) as Boolean
```

**C# .Net**

```
bool Open (short dwBaud, short dataBits, short parity, short stopbit, int dcbMask )
```

- Parameters :

  **dwBaud** : serial baudrate,

  **dataBits** : number of data bytes,

  **parity** : *0 : no parity* ***only value currently authorized,***
  *1 : odd parity,*
  *2 : even parity,*
  *3 : 'mark' parity (parity bit always at 1),*
  *4 : 'space' parity (parity bit always at 0)*

  **stopbit** : number of stop bit,

  **dcbMask** *: this mask allows to configure the signals of control of the serial connection. In standard operation, no control signal is used, so the mask is set to the value 0. For any other use, please consult us (technicalsupport@coronis.com).*

- Returned values :

  **bResult** : returned value *'OK' = 1*
  *'NOK' = 0*

### 6.2.5 Close : *close the application, and the COM port*

This function close the application, and close the COM port.

| | |
|---|---|
| **VB6** | Close ( ) as void |
| **C# .Net** | void Close ( ) |

- Parameters :

  ***none***

- Returned values :

  ***none***

## 6.3 FUNCTIONS RELATED TO EVENTS MANAGEMENT

### 6.3.1 ResetAlarm : *acknowledgement of an alarm*

When the received spontaneous message is an alarm, it must be acknowledged by a call to this function. If the alarm is not acknowledged, then the distant equipement (initiator of the alarm) will send it again a certain number of times (please refer to the application handbook of the concerned equipment).

***Attention, currently when the initiator equipment of the event is accessible via repeaters. It is possible to acknowledge the event only if the repeater route is known by the user; else the acknowledgement is impossible.***

***This is due to the fact that the repeater route is not contained in the alarm frame.***

**VB6**

```
ResetAlarm (    (in) address  as String,
                (in) repeater as String,
                (in) status   as String,
                (out) error as String ) as String
```

**C# .Net**

```
string ResetAlarm (string address, string repeater, string status, string error)
```

- Parameters :

**address** : radio address of the initiator of the spontaneous message

**repeater** : list of the repeaters necessary to reach the remote module.
*format : string containing the number of repeaters to be used, and the addresses of the repeaters consecutively (without separator)*
*example :* ***rep*** *= "0301160430301D011604301D7D011604301D7E"*
*' Nb rep|Module 1 address | Module 2 address | Module 3 address '*

**status** : status to be returned to acknowledge the alarm. Received alarm contains a status allowing to identify alarm; this status must be returned in the acknowledgement frame so that the initiator of the alarm identifies acknowledged alarm (example of several alarms transmission by the same module).

- Returned values :

**error** as String : Return '0' if the command is processed successfully, if not returns a string containing the error message.

*Example of 'error' values :*

| | |
|---|---|
| *XML_GetInvalid =* | *"invalid Get method in the XML configuration file : "* |
| *XML_SetInvalid =* | *"invalid Set method in the XML configuration file : "* |
| *XML_ParamInvalid =* | *"invalid parameter in the XML configuration file : "* |
| *XML_ParamLengthInvalid =* | *"invalid parameter length in the XML configuration file : "* |
| *XML_GetUndefined =* | *"Get method not defined in the XML configuration file : "* |
| *XML_SetUndefined =* | *"Set method not defined in the XML configuration file : "* |
| *XML_ParamUndefined =* | *"parameter not defined in the XML configuration file : "* |
| *XML_ParamLengthUndefined =* | *"parameter length not defined in the XML configuration file : "* |
| *COM_RadioError =* | *"radio communication error"* |
| *COM_RS232Error =* | *"rs232 communication error"* |
| *COM_InvalidParamLength =* | *"invalid parameter length : "* |
| *COM_InvalidParamValue =* | *"invalid parameter value : "* |
| *COM_InvalidAddress =* | *"invalid address : "* |
| *COM_InvalidBufferSize =* | *"invalid buffer size : "* |

**strResult** : no value returned *(reserved for future development)*

### 6.3.2 WatchLink : *detection and recovery of events*

This function must be used periodically to detect the arrival of a spontaneous message, and will fetch it if necessary.

***Compatibility: This method should be implemented only in the case of an events management per periodic detection. Please refer to the chapters on the events management of the concerned language.***

**VB6**

```
WatchLink (      (out) alarmEvent as IWavenisEvent ) as Boolean
```

**C# .Net**

```
bool WatchLink (Wavenis.IWavenisEvent alarmEvent)
```

- Parameters :

  **alarmEvent** : instance of the IwavenisEvent object, used to store the alarm.

- Returned values :

  **bResult** : returned value *'OK' = 1 (alarm detected and fetched)*
  *'NOK' = 0*

**VB6**

```
Private Sub Timer1_Timer()          ' Scrutation périodique d'événements
   Dim WEvent As Wavenis_Waveport.IWavenisEvent                    ' déclaration d'un objet événement
   If ( Wport.WatchLink ( Wevent ) ) Then
      recv.Caption = WEvent.GetAddress + "=" + WEvent.GetValue
   End If
End Sub
```

When an alarm is detected and fetched to the host, the user is able to read pieces of information relating to the alarm, using the following functions :

### 6.3.3 GetAddress : *Read the radio address of the equipment which transmitted the alarm*

**VB6**

```
GetAddress ( ) as String
```

**C# .Net**

```
string GetAddress ()
```

- Parameters :

  ***none***

- Returned values :

  **strResult** : radio address of the equipment which transmitted the alarm
  (for example : "011603300373")

### 6.3.4 GetStatus : *Fetch the status of the alarm*

If the alarm is coming from a metering module (not from a WaveCard / WavePort), then it contains a status field used to identify the alarm type (see user manual of the concerned module).

This status is also used by the receiver of the alarm to acknowledge it. It allows the initiator to identify which alarm is acknowledged (if several alarm frame were transmitted).

**VB6**

```
GetStatus ( ) as String
```

**C# .Net**

```
string GetStatus ()
```

- Parameters :

  ***none***

- Returned values :

  **strResult** : string containing the status of the alarm converted in decimal (the meaning of the status depends of the alarm, and the equipment type. Please refer to the user manual of the concerned equipment).
  *(for example "17" represent a status value = 0x11)*

### 6.3.5 GetTime : *Read the date and time of the alarm*

**VB6**

```
GetTime ( ) as String
```

**C# .Net**

```
string GetTime ()
```

- Parameters :

  ***none***

- Returned values :

  **strResult** : Date and time of the alarm (format : Date, followed by Time separate by a space character)

  *Example : "28/10/2004 21:52"*

### 6.3.6 GetDayOfWeek : *Read the day of week of the alarm detection*

**VB6**

```
GetDayOf Week ( ) as Short
```

**C# .Net**

```
short GetDayOfWeek ()
```

- Parameters :

  ***none***

- Returned values :

  **sResult** : day of week, of the alarm detection

  *0:Sunday* *1:Monday* *2:Tuesday* *3:Wednesday*

*4:Thursday 5:Friday 6:Saturday*

### 6.3.7 GetValue : *fetch data from a received alarm frame*

**VB6**

```
GetValue ( ) as String
```

**C# .Net**

```
string GetValue ()
```

- Parameters :

  ***none***

- Returned values :

  **strResult** : data from the alarm frame

***Note*** *: the fetched data depends of the equipment type which has initiated the alarm.*

***- Alarm coming from a WavePort (spontaneous message) : only the data following the transmitter radio address will be fetched***
*example : 3001120430000010102030405, only data 0102030405 will be fetched.*

***- Alarm coming from a module (alarm frame): only the data relative to the cause of the alarm are fetched (the Date and Status fields are fetched by other functions)***
*example of a WaveFlow alarm: "A,9" corresponds to a water leakage on input A of 9 litres/hour if the module measures every hour.*

### 6.3.8 GetSensorType : *read the equipment type of the module which has initiated the alarm*

**VB6**

```
GetSensorType ( ) as String
```

**C# .Net**

```
string GetSensorType ( )
```

- Parameters :

  ***none***

- Returned values :

  **strResult** : value representing the equipment type.
  *for example, "22" represent a WaveFlow module (0x16)*

### 6.3.9 GetSensor : *read the equipment type of the module which has initiated the alarm (string)*

| | |
|---|---|
| **VB6** | GetSensorType ( ) as String |
| **C# .Net** | string GetSensor () |

- Parameters :

  ***none***

- Returned values :

  **strResult** : string containing the label of the equipment type

*Example of returned values :*

- *"AlarmWavePort"*
- *"AlarmWaveFlow"*
- *"AlarmWaveTherm"*
- *"AlarmWaveSense"*
- *"AlarmWaveTalk"*
- *"AlarmWaveCell"*
- *"AlarmWaveHub"*
- *"AlarmWaveLog"*

## 6.4 FUNCTIONS RELATED TO THE RADIO EXCHANGES

The radio exchanges are composed of several modes of transmission/reception. With in certain cases, the possibility of receiving several consecutive radio frames (multi frames mode, accessible in reception only).

The following modes allow **point-to-point** exchanges :

- **'Frame Exchange' mode** : This mode allows to emit a request, with waiting of a radio response from the distant equipment.

- **'Message' mode** : allows to emit a request, without waiting of a radio response from the distant equipment.

Moreover exchanges of the point-to-point types have an additional mode which allow to reach a module out of radio range of the transmitter, by relaying the frames via other equipments.

- **'Relaying' mode** : this functionality allow to use a radio equipment to repeat a frame which is not initially intended to him.

The remaining modes allow exchanges with several distant equipments, in a selective way or not.

- **'Polling' mode** : allows to address a request to a list of known distant equipment. The response is sent to the host, transmitter of the request, when all the distant equipment responded, or on time-out.

- **'Broadcast' mode** : allows to address a request to all the distant equipment within radio range of the transmitter, or only to a group of equipment in radio range of the transmitter.

- **Particular Case: multi-frames reception**

  Multi frame mode allows multi frame exchange between the Wavecard/Waveport (considered like the master of the exchange) and one of the telemetry equipments of the Coronis Systems product family ( WaveTherm, WaveFlow, WaveSens, ...).
  Current version of Wavecard does not allow multi frame mode between two Wavecard/Waveport equipments.

***Remark :*** *The current version of the ActiveX component does not allow to use the BroadCast communication mode. This functionality will be implemented in a future version.*

### 6.4.1 RadioExchange : *send a radio frame, in 'Frame Exchange' mode*

this function allows to transmit a radio frame to a known distant equipment, with waiting of an answer (see WaveCard user manual).

***Currently, in relaying mode, the relay route is not automatically sent to the distant equipment. Consequently, the user must ensure that the relay route is known by the transmitter and the receiver of a relayed frame.***

**VB6**

```
RadioExchange (     (in) address  as String,
                    (in) frame  as String,
                    (in) repeater as String,
                    (in) timeout as ulong,
                    (out) error as String ) as String
```

**C# .Net**

```
string RadioExchange (string address, string frame, string repeater, int timeout, string error)
```

- Parameters :

**address** : radio address of the recipient (6 bytes)

**frame** : data frame to transmit (max size : see remark below)

**repeater** : list of the repeaters necessary to reach the remote module.
*format : string containing the number of repeaters to be used, and the addresses of the repeaters consecutively (without separator)*
*example :* ***rep*** *= "0301160430301D011604301D7D011604301D7E"*
*' Nb rep|Module 1 address | Module 2 address | Module 3 address '*

**timeout** : timeout from the host point of view, relating to the wait of the RF response, following the transmit request (Value expressed in milliseconds)

***Remark :*** *maximum size definition*
- Point to Point mode : **Max** = 152 bytes of data
- Relaying mode : **Max** = **152** – (2 + 6 x Number of repeaters)

***=> 1 repeater : 144*** *bytes of data,*
***=> 2 repeaters : 138*** *bytes of data,*
***=> 3 repeaters : 132*** *bytes of data.*

- Returned values :

**strResult** : awaited radio response. *(blank in case of error)*

**error** : = '0' if function succeeded; if not, returns a string containing an error message.

*Example of 'error' values :*

| | |
|---|---|
| *XML_GetInvalid =* | *"invalid Get method in the XML configuration file : "* |
| *XML_SetInvalid =* | *"invalid Set method in the XML configuration file : "* |
| *XML_ParamInvalid =* | *"invalid parameter in the XML configuration file : "* |
| *XML_ParamLengthInvalid =* | *"invalid parameter length in the XML configuration file : "* |
| *XML_GetUndefined =* | *"Get method not defined in the XML configuration file : "* |
| *XML_SetUndefined =* | *"Set method not defined in the XML configuration file : "* |
| *XML_ParamUndefined =* | *"parameter not defined in the XML configuration file : "* |
| *XML_ParamLengthUndefined =* | *"parameter length not defined in the XML configuration file : "* |
| *COM_RadioError =* | *"radio communication error"* |
| *COM_RS232Error =* | *"rs232 communication error"* |
| *COM_InvalidParamLength =* | *"invalid parameter length : "* |
| *COM_InvalidParamValue =* | *"invalid parameter value : "* |
| *COM_InvalidAddress =* | *"invalid address : "* |
| *COM_InvalidBufferSize =* | *"invalid buffer size : "* |

### 6.4.2 RadioMessage : *send a radio frame, in 'Message' mode*

This function allows to send a radio frame to a known distant equipment, without waiting for an answer (see WaveCard user manual).

***Currently, in relaying mode, the relay route is not automatically sent to the distant equipment. Consequently, the user must ensure that the relay route is known by the transmitter and the receiver of a relayed frame.***

**VB6**

```
RadioMessage (      (in) address  as String,
                    (in) frame  as String,
                    (in) repeater as String,
                    (out) error as String ) as String
```

**C# .Net**

```
string RadioMessage (string address, string frame, string repeater, string error)
```

- Parameters :

**address** : radio address of the recipient (6 bytes)

**frame** : data frame to transmit (max size : see remark below)

**repeater** : list of the repeaters necessary to reach the remote module.
*format : string containing the number of repeaters to be used, and the addresses of the repeaters consecutively (without separator)*
*example :* ***rep*** *= "0301160430301D011604301D7D011604301D7E"*
*' Nb rep|Module 1 address | Module 2 address | Module 3 address '*

***Remark :*** *maximum size definition*
- Point to Point mode : **Max** = 152 bytes of data
- Relaying mode : **Max** = **152** - (2 + 6 x Number of repeaters)

***=> 1 repeater : 144*** *bytes of data,*
***=> 2 repeaters : 138*** *bytes of data,*
***=> 3 repeaters : 132*** *bytes of data.*

- Returned values :

**strResult** : echo of the sent frame

**error** : = '0' if function succeeded; if not, returns a string containing an error message.

*Example of 'error' values :*

| | |
|---|---|
| *XML_GetInvalid =* | *"invalid Get method in the XML configuration file : "* |
| *XML_SetInvalid =* | *"invalid Set method in the XML configuration file : "* |
| *XML_ParamInvalid =* | *"invalid parameter in the XML configuration file : "* |
| *XML_ParamLengthInvalid =* | *"invalid parameter length in the XML configuration file : "* |
| *XML_GetUndefined =* | *"Get method not defined in the XML configuration file : "* |
| *XML_SetUndefined =* | *"Set method not defined in the XML configuration file : "* |
| *XML_ParamUndefined =* | *"parameter not defined in the XML configuration file : "* |
| *XML_ParamLengthUndefined =* | *"parameter length not defined in the XML configuration file : "* |
| *COM_RadioError =* | *"radio communication error"* |
| *COM_RS232Error =* | *"rs232 communication error"* |
| *COM_InvalidParamLength =* | *"invalid parameter length : "* |
| *COM_InvalidParamValue =* | *"invalid parameter value : "* |
| *COM_InvalidAddress =* | *"invalid address : "* |
| *COM_InvalidBufferSize =* | *"invalid buffer size : "* |

### 6.4.3 RadioPacket : *transmit a frame with waiting of a response in 'multi-frame' mode.*

this function allows to transmit a radio frame to a known distant equipment, with waiting of an answer transmitted in 'multi-frame' mode.

***Currently, the Wavenis protocol does not support the multi-frame in relaying mode, it will be implemented in future developpements.***

***Consequently, to indicate that no repeater is used, the 'repeater' field must be initialized with null string (repeater = "")***

**VB6**

```
RadioPacket (   (in) address  as String,
                (in) frame  as String,
                (in) repeater as String,
                (in) timeout as int,
                (out) error as String ) as String
```

**C# .Net**

```
string RadioPacket (string address, string frame, string repeater, int timeout, string error)
```

- Parameters :

**address** : radio address of the recipient (6 bytes)

**frame** : data frame to transmit (max size : see remark below)

**repeater** : list of the repeaters necessary to reach the remote module.
*format : string containing the number of repeaters to be used, and the addresses of the repeaters consecutively (without separator)*
*example :* ***rep*** *= "0301160430301D011604301D7D011604301D7E"*
*' Nb rep|Module 1 address | Module 2 address | Module 3 address '*

**timeout** : timeout from the host point of view, relating to the wait of the RF response, following the transmit request (Value expressed in milliseconds)

***Remark :*** *maximum size definition*
- Point to Point mode : **Max** = 152 bytes of data
- Relaying mode : **Max** = **152** – (2 + 6 x Number of repeaters)

***=> 1 repeater : 144*** *bytes of data,*
***=> 2 repeaters : 138*** *bytes of data,*
***=> 3 repeaters : 132*** *bytes of data.*

- Returned values :

**strResult** : string containing the response from the remote module.

**error** : = '0' if function succeeded; if not, returns a string containing an error message.

*Example of 'error' values :*

| | |
|---|---|
| *XML_GetInvalid =* | *"invalid Get method in the XML configuration file : "* |
| *XML_SetInvalid =* | *"invalid Set method in the XML configuration file : "* |
| *XML_ParamInvalid =* | *"invalid parameter in the XML configuration file : "* |
| *XML_ParamLengthInvalid =* | *"invalid parameter length in the XML configuration file : "* |
| *XML_GetUndefined =* | *"Get method not defined in the XML configuration file : "* |
| *XML_SetUndefined =* | *"Set method not defined in the XML configuration file : "* |
| *XML_ParamUndefined =* | *"parameter not defined in the XML configuration file : "* |
| *XML_ParamLengthUndefined =* | *"parameter length not defined in the XML configuration file : "* |
| *COM_RadioError =* | *"radio communication error"* |
| *COM_RS232Error =* | *"rs232 communication error"* |
| *COM_InvalidParamLength =* | *"invalid parameter length : "* |
| *COM_InvalidParamValue =* | *"invalid parameter value : "* |
| *COM_InvalidAddress =* | *"invalid address : "* |
| *COM_InvalidBufferSize =* | *"invalid buffer size : "* |

### 6.4.4 RadioExchangePolling : *send a radio frame using the 'polling' mode*

This function send a radio frame to a group of known recipients, whose radio addresses were configured beforehand (via *SetPollingTable* and *GroupNumber* functions).

In addition, time separating two consecutive emissions might also be configured beforehand it, via the *SetPollingTime* method.

***Remark** : the configuration parameters of the Polling mode must be configured before the use of this mode of transmission.*

**VB6**

```
RadioExchangePolling (   (in) frame  as String,
                         (out) error as String ) as String
```

**C# .Net**

```
string RadioExchangePolling (string frame, string error)
```

- Parameters :

**frame** : string containing the data to transmit (152 bytes max.)

- Return values :

**strResult** : returns a concatenation of responses from interrogated modules. the responses are separated with a SPACE character.

*Example of 'strResult' value after a polling request on 3 modules:*

*"Data_module_1 Data_Module_2 Data_Module_3"*

**error** : = '0' if function succeeded; if not, returns a string containing an error message.

*Example of 'error' values :*

| | |
|---|---|
| *XML_GetInvalid =* | *"invalid Get method in the XML configuration file : "* |
| *XML_SetInvalid =* | *"invalid Set method in the XML configuration file : "* |
| *XML_ParamInvalid =* | *"invalid parameter in the XML configuration file : "* |
| *XML_ParamLengthInvalid =* | *"invalid parameter length in the XML configuration file : "* |
| *XML_GetUndefined =* | *"Get method not defined in the XML configuration file : "* |
| *XML_SetUndefined =* | *"Set method not defined in the XML configuration file : "* |
| *XML_ParamUndefined =* | *"parameter not defined in the XML configuration file : "* |
| *XML_ParamLengthUndefined =* | *"parameter length not defined in the XML configuration file : "* |
| *COM_RadioError =* | *"radio communication error"* |
| *COM_RS232Error =* | *"rs232 communication error"* |
| *COM_InvalidParamLength =* | *"invalid parameter length : "* |
| *COM_InvalidParamValue =* | *"invalid parameter value : "* |
| *COM_InvalidAddress =* | *"invalid address : "* |
| *COM_InvalidBufferSize =* | *"invalid buffer size : "* |

# APPENDIX 1 – VB6 EXAMPLE CODE

```
Dim WPort As IWavePort

Private Sub Form_Load()
   ' Create the WPort instance
   Set WPort = New Wavenis_Waveport.WavePort
   ' Add Item Com Port number
   selCom.AddItem ("COM1")
   selCom.AddItem ("COM2")
   selCom.AddItem ("COM3")
   selCom.AddItem ("COM4")
   selCom.AddItem ("COM5")
   selCom.AddItem ("COM6")
   selCom.AddItem ("COM7")
   selCom.AddItem ("COM8")
   selCom.AddItem ("COM9")
   selCom.Text = selCom.List(0)
End Sub

Private Sub Form_Unload(Cancel As Integer)
   If IsNull(WPort) Then
   Else
      WPort.Close
   End If
End Sub

Private Sub open_Click()
   Dim iCom As Integer
   iCom = selCom.ListIndex + 1
   'Select the Com Port number
   WPort.SetCommPortNumber (iCom)
   Dim bSuccess As Boolean
   'Initialize the WPort
   bSuccess = WPort.Init(9600, 8, 0, 1, 0)
   If (bSuccess) Then
      'If succeed, enable the alarm event handler timer
      received.Caption = "OK"
      Timer1.Enabled = True    Else
      received.Caption = "NOK"
      Timer1.Enabled = False
   End If
End Sub

Private Sub sendFrame_Click()
   Dim strError As String
   Dim strResult As String
   ' Send the frame and wait for the response
   strResult = WPort.RadioExchange(address.Text, data.Text, "", 6100, strError)
```

```
48    If strResult = 0 Then
49        received.Caption = strError
50    Else
51        received.Caption = strResult
52    End If
53 End Sub
54
55 Private Sub sendMessage_Click()
56    Dim strError As String
57    Dim strResult As String
58    ' Send the Message
59    strResult = WPort.RadioMessage(address.Text, data.Text, "", strError)
60    received.Caption = result
61 End Sub
62
63 Private Sub Timer1_Timer()
64    Dim WEvent As Wavenis_Waveport.IWavenisEvent
65    'Received the event if one is existing
66    If (WPort.WatchLink(WEvent)) Then
67        received.Caption = WEvent.GetAddress + "=>" + WEvent.GetValue
68    End If
69 End Sub
```

# APPENDIX 2 – VC++6 EXAMPLE CODE

```
1  // WPortCpp6Dlg.h : header file
2  //
3
4  #if !defined(AFX_WPORTCPP6DLG_H__3889C184_73FB_44B0_BF88_D234786E5532__INCLUDED_)
5  #define AFX_WPORTCPP6DLG_H__3889C184_73FB_44B0_BF88_D234786E5532__INCLUDED_
6
7  #if _MSC_VER > 1000
8  #pragma once
9  #endif // _MSC_VER > 1000
10
11 // Add Wavenis.Waveport.tlb reference
12 #import "c:\windows\system32\coronis-systems\win32\Wavenis.Waveport.tlb" raw_interfaces_only
13
14 /////////////////////////////////////////////////////////////////////////////
15 // CWPortCpp6Dlg dialog
16
17 class CWPortCpp6Dlg : public CDialog
18 {
19 // Construction
20 public:
21         bool InitWavePort(HRESULT hr);
22         CWPortCpp6Dlg(CWnd* pParent = NULL);        // standard constructor
23
24 // Dialog Data
25         //{{AFX_DATA(CWPortCpp6Dlg)
26         enum { IDD = IDD_WPORTCPP6_DIALOG };
27         CComboBox       m_selCom;
28         CStatic   m_received;
29         CEdit     m_data;
30         CEdit     m_address;
31         //}}AFX_DATA
32
33         // ClassWizard generated virtual function overrides
34         //{{AFX_VIRTUAL(CWPortCpp6Dlg)
35         protected:
36         virtual void DoDataExchange(CDataExchange* pDX);        // DDX/DDV support
37         //}}AFX_VIRTUAL
38
39 // Implementation
40         HRESULT hr;
41         UINT m_timer1;
42         Wavenis_Waveport::IWavePortPtr Wport;
43
44 protected:
```

```
45          HICON m_hIcon;
46
47          // Generated message map functions
48          //{{AFX_MSG(CWPortCpp6Dlg)
49          virtual BOOL OnInitDialog();
50          afx_msg void OnSysCommand(UINT nID, LPARAM lParam);
51          afx_msg void OnPaint();
52          afx_msg HCURSOR OnQueryDragIcon();
53          afx_msg void OnOpen();
54          afx_msg void OnSendFrame();
55          afx_msg void OnSendMessage();
56          afx_msg void OnTimer(UINT nIDEvent);
57          //}}AFX_MSG
58          DECLARE_MESSAGE_MAP()
59 };
60
61 //{{AFX_INSERT_LOCATION}}
62 // Microsoft Visual C++ will insert additional declarations immediately before the previous line.
63
64 #endif // !defined(AFX_WPORTCPP6DLG_H__3889C184_73FB_44B0_BF88_D234786E5532__INCLUDED_)
65
66 /////////////////////////////////////////////////////////////////////////////
67 /////////////////////////////////////////////////////////////////////////////
68 /////////////////////////////////////////////////////////////////////////////
69
70 // WPortCpp6Dlg.cpp : implementation file
71 //
72 #include "stdafx.h"
73 #include "WPortCpp6.h"
74 #include "WPortCpp6Dlg.h"
75
76 #ifdef _DEBUG
77 #define new DEBUG_NEW
78 #undef THIS_FILE
79 static char THIS_FILE[] = __FILE__;
80 #endif
81
82 /////////////////////////////////////////////////////////////////////////////
83 // CAboutDlg dialog used for App About
84
85 class CAboutDlg : public CDialog
86 {
87 public:
88          CAboutDlg();
89
90 // Dialog Data
```

```
91          //{{AFX_DATA(CAboutDlg)
92          enum { IDD = IDD_ABOUTBOX };
93          //}}AFX_DATA
94
95          // ClassWizard generated virtual function overrides
96          //{{AFX_VIRTUAL(CAboutDlg)
97          protected:
98          virtual void DoDataExchange(CDataExchange* pDX);    // DDX/DDV support
99          //}}AFX_VIRTUAL
100
101 // Implementation
102 protected:
103         //{{AFX_MSG(CAboutDlg)
104         //}}AFX_MSG
105         DECLARE_MESSAGE_MAP()
106 };
107
108 CAboutDlg::CAboutDlg() : CDialog(CAboutDlg::IDD)
109 {
110         //{{AFX_DATA_INIT(CAboutDlg)
111         //}}AFX_DATA_INIT
112 }
113
114 void CAboutDlg::DoDataExchange(CDataExchange* pDX)
115 {
116         CDialog::DoDataExchange(pDX);
117         //{{AFX_DATA_MAP(CAboutDlg)
118         //}}AFX_DATA_MAP
119 }
120
121 BEGIN_MESSAGE_MAP(CAboutDlg, CDialog)
122         //{{AFX_MSG_MAP(CAboutDlg)
123                 // No message handlers
124         //}}AFX_MSG_MAP
125 END_MESSAGE_MAP()
126
127 /////////////////////////////////////////////////////////////////////////////
128 // CWPortCpp6Dlg dialog
129
130 CWPortCpp6Dlg::CWPortCpp6Dlg(CWnd* pParent /*=NULL*/)
131         : CDialog(CWPortCpp6Dlg::IDD, pParent)
132 {
133         //{{AFX_DATA_INIT(CWPortCpp6Dlg)
134                 // NOTE: the ClassWizard will add member initialization here
135         //}}AFX_DATA_INIT
136         // Note that LoadIcon does not require a subsequent DestroyIcon in Win32
```

```
137             m_hIcon = AfxGetApp()->LoadIcon(IDR_MAINFRAME);
138
139             // Initialization of the timer
140             m_timer1 = 1;
141 }
142
143 void CWPortCpp6Dlg::DoDataExchange(CDataExchange* pDX)
144 {
145             CDialog::DoDataExchange(pDX);
146             //{{AFX_DATA_MAP(CWPortCpp6Dlg)
147             DDX_Control(pDX, IDC_SEL_COM, m_selCom);
148             DDX_Control(pDX, IDC_RECEIVED, m_received);
149             DDX_Control(pDX, IDC_DATA, m_data);
150             DDX_Control(pDX, IDC_ADDRESS, m_address);
151             //}}AFX_DATA_MAP
152 }
153
154 BEGIN_MESSAGE_MAP(CWPortCpp6Dlg, CDialog)
155             //{{AFX_MSG_MAP(CWPortCpp6Dlg)
156             ON_WM_SYSCOMMAND()
157             ON_WM_PAINT()
158             ON_WM_QUERYDRAGICON()
159             ON_BN_CLICKED(IDC_OPEN, OnOpen)
160             ON_BN_CLICKED(IDC_SEND_FRAME, OnSendFrame)
161             ON_BN_CLICKED(IDC_SEND_MESSAGE, OnSendMessage)
162             ON_WM_TIMER()
163             //}}AFX_MSG_MAP
164 END_MESSAGE_MAP()
165
166 /////////////////////////////////////////////////////////////////////////////
167 // CWPortCpp6Dlg message handlers
168
169 BOOL CWPortCpp6Dlg::OnInitDialog()
170 {
171             CDialog::OnInitDialog();
172
173             // Add "About..." menu item to system menu.
174
175             // IDM_ABOUTBOX must be in the system command range.
176             ASSERT((IDM_ABOUTBOX & 0xFFF0) == IDM_ABOUTBOX);
177             ASSERT(IDM_ABOUTBOX < 0xF000);
178
179             CMenu* pSysMenu = GetSystemMenu(FALSE);
180             if (pSysMenu != NULL)
181             {
182                         CString strAboutMenu;
```

```
183                     strAboutMenu.LoadString(IDS_ABOUTBOX);
184                     if (!strAboutMenu.IsEmpty())
185                     {
186                             pSysMenu->AppendMenu(MF_SEPARATOR);
187                             pSysMenu->AppendMenu(MF_STRING, IDM_ABOUTBOX, strAboutMenu);
188                     }
189             }
190
191             // Set the icon for this dialog.  The framework does this automatically
192             //  when the application's main window is not a dialog
193             SetIcon(m_hIcon, TRUE);                 // Set big icon
194             SetIcon(m_hIcon, FALSE);                // Set small icon
195
196             // TODO: Add extra initialization here
197             hr = NULL;
198             bool bStatus = InitWavePort(hr);
199
200             m_selCom.AddString("COM1");
201             m_selCom.AddString("COM2");
202             m_selCom.AddString("COM3");
203             m_selCom.AddString("COM4");
204             m_selCom.AddString("COM5");
205             m_selCom.AddString("COM6");
206             m_selCom.AddString("COM7");
207             m_selCom.AddString("COM8");
208             m_selCom.AddString("COM9");
209             m_selCom.SetCurSel(0);
210             m_address.SetWindowText("011603300373");
211             m_data.SetWindowText("01");
212
213             return TRUE;  // return TRUE  unless you set the focus to a control
214 }
215
216 void CWPortCpp6Dlg::OnSysCommand(UINT nID, LPARAM lParam)
217 {
218             if ((nID & 0xFFF0) == IDM_ABOUTBOX)
219             {
220                     CAboutDlg dlgAbout;
221                     dlgAbout.DoModal();
222             }
223             else
224             {
225                     CDialog::OnSysCommand(nID, lParam);
226             }
227 }
228
```

```
229 // If you add a minimize button to your dialog, you will need the code below
230 //  to draw the icon.  For MFC applications using the document/view model,
231 //  this is automatically done for you by the framework.
232
233 void CWPortCpp6Dlg::OnPaint()
234 {
235         if (IsIconic())
236         {
237                 CPaintDC dc(this); // device context for painting
238
239                 SendMessage(WM_ICONERASEBKGND, (WPARAM) dc.GetSafeHdc(), 0);
240
241                 // Center icon in client rectangle
242                 int cxIcon = GetSystemMetrics(SM_CXICON);
243                 int cyIcon = GetSystemMetrics(SM_CYICON);
244                 CRect rect;
245                 GetClientRect(&rect);
246                 int x = (rect.Width() - cxIcon + 1) / 2;
247                 int y = (rect.Height() - cyIcon + 1) / 2;
248
249                 // Draw the icon
250                 dc.DrawIcon(x, y, m_hIcon);
251         }
252         else
253         {
254                 CDialog::OnPaint();
255         }
256 }
257
258 // The system calls this to obtain the cursor to display while the user drags
259 //  the minimized window.
260 HCURSOR CWPortCpp6Dlg::OnQueryDragIcon()
261 {
262         return (HCURSOR) m_hIcon;
263 }
264
265 void CWPortCpp6Dlg::OnOpen()
266 {
267         // TODO: Add your control notification handler code here
268
269         //Variables
270         short iCom=0;
271         VARIANT_BOOL bSuccess = VARIANT_FALSE;
272
273         iCom = m_selCom.GetCurSel();
274         iCom++;
```

```
275
276             // Select the Com Port
277             hr = WPort->SetCommPortNumber(iCom);
278
279             // Init the WPort
280             hr = WPort->Init(9600,8,0,1,0,&bSuccess);
281
282             if (SUCCEEDED(hr) && bSuccess)
283             {
284                             m_received.SetWindowText("OK");
285                             // Setup the timer for the Event Handler
286                             SetTimer(m_timer1,230,NULL);
287             }
288             else
289             {
290                             m_received.SetWindowText("NOK");
291             }
292 }
293
294 void CWPortCpp6Dlg::OnSendFrame()
295 {
296             // TODO: Add your control notification handler code here
297
298             CComBSTR bzAddress=NULL;
299             CComBSTR bzFrame=NULL;
300             CComBSTR bzRepeater=NULL;
301             CComBSTR bzError=NULL;
302             CComBSTR bzResult=NULL;
303
304             CString strAddress;
305             CString strFrame;
306             CString strResult;
307
308             m_address.GetWindowText(strAddress);
309             m_data.GetWindowText(strFrame);
310
311             bzAddress.Append(strAddress);
312             bzFrame.Append(strFrame);
313             bzRepeater.Append("");
314
315             hr = WPort->RadioExchange(bzAddress,bzFrame,bzRepeater,6100,&bzError,&bzResult);
316
317             strResult = bzAddress.Detach();
318             strResult += bzFrame.Detach();
319             strResult += bzError.Detach();
320             strResult += bzResult.Detach();
```

```
321
322             m_received.SetWindowText(strResult);
323
324 }
325
326 void CWPortCpp6Dlg::OnSendMessage()
327 {
328             // TODO: Add your control notification handler code here
329
330             CComBSTR bzAddress=NULL;
331             CComBSTR bzFrame=NULL;
332             CComBSTR bzRepeater=NULL;
333             CComBSTR bzError=NULL;
334             CComBSTR bzResult=NULL;
335
336             CString strAddress;
337             CString strFrame;
338             CString strResult;
339
340             m_address.GetWindowText(strAddress);
341             m_data.GetWindowText(strFrame);
342
343             bzAddress.Append(strAddress);
344             bzFrame.Append(strFrame);
345             bzRepeater.Append("");
346
347             hr = WPort->RadioMessage(bzAddress,bzFrame,bzRepeater,&bzError,&bzResult);
348
349             strResult = bzAddress.Detach();
350             strResult += bzFrame.Detach();
351             strResult += bzError.Detach();
352             strResult += bzResult.Detach();
353
354             m_received.SetWindowText(strResult);
355 }
356
357 bool CWPortCpp6Dlg::InitWavePort(HRESULT hr)
358 {
359             CoInitialize(NULL);
360
361             CLSID CLSID_WavePort = CLSID_NULL;
362             IID IID_IWavePort    = IID_NULL;
363
364             // class WAVEPORT
365             CLSIDFromString(L"{C02F4CD9-A172-48B3-9878-EAA177ED7FE7}",&CLSID_WavePort);
366
```

```
367         // interface IWavePort
368         IIDFromString(L"{BE5B7BD8-ABA8-49ED-A2DA-9876B6239BED}",&IID_IWavePort);
369
370         hr = ::CoCreateInstance(CLSID_WavePort,
371                                                         NULL,
372                                                         CLSCTX_INPROC_SERVER,
373                                                         IID_IWavePort,
374                                                         reinterpret_cast<void**>(&WPort));
375
376         if (SUCCEEDED(hr))
377         {
378                 return true;
379         }
380         else
381         {
382                 return false;
383         }
384 }
385
386 void CWPortCpp6Dlg::OnTimer(UINT nIDEvent)
387 {
388         // TODO: Add your message handler code here and/or call default
389         If (m_timer1 == nIDEvent)
390         {
391                 Wavenis_Waveport::IWavenisEventPtr WEvent=NULL;
392                 VARIANT_BOOL result=VARIANT_FALSE;
393                 HRESULT hr = WPort->WatchLink(&WEvent,&result);
394                 if (VARIANT_TRUE==result)
395                 {
396
397                         CComBSTR adr;
398
399                         CComBSTR data;
400                         CString strResult;
401                         hr=WEvent->GetAddress(&adr);
402                         hr=WEvent->GetValue(&data);
403                         strResult = CString(adr.Detach()) + "=>" + data.Detach();
404
405                         m_received.SetWindowText(strResult);
406
407                 }
408         }
409         CDialog::OnTimer(nIDEvent);
410 }
411
412
```

# APPENDIX 3 – VB.NET EXAMPLE CODE

```
1  Public Class Form1
2     Inherits System.Windows.Forms.Form
3     Dim WPort As Wavenis.WavePort
4
5  #Region " Code généré par le Concepteur Windows Form "
6
7     Public Sub New()
8        MyBase.New()
9
10       'Cet appel est requis par le Concepteur Windows Form.
11       InitializeComponent()
12
13       'Ajoutez une initialisation quelconque après l'appel InitializeComponent()
14       WPort = New Wavenis.WavePort
15
16       selCom.Items.Add("COM1")
17       selCom.Items.Add("COM2")
18       selCom.Items.Add("COM3")
19       selCom.Items.Add("COM4")
20       selCom.Items.Add("COM5")
21       selCom.Items.Add("COM6")
22       selCom.Items.Add("COM7")
23       selCom.Items.Add("COM8")
24       selCom.Items.Add("COM9")
25       selCom.SelectedIndex = 0
26    End Sub
27
28    Private Sub alarmRang(ByVal sender As Object, ByVal WEvent As Wavenis.IWavenisEvent)
29       received.Text = WEvent.GetAddress() + "=" + WEvent.GetValue()
30    End Sub
31
32    'La méthode substituée Dispose du formulaire pour nettoyer la liste des composants.
33    Protected Overloads Overrides Sub Dispose(ByVal disposing As Boolean)
34       If disposing Then
35          If Not (components Is Nothing) Then
36             components.Dispose()
37          End If
38       End If
39       If Not (WPort Is Nothing) Then
40          WPort.Close()
41       End If
42       MyBase.Dispose(disposing)
43    End Sub
44
45    'Requis par le Concepteur Windows Form
46    Private components As System.ComponentModel.IContainer
47
48
```

```
49  'REMARQUE : la procédure suivante est requise par le Concepteur Windows Form
50  'Elle peut être modifiée en utilisant le Concepteur Windows Form.
51  'Ne la modifiez pas en utilisant l'éditeur de code.
52  Friend WithEvents data As System.Windows.Forms.TextBox
53  Friend WithEvents received As System.Windows.Forms.Label
54  Friend WithEvents address As System.Windows.Forms.TextBox
55  Friend WithEvents sendFrame As System.Windows.Forms.Button
56  Friend WithEvents sendMessage As System.Windows.Forms.Button
57  Friend WithEvents open As System.Windows.Forms.Button
58  Friend WithEvents selCom As System.Windows.Forms.ComboBox
59
60  Private Sub InitializeComponent()
61      Me.data = New System.Windows.Forms.TextBox
62      Me.received = New System.Windows.Forms.Label
63      Me.address = New System.Windows.Forms.TextBox
64      Me.sendFrame = New System.Windows.Forms.Button
65      Me.sendMessage = New System.Windows.Forms.Button
66      Me.open = New System.Windows.Forms.Button
67      Me.selCom = New System.Windows.Forms.ComboBox
68      Me.SuspendLayout()
69      '
70      'data
71      '
72      Me.data.Location = New System.Drawing.Point(18, 76)
73      Me.data.Name = "data"
74      Me.data.Size = New System.Drawing.Size(256, 20)
75      Me.data.TabIndex = 13
76      Me.data.Text = "01"
77      '
78      'received
79      '
80      Me.received.Location = New System.Drawing.Point(18, 108)
81      Me.received.Name = "received"
82      Me.received.Size = New System.Drawing.Size(256, 152)
83      Me.received.TabIndex = 12
84      '
85      'address
86      '
87      Me.address.Location = New System.Drawing.Point(18, 44)
88      Me.address.Name = "address"
89      Me.address.Size = New System.Drawing.Size(88, 20)
90      Me.address.TabIndex = 11
91      Me.address.Text = "011603300373"
92      '
93      'sendFrame
94      '
95      Me.sendFrame.Location = New System.Drawing.Point(114, 44)
96      Me.sendFrame.Name = "sendFrame"
97      Me.sendFrame.Size = New System.Drawing.Size(72, 24)
98      Me.sendFrame.TabIndex = 10
```

```
99      Me.sendFrame.Text = "SendFrame"
100     '
101     'sendMessage
102     '
103     Me.sendMessage.Location = New System.Drawing.Point(186, 44)
104     Me.sendMessage.Name = "sendMessage"
105     Me.sendMessage.Size = New System.Drawing.Size(88, 24)
106     Me.sendMessage.TabIndex = 9
107     Me.sendMessage.Text = "SendMessage"
108     '
109     'open
110     '
111     Me.open.Location = New System.Drawing.Point(114, 12)
112     Me.open.Name = "open"
113     Me.open.Size = New System.Drawing.Size(40, 24)
114     Me.open.TabIndex = 8
115     Me.open.Text = "Open"
116     '
117     'selCom
118     '
119     Me.selCom.Location = New System.Drawing.Point(18, 12)
120     Me.selCom.Name = "selCom"
121     Me.selCom.Size = New System.Drawing.Size(64, 21)
122     Me.selCom.TabIndex = 7
123     '
124     'Form1
125     '
126     Me.AutoScaleBaseSize = New System.Drawing.Size(5, 13)
127     Me.ClientSize = New System.Drawing.Size(292, 273)
128     Me.Controls.Add(Me.data)
129     Me.Controls.Add(Me.received)
130     Me.Controls.Add(Me.address)
131     Me.Controls.Add(Me.sendFrame)
132     Me.Controls.Add(Me.sendMessage)
133     Me.Controls.Add(Me.open)
134     Me.Controls.Add(Me.selCom)
135     Me.Name = "Form1"
136     Me.Text = "Form1"
137     Me.ResumeLayout(False)
138
139   End Sub
140
141 #End Region
142
143
144   Private Sub open_Click(ByVal sender As System.Object, ByVal e As System.EventArgs) Handles open.Click
145     'Com Port selection
146     Dim iCom As Integer
147     iCom = selCom.SelectedIndex
148     iCom = iCom + 1
```

```
149         WPort.SetCommPortNumber(iCom)
150
151         'Initialization of the WavePort
152         If (WPort.Init(9600, 8, 0, 1, 0)) Then
153             received.Text = "OK"
154             ' If result successed, set up the  alarm event handler
155             AddHandler WPort.Alarm, AddressOf Me.alarmRang
156         Else
157             received.Text = "NOK"
158         End If
159     End Sub
160
161     Private Sub sendFrame_Click(ByVal sender As System.Object, ByVal e As System.EventArgs) Handles sendFrame.Click
162         Dim strError As String
163         Dim strResult As String
164         Dim repeater As String
165         ' Send a frame and wait for the response
166         strResult = WPort.RadioExchange(address.Text, data.Text, repeater, 6100, strError)
167         If (strResult = "") Then
168             received.Text = strError
169         Else
170             received.Text = strResult
171         End If
172     End Sub
173
174     Private Sub sendMessage_Click(ByVal sender As System.Object, ByVal e As System.EventArgs) Handles
sendMessage.Click
175         Dim strError As String
176         Dim strResult As String
177         Dim repeater As String
178         ' Send a frame
179         strResult = WPort.RadioMessage(address.Text, data.Text, repeater, strError)
180         If (strResult = "") Then
181             received.Text = strResult
182         Else
183             received.Text = strError
184         End If
185     End Sub
186 End Class
```

# APPENDIX 4 – C# .NET EXAMPLE CODE FOR WIN32

```
1  using System;
2  using System.Drawing;
3  using System.Collections;
4  using System.ComponentModel;
5  using System.Windows.Forms;
6  using System.Data;
7  using Wavenis;
8  namespace WPortCSharp.Net
9  {
10         /// <summary>
11         /// Description résumée de Form1.
12         /// </summary>
13         public class Form1 : System.Windows.Forms.Form
14         {
15                 private System.Windows.Forms.ComboBox selCom;
16                 private System.Windows.Forms.Button open;
17                 private System.Windows.Forms.Button sendMessage;
18                 private System.Windows.Forms.Button sendFrame;
19                 private System.Windows.Forms.TextBox address;
20                 private System.Windows.Forms.TextBox data;
21                 private Wavenis.WavePort WPort;
22                 private System.Windows.Forms.Label received;
23                 /// <summary>
24                 /// Variable nécessaire au concepteur.
25                 /// </summary>
26                 private System.ComponentModel.Container components = null;
27
28                 public Form1()
29                 {
30                         //
31                         // Requis pour la prise en charge du Concepteur Windows Forms
32                         //
33                         InitializeComponent();
34
35                         //
36                         // TODO : ajoutez le code du constructeur après l'appel à InitializeComponent
37                         //
38
39                         WPort = new WavePort();
40
41                         string[] comList = new string[9];
42                         for (int nIndex=1; nIndex<10; nIndex++)
43                         {
44                                 string text= "COM" + nIndex.ToString();
45                                 comList[nIndex-1]=text;
```

```
46                  }
47
48                  selCom.DataSource=comList;
49                  selCom.SelectedIndex=0;
50          }
51
52          public void alarmRang(object sender, Wavenis.IWavenisEvent e)
53          {
54                  try
55                  {
56                          // Print the alarm = "address => value"
57                          received.Text = e.GetAddress() + "=>" + e.GetValue();
58                          // Do all events and then send the ResetAlarm function
59                          Application.DoEvents();
60                          string error=null;
61                          string rep=null;
62                          this.WPort.ResetAlarm( e.GetAddress(),rep,e.GetStatus(),ref error);
63                  }
64                  catch(Exception ex)
65                  {
66                          received.Text = "alarm exception=" + ex.Message;
67                  }
68          }
69
70          /// <summary>
71          /// Nettoyage des ressources utilisées.
72          /// </summary>
73          protected override void Dispose( bool disposing )
74          {
75                  if( disposing )
76                  {
77                          if (components != null)
78                          {
79                                  components.Dispose();
80                          }
81                  }
82                  // Close the Application ressources
83                  if(WPort!=null)
84                          WPort.Close();
85
86                  base.Dispose( disposing );
87          }
88
89          #region Code généré par le Concepteur Windows Form
90          /// <summary>
91          /// Méthode requise pour la prise en charge du concepteur - ne modifiez pas
92          /// le contenu de cette méthode avec l'éditeur de code.
93          /// </summary>
94          private void InitializeComponent()
```

```
95          {
96              this.selCom = new System.Windows.Forms.ComboBox();
97              this.open = new System.Windows.Forms.Button();
98              this.sendMessage = new System.Windows.Forms.Button();
99              this.sendFrame = new System.Windows.Forms.Button();
100             this.address = new System.Windows.Forms.TextBox();
101             this.received = new System.Windows.Forms.Label();
102             this.data = new System.Windows.Forms.TextBox();
103             this.SuspendLayout();
104             //
105             // selCom
106             //
107             this.selCom.Location = new System.Drawing.Point(24, 16);
108             this.selCom.Name = "selCom";
109             this.selCom.Size = new System.Drawing.Size(64, 21);
110             this.selCom.TabIndex = 0;
111             //
112             // open
113             //
114             this.open.Location = new System.Drawing.Point(120, 16);
115             this.open.Name = "open";
116             this.open.Size = new System.Drawing.Size(40, 24);
117             this.open.TabIndex = 1;
118             this.open.Text = "Open";
119             this.open.Click += new System.EventHandler(this.open_Click);
120             //
121             // sendMessage
122             //
123             this.sendMessage.Location = new System.Drawing.Point(192, 48);
124             this.sendMessage.Name = "sendMessage";
125             this.sendMessage.Size = new System.Drawing.Size(88, 24);
126             this.sendMessage.TabIndex = 2;
127             this.sendMessage.Text = "SendMessage";
128             this.sendMessage.Click += new System.EventHandler(this.sendMessage_Click);
129             //
130             // sendFrame
131             //
132             this.sendFrame.Location = new System.Drawing.Point(120, 48);
133             this.sendFrame.Name = "sendFrame";
134             this.sendFrame.Size = new System.Drawing.Size(72, 24);
135             this.sendFrame.TabIndex = 3;
136             this.sendFrame.Text = "SendFrame";
137             this.sendFrame.Click += new System.EventHandler(this.sendFrame_Click);
138             //
139             // address
140             //
141             this.address.Location = new System.Drawing.Point(24, 48);
142             this.address.Name = "address";
143             this.address.Size = new System.Drawing.Size(88, 20);
```

```
144                 this.address.TabIndex = 4;
145                 this.address.Text = "011603300373";
146                 //
147                 // received
148                 //
149                 this.received.Location = new System.Drawing.Point(24, 112);
150                 this.received.Name = "received";
151                 this.received.Size = new System.Drawing.Size(256, 152);
152                 this.received.TabIndex = 5;
153                 //
154                 // data
155                 //
156                 this.data.Location = new System.Drawing.Point(24, 80);
157                 this.data.Name = "data";
158                 this.data.Size = new System.Drawing.Size(256, 20);
159                 this.data.TabIndex = 6;
160                 this.data.Text = "01";
161                 //
162                 // Form1
163                 //
164                 this.AutoScaleBaseSize = new System.Drawing.Size(5, 13);
165                 this.ClientSize = new System.Drawing.Size(292, 273);
166                 this.Controls.Add(this.data);
167                 this.Controls.Add(this.received);
168                 this.Controls.Add(this.address);
169                 this.Controls.Add(this.sendFrame);
170                 this.Controls.Add(this.sendMessage);
171                 this.Controls.Add(this.open);
172                 this.Controls.Add(this.selCom);
173                 this.Name = "Form1";
174                 this.Text = "Form1";
175                 this.ResumeLayout(false);
176         }
177         #endregion
178
179         /// <summary>
180         /// Point d'entrée principal de l'application.
181         /// </summary>
182         [STAThread]
183         static void Main()
184         {
185                 Application.Run(new Form1());
186         }
187
188         private void open_Click(object sender, System.EventArgs e)
189         {
190                 short sCom = 0;
191                 sCom = (short)selCom.SelectedIndex;
192                 sCom++;
```

```
193
194                 // Com Port selection
195                 WPort.SetCommPortNumber(sCom);
196
197                 // WavePort Initialization
198                 bool bresult = WPort.Init(9600,8,0,1,0);
199                 if(true!=bresult)
200                         received.Text = "NOK";
201                 else
202                 {
203                         received.Text = "OK";
204                         // If result successed, set up the event alarm handler
205                         WPort.Alarm += new Wavenis.alarmHandler(alarmRang);
206                 }
207         }
208
209         private void sendFrame_Click(object sender, System.EventArgs e)
210         {
211                 string error=null;
212                 int timeout=6100;
213                 string repeater=null;
214                 // Send the frame and wait for the response
215                 string result = WPort.RadioExchange(address.Text,data.Text,repeater,timeout,ref error);
216                 if(null!=result)
217                 {
218                         // Print the response
219                         received.Text = result;
220                 }
221                 else
222                 {
223                         //Print the error if the function failed
224                         received.Text = error;
225                 }
226         }
227
228         private void sendMessage_Click(object sender, System.EventArgs e)
229         {
230                 string error=null;
231                 string repeater=null;
232                 string result = WPort.RadioMessage(address.Text,data.Text,repeater,ref error);
233                 if(null!=result)
234                 {
235                         // Print the response but no response with the RadioMessage function...
236                         received.Text = result;
237                 }
238                 else
239                 {
240                         //Print the error if the function failed
241                         received.Text = error;
```

```
                        }
                }
        }
}
```

# APPENDIX 5 – C# .NET EXAMPLE CODE FOR WINCE

```
1  using System;
2  using System.Drawing;
3  using System.Collections;
4  using System.Windows.Forms;
5  using System.Data;
6  using Wavenis;  // Add Wavenis reference
7
8  namespace WinCEWPortCSharp
9  {
10         /// <summary>
11         /// Description résumée de Form1.
12         /// </summary>
13         public class Form1 : System.Windows.Forms.Form
14         {
15                 private System.Windows.Forms.TextBox data;
16                 private System.Windows.Forms.Label received;
17                 private System.Windows.Forms.TextBox address;
18                 private System.Windows.Forms.Button sendFrame;
19                 private System.Windows.Forms.Button sendMessage;
20                 private System.Windows.Forms.Button open;
21                 private System.Windows.Forms.ComboBox selCom;
22                 private System.Windows.Forms.Button quit;
23                 private Wavenis.WavePort WPort;
24
25                 public Form1()
26                 {
27                         //
28                         // Requis pour la prise en charge du Concepteur Windows Forms
29                         //
30                         InitializeComponent();
31
32                         //
33                         // TODO : ajoutez le code du constructeur après l'appel à InitializeComponent
34                         //
35
36                         // Create instance
37                         WPort = new WavePort();
38
39                         // Form initialization
40                         string[] comList = new string[9];
41                         for (int nIndex=1; nIndex<10; nIndex++)
42                         {
43                                 string text= "COM" + nIndex.ToString() + ":";
44                                 comList[nIndex-1]=text;
45                         }
46                         selCom.DataSource=comList;
```

```
47                      selCom.SelectedIndex=0;
48              }
49              public void alarmRang(object sender, Wavenis.IWavenisEvent e)
50              {
51                      try
52                      {
53                              // Print the alarm = "address => value"
54                              received.Text = e.GetAddress() + "=>" + e.GetValue();
55                              // Do all events and then send the ResetAlarm function
56                              Application.DoEvents();
57                              string error=null;
58                              string rep=null;
59                              this.WPort.ResetAlarm( e.GetAddress(),rep,e.GetStatus(),ref error);
60                      }
61                      catch(Exception ex)
62                      {
63                              received.Text = "alarm exception=" + ex.Message;
64                      }
65              }
66
67              /// <summary>
68              /// Nettoyage des ressources utilisées.
69              /// </summary>
70              protected override void Dispose( bool disposing )
71              {
72                      // Close the Application ressources if necessary
73                      if(WPort!=null)
74                              WPort.Close();
75
76                      base.Dispose( disposing );
77              }
78
79              #region Code généré par le Concepteur Windows Form
80              /// <summary>
81              /// Méthode requise pour la prise en charge du concepteur - ne modifiez pas
82              /// le contenu de cette méthode avec l'éditeur de code.
83              /// </summary>
84              private void InitializeComponent()
85              {
86                      this.data = new System.Windows.Forms.TextBox();
87                      this.received = new System.Windows.Forms.Label();
88                      this.address = new System.Windows.Forms.TextBox();
89                      this.sendFrame = new System.Windows.Forms.Button();
90                      this.sendMessage = new System.Windows.Forms.Button();
91                      this.open = new System.Windows.Forms.Button();
92                      this.selCom = new System.Windows.Forms.ComboBox();
93                      this.quit = new System.Windows.Forms.Button();
94                      //
95                      // data
```

```
96          //
97          this.data.Location = new System.Drawing.Point(16, 72);
98          this.data.Size = new System.Drawing.Size(256, 20);
99          this.data.Text = "01";
100         //
101         // received
102         //
103         this.received.Location = new System.Drawing.Point(16, 104);
104         this.received.Size = new System.Drawing.Size(256, 56);
105         //
106         // address
107         //
108         this.address.Location = new System.Drawing.Point(16, 40);
109         this.address.Size = new System.Drawing.Size(96, 20);
110         this.address.Text = "011603300373";
111         //
112         // sendFrame
113         //
114         this.sendFrame.Location = new System.Drawing.Point(112, 40);
115         this.sendFrame.Size = new System.Drawing.Size(72, 24);
116         this.sendFrame.Text = "SendFrame";
117         this.sendFrame.Click += new System.EventHandler(this.sendFrame_Click);
118         //
119         // sendMessage
120         //
121         this.sendMessage.Location = new System.Drawing.Point(184, 40);
122         this.sendMessage.Size = new System.Drawing.Size(88, 24);
123         this.sendMessage.Text = "SendMessage";
124         this.sendMessage.Click += new System.EventHandler(this.sendMessage_Click);
125         //
126         // open
127         //
128         this.open.Location = new System.Drawing.Point(112, 8);
129         this.open.Size = new System.Drawing.Size(40, 24);
130         this.open.Text = "Open";
131         this.open.Click += new System.EventHandler(this.open_Click);
132         //
133         // selCom
134         //
135         this.selCom.Location = new System.Drawing.Point(16, 8);
136         this.selCom.Size = new System.Drawing.Size(72, 21);
137         //
138         // quit
139         //
140         this.quit.Location = new System.Drawing.Point(232, 8);
141         this.quit.Size = new System.Drawing.Size(40, 24);
142         this.quit.Text = "Quit";
143         this.quit.Click += new System.EventHandler(this.quit_Click);
144         //
```

```
145                 // Form1
146                 //
147                 this.ClientSize = new System.Drawing.Size(282, 167);
148                 this.ControlBox = false;
149                 this.Controls.Add(this.quit);
150                 this.Controls.Add(this.data);
151                 this.Controls.Add(this.received);
152                 this.Controls.Add(this.address);
153                 this.Controls.Add(this.sendFrame);
154                 this.Controls.Add(this.sendMessage);
155                 this.Controls.Add(this.open);
156                 this.Controls.Add(this.selCom);
157                 this.Text = "Form1";
158         }
159         #endregion
160
161         /// <summary>
162         /// Point d'entrée principal de l'application.
163         /// </summary>
164         static void Main()
165         {
166                 Application.Run(new Form1());
167         }
168
169         private void open_Click(object sender, System.EventArgs e)
170         {
171                 short sCom = 0;
172                 sCom = (short)selCom.SelectedIndex;
173                 sCom++;
174
175                 // Com Port selection
176                 WPort.SetCommPortNumber(sCom);
177
178                 // WavePort Initialization
179                 bool bresult = WPort.Init(9600,8,0,1,0);
180
181                 if(true!=bresult)
182                         received.Text = "NOK";
183                 else
184                 {
185                         received.Text = "OK";
186                         // If result successed, set up the event alarm handler
187                         WPort.Alarm += new Wavenis.alarmHandler(alarmRang);
188                 }
189         }
190
191
192
193         private void sendFrame_Click(object sender, System.EventArgs e)
```

```
194                 {
195                         string error=null;
196                         int timeout=6100;
197                         string repeater=null;
198                         // Send the frame and wait for the response
199                         string result = WPort.RadioExchange(address.Text,data.Text,repeater,timeout,ref error);
200                         if(null!=result)
201                         {
202                                 // Print the response
203                                 received.Text = result;
204                         }
205                         else
206                         {
207                                 //Print the error if the function failed
208                                 received.Text = error;
209                         }
210                 }
211
212                 private void sendMessage_Click(object sender, System.EventArgs e)
213                 {
214                         string error=null;
215                         string repeater=null;
216                         // Send message
217                         string result = WPort.RadioMessage(address.Text,data.Text,repeater,ref error);
218
219                         if(null!=result)
220                         {
221                                 // Print the response but no response with the RadioMessage function...
222                                 received.Text = result;
223                         }
224                         else
225                         {
226                                 //Print the error if the function failed
227                                 received.Text = error;
228                         }
229                 }
230
231                 private void quit_Click(object sender, System.EventArgs e)
232                 {
233                         // Close the Application ressources
234                         if(WPort!=null)
235                                 WPort.Close();
236                         Application.Exit();
237                 }
238         }
239 }
```