

# **Programming Guide**

## ***UnitechRFID Windows***

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## Revision History

| Release | Revision | Date       | Changes                                                                                                      |
|---------|----------|------------|--------------------------------------------------------------------------------------------------------------|
| 5       | 0        | 2024/10/04 | <ul style="list-style-type: none"><li>• Add SupportedGlobalBand</li><li>• Implement support RM300P</li></ul> |
| 4       | 0        | 2024/01/24 | <ul style="list-style-type: none"><li>• Update TagReadEventArgs</li></ul>                                    |
| 3       | 0        | 2023/06/28 | <ul style="list-style-type: none"><li>• Add DisplayTags</li></ul>                                            |
| 2       | 0        | 2023/06/12 | <ul style="list-style-type: none"><li>• Add DisplayOutput</li><li>• Add AutoScreenOffTime</li></ul>          |
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# 1. Preface

This document describes the functionalities of the RFID Windows SDK. The SDK is delivered through the C#-based library “unitechRFID.dll” for user with the supported portable RFID readers from unitech.

The “unitechRFID.dll” library is consisted of three key functional areas :

- **The TransportSerial / TransportBluetooth classes**

The unitech portable RFID readers use serial/Bluetooth connections to communicate with the PC. These classes manage the connection between the reader and the PC.

- **The BaseUHF class**

Developers can use these APIs for the read functions; tag operations; privacy and security; and the parameters for performance optimization.

- **The UHFReader class**

For simple and rapid setup and control of the supported unitech portal RFID readers.

Developers can use these APIs for the read functions; tag operations; privacy and security; and the parameters for performance optimization.

The key work flow in getting the unitech portal RFID reader connected with your application consists of the following key steps :

- **Initialization Phase**

Initialize TransportSerial or TransportBluetooth and then pass it to UHFReader.

- **Connect Phase**

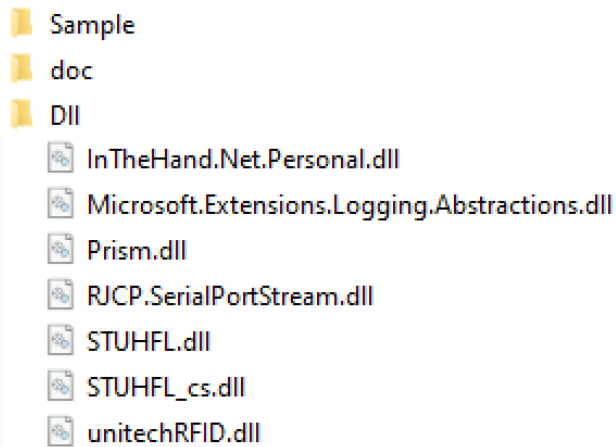
Use the API Connect() in UHFReader to make the connection with RFID reader.

- **Operational Phase**

Use the UHFReader APIs to setup and control the device or BashUHF in UHFReader to setup and control the RFID module on unitech portable RFID peripheral.

The figure below shows the structure of SDK.

The Dll folder includes the main library unitechRFID and dependency libraries, and the Sample folder contains the source codes of demo application and the executable sample is included with the source codes.



| Folders & Files                                                                                          | Description                                                                 |
|----------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| /unitechRFID Windows                                                                                     | The SDK package.                                                            |
| /unitechRFID Windows/Sample/                                                                             | Include the sample app project and code.                                    |
| /unitechRFID Windows/Sample/C#/<br>unitechRFIDSample/bin/Release/netcoreapp3.1/<br>unitechRFIDSample.exe | The built sample app for developer to quickly get started with sample code. |
| /unitechRFID Windows/doc/<br>unitechRFID_Windows_Programming_Guide_Issue1.pdf                            | To demonstrate how to import .dll to the project and SDK guide.             |
| /unitechRFID Windows/Dll/                                                                                | The .dll for controlling UHF and reader.                                    |

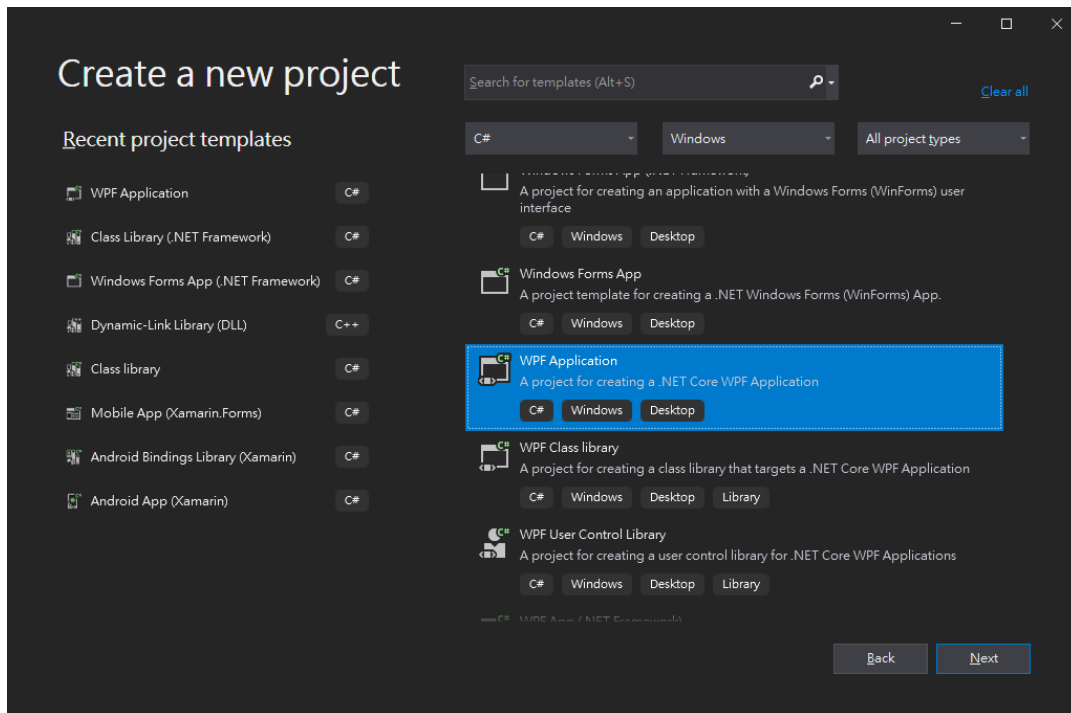
## 1.1. Development Environment

- **The Visual Studio :**
  - Visual Studio 2019 or above
- **The target framework :**
  - .NET Framework 4.7.2 or above
- **The NuGet Packages :**
  - 32feet.NET 3.5.0 or above
  - SerialPortStream 2.4.0 or above
- **The SDK supports the following RFID Reader peripherals :**
  - RP902 with FW 1.0.12 or above
- **The SDK supports the following Module :**
  - RM300P with FW 0.1.0.8 or above

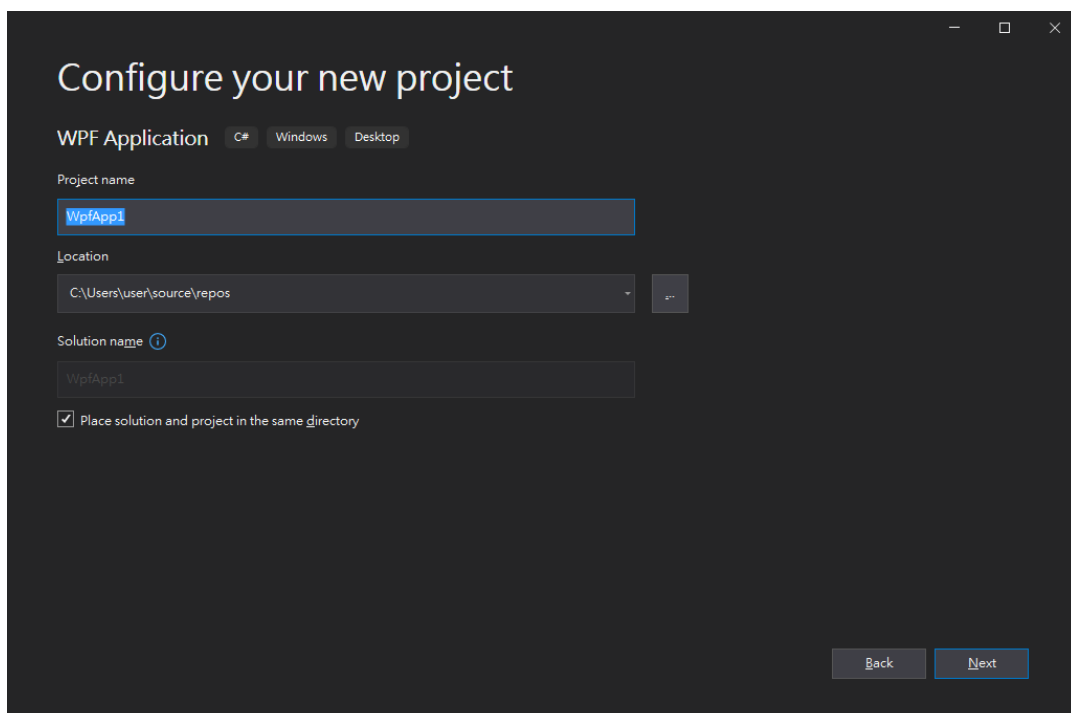
## 1.2. Create Project for unitechRFID Windows

### 1.2.1. Create Visual Studio Project

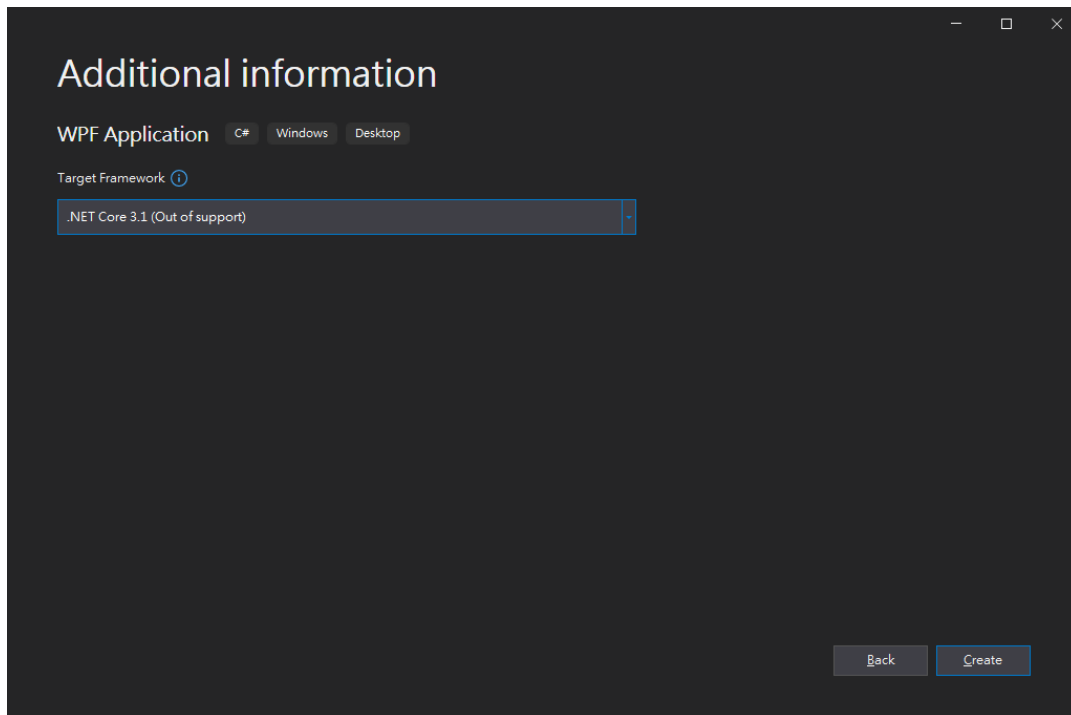
- Create a new WPF application in Visual Studio 2019.



- Name your project.

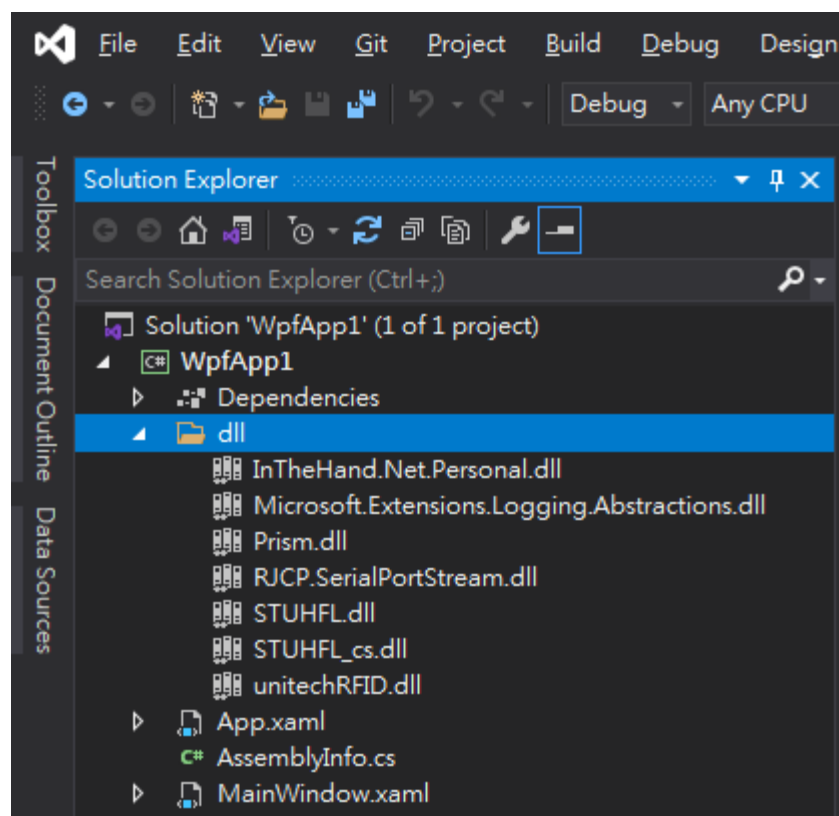


- Setup target framework to .NET Core 3.1.

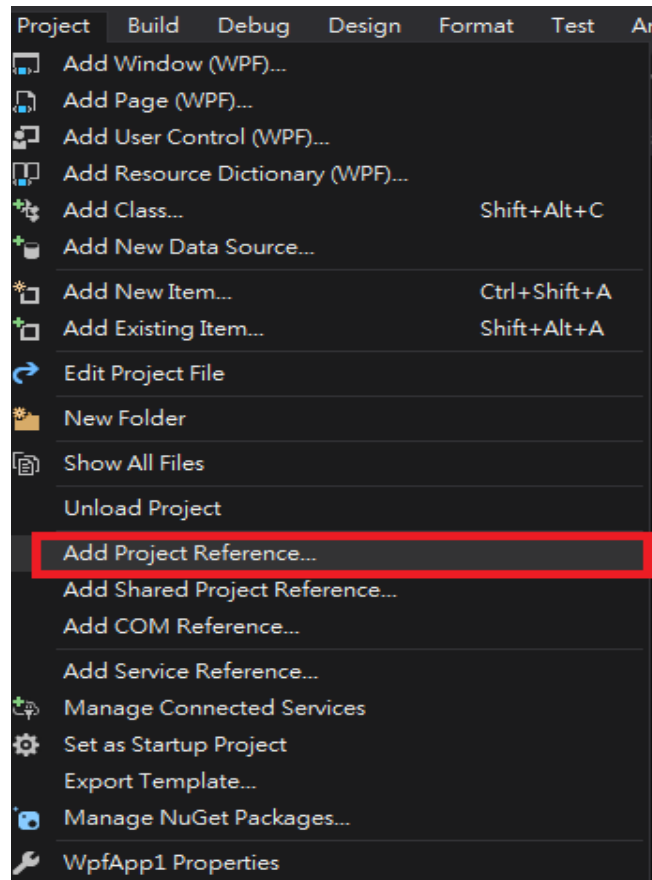


### 1.2.2. Add Reference

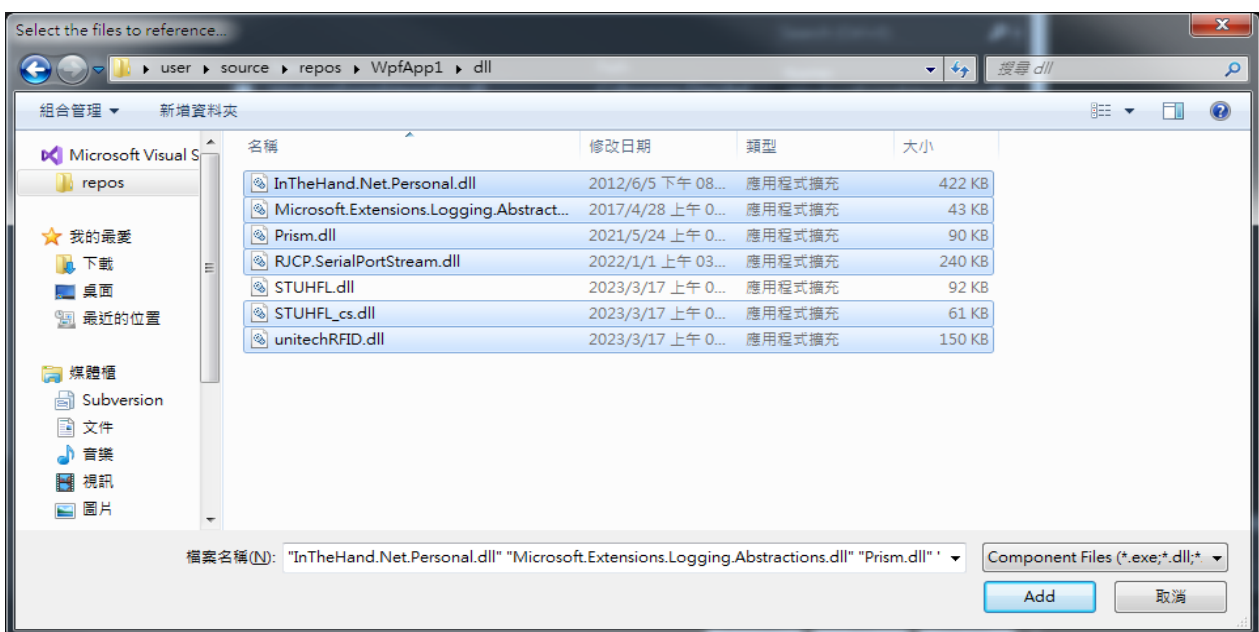
- Create “dll” folder under the project and copy the libraries to it.



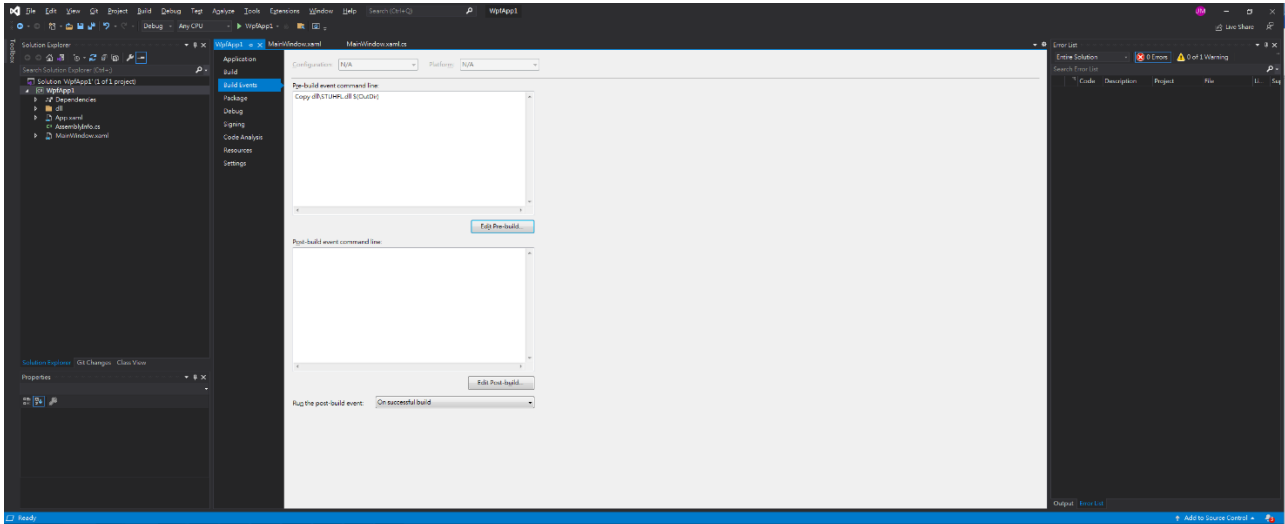
- Project -> Add Project Reference... to add the library for application.



- Select the dll files from SDK exclude STUHF.dll, because of it's C++ library.



- In Project Properties -> Build Events -> Pre-build event command line :  
Add "Copy dll\STUHFL.dll \$(OutDir)" in Edit Pre-build to copy STUHFL.dll to output folder



## 1.3. Detecting and Connecting to Devices

One of the essential tasks when working with the unitechRFID is to establish a connection with devices. This chapter guides you through the process of creating instances of the BaseUHF and UHFReader classes provided by the unitechRFID. These classes play a crucial role in detecting currently connected devices and establishing a connection with them.

### 1.3.1. Sample Code for Detecting and Serial Connecting

```
using unitechRFID;
using unitechRFID.Reader;
using unitechRFID.Transport;

public string ConnectPath { get; set; }

UHFReader _reader;
BaseTransport _baseTransport;
DeviceType _detectDeviceType;

public MainViewModel()
{
    ConnectPath = "COM9";
}
```

```
        Connect();
    }

    private void Connect()
    {
        if (_reader == null)
        {
            _baseTransport = new TransportSerial(DeviceType.Unknown, ConnectPath, 115200);
            _reader = new UHFReader(_baseTransport);

            _reader.DetectDeviceEvent += OnDetectDevice;
            _reader.DetectFinishedEvent += OnDetectFinished;

            _detectDeviceType = DeviceType.Unknown;
            _reader.StartDetect();
        }
    }

    private void OnDetectDevice(object sender, DetectDeviceEventArgs e)
    {
        _detectDeviceType = e.DeviceType;
    }

    private void OnDetectFinished(object sender, DetectDeviceEventArgs e)
    {
        _reader.DetectDeviceEvent -= OnDetectDevice;
        _reader.DetectFinishedEvent -= OnDetectFinished;
        _reader.Dispose();
        _reader = null;

        if (_detectDeviceType != DeviceType.Unknown)
        {
            _baseTransport = new TransportSerial(_detectDeviceType, ConnectPath, 115200);
            _reader = new UHFReader(_baseTransport);

            InitReader();

            _reader.Connect();
        }
        else
        {
            MessageBox.Show("No device detected!");
        }
    }
}
```

```

    }
}

private void InitReader()
{
    if (_reader != null)
    {
        _reader.ActionStateChangedEvent += OnActionStateChanged;
        _reader.ConnectStateChangedEvent += OnConnectStateChangedEvent;

        _reader.TemperatureEvent += OnTemperatureEvent;
        switch (_reader.DeviceType)
        {
            case DeviceType.RM300P:
                break;
            default:
                _reader.BatteryStateEvent += OnBatteryEvent;
                _reader.KeyStateEvent += OnKeyEvent;
                break;
        }
    }
}
}

```

### 1.3.2. Sample Code for Bluetooth Connecting

```

using unitechRFID;
using unitechRFID.Reader;
using unitechRFID.Transport;

public string ConnectPath { get; set; }

UHFRFReader _reader;
BaseTransport _baseTransport;

public MainViewModel()
{
    ConnectPath = "AABBCCDDEEFF";
    Connect();
}

```

```
private void Connect()
{
    if (_reader == null)
    {
        _baseTransport = new TransportBluetooth(DeviceType.RP902, ConnectPath);
        _reader = new UHFReader(_baseTransport);

        InitReader();

        _reader.Connect();
    }
}

private void InitReader()
{
    if (_reader != null)
    {
        _reader.ActionStateChangedEvent += OnActionStateChanged;
        _reader.ConnectStateChangedEvent += OnConnectStateChangedEvent;

        _reader.TemperatureEvent += OnTemperatureEvent;
        switch (_reader.DeviceType)
        {
            case DeviceType.RM300P:
                break;
            default:
                _reader.BatteryStateEvent += OnBatteryEvent;
                _reader.KeyStateEvent += OnKeyEvent;
                break;
        }
    }
}
```

## 2. Transport Classes

Transport class defines the communication with the RFID device for UHFReader. If we use the serial communication with RFID device, we need to use TransportSerial for UHFReader. If we use the Bluetooth communication, we need to use TransportBluetooth for UHFReader.

### 2.1. BaseTransport

BaseTransport is the parent of TransportSerial and TransportBluetooth.

#### 2.1.1. Address

|             |                                                                                        |
|-------------|----------------------------------------------------------------------------------------|
| Type        | string                                                                                 |
| Description | Get/Set the serial port address of the device.                                         |
| Example     | Get : string address = baseTransport.Address;<br>Set : baseTransport.Address = "COM3"; |

#### 2.1.2. ConnectType

|             |                                                                                                                     |
|-------------|---------------------------------------------------------------------------------------------------------------------|
| Type        | <a href="#">ConnectType</a>                                                                                         |
| Description | Get/Set the communication type with the device.                                                                     |
| Example     | Get : ConnectType connectType = baseTransport.ConnectType;<br>Set : baseTransport.ConnectType = ConnectType.Serial; |

#### 2.1.3. MacAddress

|             |                                                                                                         |
|-------------|---------------------------------------------------------------------------------------------------------|
| Type        | string                                                                                                  |
| Description | Get/Set the Bluetooth MAC address of the device.                                                        |
| Example     | Get : string macAddress = baseTransport.MacAddress;<br>Set : baseTransport.MacAddress = "AABBCCDDEEFF"; |

## 2.2. TransportSerial

TransportSerial is the class for UHFReader if the communication with RFID device is serial connection.

### 2.2.1. BaudRate

|             |                                                                                            |
|-------------|--------------------------------------------------------------------------------------------|
| Type        | int                                                                                        |
| Description | Get/Set the baud rate of serial communication.                                             |
| Example     | Get : int baudRate = transportSerial.BaudRate;<br>Set : transportSerial.BaudRate = 115200; |

### 2.2.2. Constructors

|             |                                                                                                                                                                                                                                                                    |
|-------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Definition  | TransportSerial( <a href="#">DeviceType</a> deviceType, string address, int baudRate, int dataBits, <a href="#">Parity</a> parity, <a href="#">StopBits</a> stopBits)                                                                                              |
| Description | TransportSerial used to connect with serial port.                                                                                                                                                                                                                  |
| Parameters  | deviceType : The type of target device.<br>address : The serial port address of the device.<br>baudRate : The baud rate of the device.<br>dataBits : The data bits of the device.<br>parity : The parity of the device.<br>stopBits : The stop bits of the device. |
| Example     | TransportSerial transport = new TransportSerial(DeviceType.RP902, "COM3", 115200, 8, Parity.None, StopBits.One);                                                                                                                                                   |
| Note        | The baud rate, data bits, parity and stop bits for RP902 is 115200, 8, None, One.                                                                                                                                                                                  |

|             |                                                                                                                                        |
|-------------|----------------------------------------------------------------------------------------------------------------------------------------|
| Definition  | TransportSerial( <a href="#">DeviceType</a> deviceType, string address, int baudRate)                                                  |
| Description | TransportSerial used to connect with serial port.                                                                                      |
| Parameters  | deviceType : The type of target device.<br>address : The serial port address of the device.<br>baudRate : The baud rate of the device. |
| Example     | TransportSerial transport = new TransportSerial(DeviceType.RP902, "COM3", 115200);                                                     |
| Note        | The baud rate, data bits, parity and stop bits for RP902 is 115200, 8, None, One.                                                      |

### 2.2.3. DataBits

|             |                                                                                       |
|-------------|---------------------------------------------------------------------------------------|
| Type        | int                                                                                   |
| Description | Get/Set the data bits of serial communication.                                        |
| Example     | Get : int dataBits = transportSerial.DataBits;<br>Set : transportSerial.DataBits = 8; |

### 2.2.4. Parity

|             |                                                                                              |
|-------------|----------------------------------------------------------------------------------------------|
| Type        | Parity                                                                                       |
| Description | Get/Set the parity of serial communication.                                                  |
| Example     | Get : Parity parity = transportSerial.Parity;<br>Set : transportSerial.Parity = Parity.None; |
| Note        | using RJCP.IO.Ports                                                                          |

## 2.2.5. StopBits

|             |                                                                                                       |
|-------------|-------------------------------------------------------------------------------------------------------|
| Type        | StopBits                                                                                              |
| Description | Get/Set the stop bits of serial communication.                                                        |
| Example     | Get : StopBits stopBits = transportSerial.StopBits;<br>Set : transportSerial.StopBits = StopBits.One; |
| Note        | using RJCP.IO.Ports                                                                                   |

## 2.3. TransportBluetooth

TransportBluetooth is the class for UHFReader if the communication with RFID device is Bluetooth.

### 2.3.1. Constructors

|             |                                                                                                    |
|-------------|----------------------------------------------------------------------------------------------------|
| Definition  | TransportBluetooth( <a href="#">DeviceType</a> deviceType, string btMACAddress)                    |
| Description | TransportBluetooth used to connect with bluetooth.                                                 |
| Parameters  | deviceType : The type of target device.<br>btMACAddress : The Bluetooth MAC address of the device. |
| Example     | TransportBluetooth transport = new TransportBluetooth(DeviceType.RP902, "AABBCCDDEEFF");           |

## 3. UHFReader Classes

UHFReader class provides the methods to connect and control the RFID device.

### 3.1. Properties

#### 3.1.1. ActionState

|             |                                                |
|-------------|------------------------------------------------|
| Type        | <a href="#">ActionState</a>                    |
| Description | Get the state of the device.                   |
| Example     | Get : string actionState = reader.ActionState; |

#### 3.1.2. Address

|             |                                                                                                    |
|-------------|----------------------------------------------------------------------------------------------------|
| Type        | string                                                                                             |
| Description | Get the address of the device, if the communication is serial, it will be the name of serial port. |
| Example     | Get : string address = reader.Address;                                                             |

#### 3.1.3. Algorithm

|             |                                                                                               |
|-------------|-----------------------------------------------------------------------------------------------|
| Type        | <a href="#">Algorithm</a>                                                                     |
| Description | Get/Set the algorithm of the RFID module.                                                     |
| Example     | Get : Algorithm algorithm = reader.Algorithm;<br>Set : reader.Algorithm = new Algorithm(...); |

### 3.1.4. AmbientTemp

|             |                                                 |
|-------------|-------------------------------------------------|
| Type        | int                                             |
| Description | Get the ambient temperature of the RFID module. |
| Example     | Get : int ambientTemp = reader.AmbientTemp;     |

### 3.1.5. AmbientTempProtection

|             |                                                                                                                                       |
|-------------|---------------------------------------------------------------------------------------------------------------------------------------|
| Type        | ushort                                                                                                                                |
| Description | Get/Set the ambient temperature protection of the RFID module.                                                                        |
| Example     | Get : AmbientTempProtection ambientTempProtection =<br>reader.AmbientTempProtection;<br><br>Set : reader.AmbientTempProtection = 850; |

### 3.1.6. AntennaSwitchMode

|             |                                                                                                                               |
|-------------|-------------------------------------------------------------------------------------------------------------------------------|
| Type        | <a href="#">AntennaSwitchMode</a>                                                                                             |
| Description | Get/Set the antenna switch mode of the RFID module.                                                                           |
| Example     | Get : AntennaSwitchMode switchMode = reader.AntennaSwitchMode;<br><br>Set : reader.AntennaSwitchMode = AntennaSwitchMode.Off; |

### 3.1.7. AutoOffTime

|             |                                                                              |
|-------------|------------------------------------------------------------------------------|
| Type        | int                                                                          |
| Description | Get/Set the auto off time setting of the device.                             |
| Example     | Get : int autoOffTime = reader.AutoOffTime;<br>Set : reader.AutoOffTime = 5; |

### 3.1.8. AutoOffTimeList

|             |                                                                          |
|-------------|--------------------------------------------------------------------------|
| Type        | int[]                                                                    |
| Description | Get the list of auto off time setting of the device. The unit is minute. |
| Example     | Get : int[] autoOffTimeList = reader.AutoOffTimeList;                    |
| Note        | RP902 supports 0, 1, 2, 3, 5, 10 and 0 is for disable.                   |

### 3.1.9. BaseTransport

|             |                                                                                             |
|-------------|---------------------------------------------------------------------------------------------|
| Type        | <a href="#">BaseTransport</a>                                                               |
| Description | Get the BaseTransport class that connects an instance of the UHFReader class to the device. |
| Example     | Get : BaseTransport baseTransport = reader.BaseTransport;                                   |

### 3.1.10. BaseUHF

|             |                                                         |
|-------------|---------------------------------------------------------|
| Type        | <a href="#">BaseUHF</a>                                 |
| Description | Get the interface to control RFID module on the device. |
| Example     | Get : BaseUHF baseUHF = reader.BaseUHF;                 |

### 3.1.11. BatteryState

|             |                                               |
|-------------|-----------------------------------------------|
| Type        | int                                           |
| Description | Get the battery status of the device.         |
| Example     | Get : int batteryState = reader.BatteryState; |

### 3.1.12. Beeper

|             |                                                                                                    |
|-------------|----------------------------------------------------------------------------------------------------|
| Type        | <a href="#">BeeperState</a>                                                                        |
| Description | Get/Set the beeper setting of the device.                                                          |
| Example     | Get : BeeperState beeperState = reader.BeeperState;<br>Set : reader.BeeperState = BeeperState.Low; |

### 3.1.13. BiStaticAntenna

|             |                                                                                                                              |
|-------------|------------------------------------------------------------------------------------------------------------------------------|
| Type        | <a href="#">BiStaticAntennaSetting</a>                                                                                       |
| Description | Get/Set the bi static antenna setting of the RFID module.                                                                    |
| Example     | Get : BiStaticAntennaSetting setting = reader.BiStaticAntenna;<br>Set : reader.BiStaticAntenna = BiStaticAntennaSetting.Off; |

### 3.1.14. CfgStorageMode

|             |                                                                                                                      |
|-------------|----------------------------------------------------------------------------------------------------------------------|
| Type        | <a href="#">CfgStorageMode</a>                                                                                       |
| Description | Get/Set the configuration storage mode of the RFID module.                                                           |
| Example     | Get : CfgStorageMode mode= reader.CfgStorageMode;<br>Set : reader.CfgStorageMode = CfgStorageMode.SaveToRamOnlyMode; |

### 3.1.15. CheckInterval

|             |                                                                                                                 |
|-------------|-----------------------------------------------------------------------------------------------------------------|
| Type        | int                                                                                                             |
| Description | Get/Set the time period for checking the battery and temperature status of the device. The unit is millisecond. |
| Example     | Get : int checkInterval = reader.CheckInterval;<br>Set : reader.CheckInterval = 3000;                           |
| Note        | The default value is 3000 for 3 seconds.                                                                        |

### 3.1.16. ConnectState

|             |                                                        |
|-------------|--------------------------------------------------------|
| Type        | <a href="#">ConnectState</a>                           |
| Description | Get the state of connection with the device.           |
| Example     | Get : ConnectState connectState = reader.ConnectState; |

### 3.1.17. ConnectType

|             |                                                     |
|-------------|-----------------------------------------------------|
| Type        | <a href="#">ConnectType</a>                         |
| Description | Get the communication type with the device.         |
| Example     | Get : ConnectType connectType = reader.ConnectType; |

### 3.1.18. DataFormat

|             |                                                                                              |
|-------------|----------------------------------------------------------------------------------------------|
| Type        | <a href="#">DataFormat</a>                                                                   |
| Description | Get/Set the data format setting of the device.                                               |
| Example     | Get : DataFormat dataFormat = reader.DataFormat;<br>Set : reader.DataFormat = DataFormat.HEX |

### 3.1.19. DataInfo

|             |                                                                                     |
|-------------|-------------------------------------------------------------------------------------|
| Type        | <a href="#">DataInfo</a>                                                            |
| Description | Get/Set the data info setting of the device.                                        |
| Example     | Get : DataInfo dataInfo = reader.DataInfo;<br>Set : reader.DataInfo = DataInfo.EPC; |

### 3.1.20. DataRange

|             |                                                                                                                          |
|-------------|--------------------------------------------------------------------------------------------------------------------------|
| Type        | <a href="#">DataRange</a>                                                                                                |
| Description | Get/Set the data range setting of the device.                                                                            |
| Example     | Get : <code>DataRange dataRange = reader.DataRange;</code><br>Set : <code>reader.DataRange = new DataRange(0, 2);</code> |

### 3.1.21. DataTerminator

|             |                                                                                                                                               |
|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| Type        | <a href="#">DataTerminator</a>                                                                                                                |
| Description | Get/Set the data terminator setting of the device.                                                                                            |
| Example     | Get : <code>DataTerminator dataTerminator = reader.DataTerminator;</code><br>Set : <code>reader.DataTerminator = DataTerminator.CR_LF;</code> |

### 3.1.22. DetectDevice

|             |                                                             |
|-------------|-------------------------------------------------------------|
| Type        | bool                                                        |
| Description | Get the detect device state of the UHFReader                |
| Example     | Get : <code>bool detectDevice = reader.DetectDevice;</code> |

### 3.1.23. DeviceName

|             |                                                          |
|-------------|----------------------------------------------------------|
| Type        | string                                                   |
| Description | Get the name of the device.                              |
| Example     | Get : <code>string deviceName= reader.DeviceName;</code> |

### 3.1.24. DeviceType

|             |                                                  |
|-------------|--------------------------------------------------|
| Type        | <a href="#">DeviceType</a>                       |
| Description | Get the type of the device.                      |
| Example     | Get : DeviceType deviceType = reader.DeviceType; |

### 3.1.25. DisplayOutput

|             |                                                                                                                                                                                                                                                                         |
|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Type        | <a href="#">DisplayOutput</a>                                                                                                                                                                                                                                           |
| Description | Set the display of the device output.                                                                                                                                                                                                                                   |
| Example     | Set : reader.DisplayOutput = new DisplayOutput(Parameter, Data);                                                                                                                                                                                                        |
| Note        | <p>Parameter:</p> <ul style="list-style-type: none"> <li>● bit 0-3 character position (0~15),</li> <li>● bit 5 clean screen before output (0:disable; 1:enable),</li> <li>● bit 6-7 line position (1~3)</li> </ul> <p>Data:</p> <p>ASCII characters (MAX 16 bytes).</p> |

### 3.1.26. DisplayTags

|             |                                                                                      |
|-------------|--------------------------------------------------------------------------------------|
| Type        | <a href="#">DisplayTags</a>                                                          |
| Description | Set the tags display of the device output.                                           |
| Example     | Set : reader.DisplayTags= new DisplayTags(ReadOnceState.On, BeepAndVibrateState.On); |

### 3.1.27. EventNotify

|             |                                                                                                    |
|-------------|----------------------------------------------------------------------------------------------------|
| Type        | <a href="#">EventNotify</a>                                                                        |
| Description | Set the event notify of the RFID module.                                                           |
| Example     | Set : reader.EventNotify = new EventNotify(EventNotifyID.AntennaBeginEnd, EventNotifySetting.Off); |

### 3.1.28. FastId

|             |                                                                                         |
|-------------|-----------------------------------------------------------------------------------------|
| Type        | <a href="#">FastIdSetting</a>                                                           |
| Description | Get/Set the fast id setting of the RFID module.                                         |
| Example     | Get : FastIdSetting setting = reader.FastId;<br>Set : reader.FastId = FastIdSetting.On; |

### 3.1.29. FindDevice

|             |                                                                           |
|-------------|---------------------------------------------------------------------------|
| Type        | <a href="#">FindDevice</a>                                                |
| Description | Set find device setting of the device.                                    |
| Example     | Set : reader.FindDevice = new FindDevice(FindDeviceMode.VibrateBeep, 10); |

### 3.1.30. FixedFreq

|             |                                                                                                         |
|-------------|---------------------------------------------------------------------------------------------------------|
| Type        | <a href="#">FixedFrequency</a>                                                                          |
| Description | Get/Set the fixed frequency of the RFID module.                                                         |
| Example     | Get : FixedFrequency fixedFreq = reader.FixedFreq;<br>Set : reader.FixedFreq = new FixedFrequency(...); |

### 3.1.31. FreqSwitchMode

|             |                                                                                                         |
|-------------|---------------------------------------------------------------------------------------------------------|
| Type        | <a href="#">FreqSwitchMode</a>                                                                          |
| Description | Get/Set the frequency switch mode of the RFID module.                                                   |
| Example     | Get : FreqSwitchMode mode = reader.FreqSwitchMode;<br>Set : reader.FreqSwitchMode = FreqSwitchMode.Off; |

### 3.1.32. IsConnected

|             |                                              |
|-------------|----------------------------------------------|
| Type        | bool                                         |
| Description | Get the connection state with the device.    |
| Example     | Get : bool isConnected = reader.IsConnected; |

### 3.1.33. LbtCfgSetting

|             |                                                                                           |
|-------------|-------------------------------------------------------------------------------------------|
| Type        | ushort                                                                                    |
| Description | Get/Set the LBT configuration setting of the RFID module.                                 |
| Example     | Get : ushort lbtCfgSetting = reader.LbtCfgSetting;<br>Set : reader.LbtCfgSetting = -7400; |

### 3.1.34. LbtSetting

|             |                                                                                           |
|-------------|-------------------------------------------------------------------------------------------|
| Type        | <a href="#">LbtSetting</a>                                                                |
| Description | Get/Set the LBT setting of the RFID module.                                               |
| Example     | Get : ushort lbtSetting = reader.LbtSetting;<br>Set : reader.LbtSetting = LbtSetting.Off; |

### 3.1.35. LogLevel

|             |                                                                                      |
|-------------|--------------------------------------------------------------------------------------|
| Type        | <a href="#">LogLevel</a>                                                             |
| Description | Get/Set the log level setting of the SDK.                                            |
| Example     | Get : LogLevel logLevel = reader.LogLevel;<br>Set : reader.LogLevel = LogLevel.Info; |

### 3.1.36. MacAddress

|             |                                              |
|-------------|----------------------------------------------|
| Type        | string                                       |
| Description | Get the Bluetooth MAC address of the device. |
| Example     | Get : string macAddress = reader.MacAddress; |

### 3.1.37. ModelName

|             |                                            |
|-------------|--------------------------------------------|
| Type        | string                                     |
| Description | Get the model name of the device.          |
| Example     | Get : string modelName = reader.ModelName; |

### 3.1.38. OperatingMode

|             |                                                                                                                |
|-------------|----------------------------------------------------------------------------------------------------------------|
| Type        | <a href="#">OperatingMode</a>                                                                                  |
| Description | Get/Set the operating mode setting of the device.                                                              |
| Example     | Get : OperatingMode operatingMode = reader.OperatingMode;<br>Set : reader.OperatingMode = OperatingMode.USBSP; |

### 3.1.39. OperationMode

|             |                                                                                                            |
|-------------|------------------------------------------------------------------------------------------------------------|
| Type        | <a href="#">OperationMode</a>                                                                              |
| Description | Get/Set the operation mode of the RFID module.                                                             |
| Example     | Get : OperationMode mode = reader.OperationMode;<br>Set : reader.OperationMode = OperationMode.Continuous; |

### 3.1.40. PATemp

|             |                                       |
|-------------|---------------------------------------|
| Type        | int                                   |
| Description | Get the pa temperature of the device. |
| Example     | Get : string paTemp = reader.PATemp;  |

### 3.1.41. PATempProtection

|             |                                                                                                  |
|-------------|--------------------------------------------------------------------------------------------------|
| Type        | ushort                                                                                           |
| Description | Get/Set the pa temperature protection of the RFID module.                                        |
| Example     | Get : ushort paTempProtection = reader.PATempProtection;<br>Set : reader.PATempProtection = 850; |

### 3.1.42. PowerSaveMode

|             |                                                                                                                 |
|-------------|-----------------------------------------------------------------------------------------------------------------|
| Type        | <a href="#">PowerSaveMode</a>                                                                                   |
| Description | Get/Set the power save mode of the RFID module.                                                                 |
| Example     | Get : PowerSaveMode mode = reader.PowerSaveMode;<br>Set : reader.PowerSaveMode = PowerSaveMode.PowerSavingMode; |

### 3.1.43. QueryGroup

|             |                                                                                                                              |
|-------------|------------------------------------------------------------------------------------------------------------------------------|
| Type        | <a href="#">QueryGroup</a>                                                                                                   |
| Description | Get/Set the query group of the RFID module.                                                                                  |
| Example     | Get : <code>QueryGroup queryGroup = reader.QueryGroup;</code><br>Set : <code>reader.QueryGroup = new QueryGroup(...);</code> |

### 3.1.44. ReadMode

|             |                                                                                                                      |
|-------------|----------------------------------------------------------------------------------------------------------------------|
| Type        | <a href="#">ReadMode</a>                                                                                             |
| Description | Get/Set the read mode of the device.                                                                                 |
| Example     | Get : <code>ReadMode readMode = reader.ReadMode;</code><br>Set : <code>reader.ReadMode = ReadMode.SingleRead;</code> |

### 3.1.45. Region

|             |                                                                                                     |
|-------------|-----------------------------------------------------------------------------------------------------|
| Type        | <a href="#">Region</a>                                                                              |
| Description | Get/Set the region of the RFID module.                                                              |
| Example     | Get : <code>Region region = reader.Region;</code><br>Set : <code>reader.Region = Region.FCC;</code> |

### 3.1.46. RfMode

|             |                                                                                                        |
|-------------|--------------------------------------------------------------------------------------------------------|
| Type        | <a href="#">RfMode</a>                                                                                 |
| Description | Get/Set the RF mode of the RFID module.                                                                |
| Example     | Get : <code>RfMode rfMode = reader.RfMode;</code><br>Set : <code>reader.RfMode = RfMode.RF_323;</code> |

### 3.1.47. ScreenOffTime

|             |                                                                                                                                                          |
|-------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|
| Type        | <a href="#">ScreenOffTime</a>                                                                                                                            |
| Description | Get/Set the auto screen off time setting of the device.                                                                                                  |
| Example     | Get : <code>ScreenOffTime screenOffTime = reader.ScreenOffTime;</code><br>Set : <code>reader.ScreenOffTime = new ScreenOffTime(Minutes, Seconds);</code> |
| Note        | RP902 supports (0, 0), (0, 30), (1, 0), (2, 0), (3, 0), (5, 0), (10, 0) and (0, 0) is for disable.                                                       |

### 3.1.48. SdkVersion

|             |                                                           |
|-------------|-----------------------------------------------------------|
| Type        | string                                                    |
| Description | Get the version of the SDK.                               |
| Example     | Get : <code>string sdkVersion = reader.SdkVersion;</code> |

### 3.1.49. SerialNumber

|             |                                                  |
|-------------|--------------------------------------------------|
| Type        | string                                           |
| Description | Get the serial number of the device.             |
| Example     | Get : string serialNumber = reader.SerialNumber; |

### 3.1.50. SKU

|             |                                        |
|-------------|----------------------------------------|
| Type        | <a href="#">SKUType</a>                |
| Description | Get the SKU setting of the device.     |
| Example     | Get : SKUType skuType= reader.SKUType; |

### 3.1.51. SKUID

|             |                                    |
|-------------|------------------------------------|
| Type        | <a href="#">SKUId</a>              |
| Description | Get the SKU ID of the RFID module. |
| Example     | Get : SKUId skuld = reader.SKUID;  |

### 3.1.52. TagFocus

|             |                                                                                                  |
|-------------|--------------------------------------------------------------------------------------------------|
| Type        | <a href="#">TagFocusSetting</a>                                                                  |
| Description | Get/Set the tag focus setting of the RFID module.                                                |
| Example     | Get : TagFocusSetting setting = reader.TagFocus;<br>Set : reader.TagFocus = TagFocusSetting.Off; |

### 3.1.53. Temperature

|             |                                                |
|-------------|------------------------------------------------|
| Type        | double                                         |
| Description | Get the temperature status of the device.      |
| Example     | Get : double temperature = reader.Temperature; |

### 3.1.54. Time

|             |                                                                                 |
|-------------|---------------------------------------------------------------------------------|
| Type        | DateTime                                                                        |
| Description | Get/Set the system time of the device.                                          |
| Example     | Get : DateTime dateTime = reader.DateTime;<br>Set : reader.Time = DateTime.Now; |

### 3.1.55. TxOnOffTime

|             |                                                                                                         |
|-------------|---------------------------------------------------------------------------------------------------------|
| Type        | <a href="#">TxOnOffTime</a>                                                                             |
| Description | Get/Set the Tx on/off time of the RFID module.                                                          |
| Example     | Get : TxOnOffTime txOnOffTime = reader.TxOnOffTime;<br>Set : reader.TxOnOffTime = new TxOnOffTime(...); |

### 3.1.56. UartBaudRate

|             |                                                                                       |
|-------------|---------------------------------------------------------------------------------------|
| Type        | uint                                                                                  |
| Description | Get/Set the uart baud rate of the RFID module.                                        |
| Example     | Get : uint uartBaudRate = reader.UartBaudRate;<br>Set : reader.UartBaudRate = 115200; |

### 3.1.57. Version

|             |                                                |
|-------------|------------------------------------------------|
| Type        | string                                         |
| Description | Get the firmware version of the device.        |
| Example     | Get : string firmwareVersion = reader.Version; |

### 3.1.58. Vibrator

|             |                                                                                                         |
|-------------|---------------------------------------------------------------------------------------------------------|
| Type        | <a href="#">VibratorState</a>                                                                           |
| Description | Get/Set the vibrator setting of the device.                                                             |
| Example     | Get : VibratorState vibratorState = reader.VibratorState;<br>Set : reader.Vibrator = VibratorState.Off; |

## 3.2. Methods

### 3.2.1. Connect

|             |                                                                         |
|-------------|-------------------------------------------------------------------------|
| Definition  | Connect()                                                               |
| Description | Connect with device.                                                    |
| Return      | bool                                                                    |
| Example     | reader.Connect();                                                       |
| Note        | Return :<br>true : Connection successful.<br>false : Connection failed. |

### 3.2.2. CWOff

|             |                                              |
|-------------|----------------------------------------------|
| Definition  | CWOff()                                      |
| Description | Set the carrier wave off of the RFID module. |
| Return      | ResultCode                                   |
| Example     | reader.CWOff();                              |

### 3.2.3. CWOn

|             |                                                     |
|-------------|-----------------------------------------------------|
| Definition  | CWOn( <a href="#">CarrierWave</a> parms)            |
| Description | Set the carrier wave on of the RFID module.         |
| Return      | ResultCode                                          |
| Parameters  | parms: The carrier wave setting of the RFID module. |
| Example     | reader.CWOn(new CarrierWave(...));                  |

### 3.2.4. Disconnect

|             |                         |
|-------------|-------------------------|
| Definition  | Disconnect()            |
| Description | Disconnect with device. |
| Example     | reader.Disconnect();    |

### 3.2.5. Dispose

|             |                                    |
|-------------|------------------------------------|
| Definition  | Dispose()                          |
| Description | Release the resource in UHFReader. |
| Example     | reader.Dispose();                  |

### 3.2.6. FactoryReset

|             |                                  |
|-------------|----------------------------------|
| Definition  | FactoryReset()                   |
| Description | Reset device to factory default. |
| Return      | ResultCode                       |
| Example     | reader.FactoryReset();           |

### 3.2.7. FirmwareUpdate

|             |                                                        |
|-------------|--------------------------------------------------------|
| Definition  | FirmwareUpdate(string filename)                        |
| Description | Set the firmware update of the RFID module.            |
| Return      | ResultCode                                             |
| Parameters  | filename: The firmware update file of the RFID module. |
| Example     | reader.FirmwareUpdate(...);                            |

### 3.2.8. FirmwareUpdateCancel

|             |                                                |
|-------------|------------------------------------------------|
| Definition  | FirmwareUpdateCancel()                         |
| Description | Cancel the firmware update of the RFID module. |
| Example     | reader.FirmwareUpdateCancel();                 |

### 3.2.9. GetAntennaSetting

|             |                                               |
|-------------|-----------------------------------------------|
| Definition  | GetAntennaSetting(int antennald)              |
| Description | Get the antenna setting of the RFID module.   |
| Return      | AntennaSetting                                |
| Parameters  | antennald: The Antenna ID of the RFID module. |
| Example     | reader.GetAntennaSetting(1);                  |

### 3.2.10. GetAntennaState

|             |                                               |
|-------------|-----------------------------------------------|
| Definition  | GetAntennaState(int antennald)                |
| Description | Get the antenna state of the RFID module.     |
| Return      | AntennaState                                  |
| Parameters  | antennald: The Antenna ID of the RFID module. |
| Example     | reader.GetAntennaState(1);                    |

### 3.2.11. GetGpioPinsConfig

|             |                                                 |
|-------------|-------------------------------------------------|
| Definition  | GetGpioPinsConfig(int number)                   |
| Description | Get the GPIO pin direction of the RFID module.  |
| Return      | GpioPinDirection                                |
| Parameters  | number: The GPIO pin number of the RFID module. |
| Example     | reader.GetGpioPinsConfig(1);                    |

### 3.2.12. GetGpioPinsState

|             |                                                 |
|-------------|-------------------------------------------------|
| Definition  | GetGpioPinsState(int number)                    |
| Description | Get the GPIO pin state of the RFID module.      |
| Return      | GpioPinState                                    |
| Parameters  | number: The GPIO pin number of the RFID module. |
| Example     | reader.GetGpioPinsState(1);                     |

### 3.2.13. SetAntennaSetting

|             |                                                                   |
|-------------|-------------------------------------------------------------------|
| Definition  | SetAntennaSetting( <a href="#">AntennaSetting</a> antennaSetting) |
| Description | Set the antenna setting of the RFID module.                       |
| Parameters  | antennaSetting: The antenna setting of the RFID module.           |
| Example     | reader.SetAntennaSetting(new AntennaSetting(...));                |

### 3.2.14. SetAntennaState

|             |                                                             |
|-------------|-------------------------------------------------------------|
| Definition  | SetAntennaState( <a href="#">AntennaState</a> antennaState) |
| Description | Set the antenna state of the RFID module.                   |
| Parameters  | antennaState: The antenna state of the RFID module.         |
| Example     | reader.SetAntennaState(new AntennaState(...));              |

### 3.2.15. SetGpioPinsConfig

|             |                                                                                                          |
|-------------|----------------------------------------------------------------------------------------------------------|
| Definition  | SetGpioPinsConfig(int number, <a href="#">GpioPinDirection</a> direction)                                |
| Description | Set the GPIO pin direction of the RFID module.                                                           |
| Parameters  | number: The GPIO pin number of the RFID module.<br>direction: The GPIO pin direction of the RFID module. |
| Example     | reader.SetGpioPinsConfig(1, GpioPinDirection.Input);                                                     |

### 3.2.16. SetGpioPinsState

|             |                                                                                                  |
|-------------|--------------------------------------------------------------------------------------------------|
| Definition  | SetGpioPinsState(int number, <a href="#">GpioPinState</a> state)                                 |
| Description | Set the GPIO pin state of the RFID module.                                                       |
| Parameters  | number: The GPIO pin number of the RFID module.<br>state: The GPIO pin state of the RFID module. |
| Example     | reader.SetGpioPinsState(1, GpioPinState.Low);                                                    |

### 3.2.17. StartDetect

|             |                                                                                                                                                                                                                                                                                                     |
|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Definition  | StartDetect()                                                                                                                                                                                                                                                                                       |
| Description | If the device type is Unknown in TransportSerial, this method will start to detect the device type with the serial communication which defined in TransportSerial and trigger DetectDeviceEvent if the device is identified. DetectFinishedEvent will be triggered while the detection is finished. |
| Example     | reader.StartDetect();                                                                                                                                                                                                                                                                               |

### 3.2.18. StopDetect

|             |                                       |
|-------------|---------------------------------------|
| Definition  | StopDetect()                          |
| Description | Stop the detect process in UHFReader. |
| Example     | reader.StopDetect();                  |

### 3.2.19. TxRandomData

|             |                                                       |
|-------------|-------------------------------------------------------|
| Definition  | TxRandomData( <a href="#">TxRandData</a> parms)       |
| Description | Set the Tx random data on of the RFID module.         |
| Return      | ResultCode                                            |
| Parameters  | parms: The Tx random data setting of the RFID module. |
| Example     | reader.TxRandomData(new TxRandData(...));             |

### 3.2.20. UHFReader

|             |                                                         |
|-------------|---------------------------------------------------------|
| Definition  | UHFReader( <a href="#">BaseTransport</a> baseTransprot) |
| Description | The constructor of the UHFReader.                       |
| Parameters  | baseTransport: The communication type of target device. |
| Example     | UHFReader UHFReader = new UHFReader(baseTransport)      |

## 3.3. Events

### 3.3.1. ActionStateChangedEvent

|             |                                                                             |
|-------------|-----------------------------------------------------------------------------|
| Type        | EventHandler< <a href="#">ActionStateEventArgs</a> >                        |
| Description | The event will be triggered while the action state of UHFReader is changed. |

### 3.3.2. BatteryStateEvent

|             |                                                       |
|-------------|-------------------------------------------------------|
| Type        | EventHandler< <a href="#">BatteryStateEventArgs</a> > |
| Description | The event used to receive the battery status.         |

### 3.3.3. ConnectStateChangedEvent

|             |                                                                                  |
|-------------|----------------------------------------------------------------------------------|
| Type        | EventHandler< <a href="#">ConnectStateEventArgs</a> >                            |
| Description | The event will be triggered while the connection state of the device is changed. |

### 3.3.4. DetectDeviceEvent

|             |                                                                    |
|-------------|--------------------------------------------------------------------|
| Type        | EventHandler< <a href="#">DetectDeviceEventArgs</a> >              |
| Description | The event will be triggered while UHFReader identified the device. |

### 3.3.5. DetectFinishedEvent

|             |                                                                              |
|-------------|------------------------------------------------------------------------------|
| Type        | EventHandler< <a href="#">DetectDeviceEventArgs</a> >                        |
| Description | The event will be triggered while the device detection is done in UHFReader. |

### 3.3.6. KeyStateEvent

|             |                                                                           |
|-------------|---------------------------------------------------------------------------|
| Type        | EventHandler< <a href="#">KeyEventArgs</a> >                              |
| Description | The event will be triggered while the trigger key is pressed or released. |

### 3.3.7. LogEvent

|             |                                                   |
|-------------|---------------------------------------------------|
| Type        | EventHandler< <a href="#">LogEventArgs</a> >      |
| Description | The event used to receive the log from UHFReader. |

### 3.3.8. TemperatureEvent

|             |                                                      |
|-------------|------------------------------------------------------|
| Type        | EventHandler< <a href="#">TemperatureEventArgs</a> > |
| Description | The event used to receive the temperature status.    |

## 4. BaseUHF Classes

BaseUHF class provides the methods about UHF functions.

### 4.1. Properties

#### 4.1.1. AlgorithmType

|             |                                                                                                                           |
|-------------|---------------------------------------------------------------------------------------------------------------------------|
| Type        | <a href="#">AlgorithmType</a>                                                                                             |
| Description | Get/Set the algorithm that the UHF module of the appliance uses to perform the Inventory.                                 |
| Example     | Get : AlgorithmType algorithmType = reader.AlgorithmType;<br>Set : reader.BaseUHF.AlgorithmType = AlgorithmType.DynamicQ; |

#### 4.1.2. BLF

|             |                                                                                                             |
|-------------|-------------------------------------------------------------------------------------------------------------|
| Type        | <a href="#">BLFType</a>                                                                                     |
| Description | Get/Set the status of the BLF that the UHF module of the appliance uses to perform the Inventory operation. |
| Example     | Get : BLFType blfType = reader.BLFType;<br>Set : reader.BaseUHF.BLF = BLFType.BLF_256;                      |

#### 4.1.3. ContinuousMode

|             |                                                                                                   |
|-------------|---------------------------------------------------------------------------------------------------|
| Type        | bool                                                                                              |
| Description | Get/Set the UHF module will continue to perform Inventory operations.                             |
| Example     | Get : bool continuousMode = reader.ContinuousMode;<br>Set : reader.BaseUHF.ContinuousMode = true; |

#### 4.1.4. Encoding

|             |                                                                                                                  |
|-------------|------------------------------------------------------------------------------------------------------------------|
| Type        | <a href="#">Encoding</a>                                                                                         |
| Description | Get/Set the status of the Encoding that the UHF module of the appliance uses to perform the Inventory operation. |
| Example     | Get : Encoding encoding = reader.Encoding;<br>Set : reader.BaseUHF.Encoding = Encoding.FM0;                      |

#### 4.1.5. FastMode

|             |                                                                                                                   |
|-------------|-------------------------------------------------------------------------------------------------------------------|
| Type        | bool                                                                                                              |
| Description | Get/Set the status of the fast mode that the UHF module of the appliance uses to perform the Inventory operation. |
| Example     | Get : bool fastMode = reader.FastMode;<br>Set : reader.BaseUHF.FastMode = true;                                   |

#### 4.1.6. GlobalBand

|             |                                                                                                                       |
|-------------|-----------------------------------------------------------------------------------------------------------------------|
| Type        | <a href="#">GlobalBandType</a>                                                                                        |
| Description | Get/Set the national orientation of the UHF module.                                                                   |
| Example     | Get : GlobalBandType globalBandType = reader.GlobalBandType;<br>Set : reader.BaseUHF.GlobalBand = GlobalBandType.USA; |

#### 4.1.7. IdleTime

|             |                                                                                                                                                          |
|-------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|
| Type        | int                                                                                                                                                      |
| Description | Get/Set the time at which radio waves are actually not output from the Inventory operation of the UHF module in the instrument. The unit is millisecond. |
| Example     | Get : int idleTime = reader.IdleTime;<br>Set : reader.BaseUHF.IdleTime = 0;                                                                              |
| Note        | The range is 0 to 500.                                                                                                                                   |

#### 4.1.8. InventoryTime

|             |                                                                                                                                                      |
|-------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| Type        | int                                                                                                                                                  |
| Description | Get/Set the time at which radio waves are actually output from the Inventory operation of the UHF module in the instrument. The unit is millisecond. |
| Example     | Get : int inventoryTime = reader.InventoryTime;<br>Set : reader.BaseUHF.InventoryTime = 200;                                                         |
| Note        | The range is 40 to 500.                                                                                                                              |

#### 4.1.9. MaxQ

|             |                                                                                                              |
|-------------|--------------------------------------------------------------------------------------------------------------|
| Type        | int                                                                                                          |
| Description | Get/Set the maximum Q value for algorithm of the UHF module. The value must be greader than the Min Q value. |
| Example     | Get : int maxQ = reader.MaxQ;<br>Set : reader.BaseUHF.MaxQ = 15;                                             |
| Note        | The range is 0 to 15.                                                                                        |

#### 4.1.10. MinQ

|             |                                                                                                           |
|-------------|-----------------------------------------------------------------------------------------------------------|
| Type        | int                                                                                                       |
| Description | Get/Set the minimum Q value for algorithm of the UHF module. The value msut be less than the Max Q value. |
| Example     | Get : int minQ = reader.MinQ;<br>Set : reader.BaseUHF.MinQ = 0;                                           |
| Note        | The range is 0 to 15.                                                                                     |

#### 4.1.11. ModuleProfile

|             |                                                                                                                          |
|-------------|--------------------------------------------------------------------------------------------------------------------------|
| Type        | int                                                                                                                      |
| Description | Get/Set the status of the module's profile that the UHF module of the appliance uses to perform the Inventory operation. |
| Example     | Get : int moduleProfile = reader.ModuleProfile;<br>Set : reader.BaseUHF.ModuleProfile = 0;                               |

#### 4.1.12. Power

|             |                                                                     |
|-------------|---------------------------------------------------------------------|
| Type        | int                                                                 |
| Description | Get/Set the antenna output of the UHF module. The unit is dBm.      |
| Example     | Get : int power = reader.Power;<br>Set : reader.BaseUHF.Power = 20; |
| Note        | The range of RP902 is 11 to 27.                                     |

#### 4.1.13. PowerMode

|             |                                                                                                                    |
|-------------|--------------------------------------------------------------------------------------------------------------------|
| Type        | <a href="#">PowerMode</a>                                                                                          |
| Description | Get/Set the status of the power mode that the UHF module of the appliance uses to perform the Inventory operation. |
| Example     | Get : PowerMode powerMode = reader.PowerMode;<br>Set : reader.BaseUHF.PowerMode = PowerMode.Normal;                |

#### 4.1.14. PowerRange

|             |                                                                  |
|-------------|------------------------------------------------------------------|
| Type        | <a href="#">PowerRange</a>                                       |
| Description | Get the antenna output range of the UHF module. The unit is dBm. |
| Example     | Get : PowerRange powerRange = reader.PowerRange;                 |

#### 4.1.15. RFIDConfig

|             |                                                                                                                                   |
|-------------|-----------------------------------------------------------------------------------------------------------------------------------|
| Type        | <a href="#">RFIDConfig</a>                                                                                                        |
| Description | Get/Set the configs of UHF module.                                                                                                |
| Example     | Get : <code>RFIDConfig rfidConfig = reader.RFIDConfig;</code><br>Set : <code>reader.BaseUHF.RFIDConfig = new RFIDConfig();</code> |

#### 4.1.16. SelectMask6cMaxSize

|             |                                                                          |
|-------------|--------------------------------------------------------------------------|
| Type        | int                                                                      |
| Description | Get the maximum size of select mask list status of the UHF module.       |
| Example     | Get : <code>int selectMask6cMaxSize = reader.SelectMask6cMaxSize;</code> |

#### 4.1.17. Session

|             |                                                                                                                 |
|-------------|-----------------------------------------------------------------------------------------------------------------|
| Type        | <a href="#">Session</a>                                                                                         |
| Description | Get/Set the state of Session of the tag to be read by the Inventory operation.                                  |
| Example     | Get : <code>Session session = reader.Session;</code><br>Set : <code>reader.BaseUHF.Session = Session.S0;</code> |

#### 4.1.18. StartQ

|             |                                                                       |
|-------------|-----------------------------------------------------------------------|
| Type        | int                                                                   |
| Description | Get/Set the start Q value for algorithm of the UHF module.            |
| Example     | Get : int startQ = reader.StartQ;<br>Set : reader.BaseUHF.StartQ = 4; |
| Note        | The range is 0 to 15.                                                 |

#### 4.1.19. SupportedGlobalBand

|             |                                                                 |
|-------------|-----------------------------------------------------------------|
| Type        | List< <a href="#">GlobalBandType</a> >                          |
| Description | Get the Firmware supported GlobalBandType of the UHF module.    |
| Example     | Get : List<GlobalBandType> gbList = reader.SupportedGlobalBand; |

#### 4.1.20. SupportedRegion

|             |                                                         |
|-------------|---------------------------------------------------------|
| Type        | List< <a href="#">Region</a> >                          |
| Description | Get the Firmware supported Region of the UHF module.    |
| Example     | Get : List<Region> regionList = reader.SupportedRegion; |

#### 4.1.21. Target

|             |                                                                                            |
|-------------|--------------------------------------------------------------------------------------------|
| Type        | <a href="#">Target</a>                                                                     |
| Description | Get/Set the status of the Target of the tag which will be read by the Inventory operation. |
| Example     | Get : Target target = reader.Target;<br>Set : reader.BaseUHF.Target = Target.A;            |

#### 4.1.22. TARI

|             |                                                                                                              |
|-------------|--------------------------------------------------------------------------------------------------------------|
| Type        | <a href="#">TARITYPE</a>                                                                                     |
| Description | Get/Set the status of the TARI that the UHF module of the appliance uses to perform the Inventory operation. |
| Example     | Get : TARITYPE tariType = reader.TARITYPE;<br>Set : reader.BaseUHF.TARI = TARITYPE.T_6_25;                   |

#### 4.1.23. ToggleTarget

|             |                                                                                                                       |
|-------------|-----------------------------------------------------------------------------------------------------------------------|
| Type        | bool                                                                                                                  |
| Description | Get/Set the status of the toggle target that the UHF module of the appliance uses to perform the Inventory operation. |
| Example     | Get : bool toggleTarget = reader.ToggleTarget;<br>Set : reader.BaseUHF.ToggleTarget = true;                           |

## 4.2. Methods

### 4.2.1. GetSelectMask6cEnabled

|             |                                                                                    |
|-------------|------------------------------------------------------------------------------------|
| Definition  | GetSelectMask6cEnabled(int index)                                                  |
| Description | Get whether to use the Selection Mask item of the UHF module.                      |
| Return      | bool                                                                               |
| Parameters  | index : Integer specifying the radix of the item from 0 to GetSelectMask6cMaxSize. |
| Example     | bool mask6cEnabled = reader.BaseUHF.GetSelectMask6cEnabled(0);                     |

### 4.2.2. SetSelectMask6cEnabled

|             |                                                                                                                                                     |
|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| Definition  | SetSelectMask6cEnabled(int index, bool enabled)                                                                                                     |
| Description | Set whether or not to use the Selection Mask item of the UHF module.                                                                                |
| Parameters  | index : Integer specifying the radix of the item from 0 to GetSelectMask6cMaxSize.<br><br>enabled : A boolean specifying whether to apply the item. |
| Example     | reader.BaseUHF.SetSelectMask6cEnabled(0, true);                                                                                                     |

### 4.2.3. GetSelectMask6cTarget

|             |                                                                                              |
|-------------|----------------------------------------------------------------------------------------------|
| Definition  | GetSelectMask6cTarget(int index)                                                             |
| Description | Get the Flag of the tag to store the comparison result of Selection Mask item of UHF module. |
| Return      | Mask6cTarget                                                                                 |
| Parameters  | index : Integer specifying the radix of the item from 0 to GetSelectMask6cMaxSize.           |
| Example     | Mask6cTarget mask6cTarget = reader.BaseUHF.GetSelectMask6cTarget(0);                         |

### 4.2.4. SetSelectMask6cTarget

|             |                                                                                                                                                                                                                                                |
|-------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Definition  | SetSelectMask6cTarget(int index, <a href="#">Mask6cTarget</a> target)                                                                                                                                                                          |
| Description | Set the Flag of the tag to save the comparison result of Selection Mask item of the UHF module.                                                                                                                                                |
| Parameters  | <p>index : Integer specifying the radix of the item from 0 to GetSelectMask6cMaxSize.</p> <p>target : The Mask6cTarget enumeration that specifies the Flag of the tag to store the result of the specified Selection Mask item comparison.</p> |
| Example     | reader.BaseUHF.SetSelectMask6cTarget(0, Mask6cTarget.S0);                                                                                                                                                                                      |

#### 4.2.5. GetSelectMask6cAction

|             |                                                                                              |
|-------------|----------------------------------------------------------------------------------------------|
| Definition  | GetSelectMask6cAction(int index)                                                             |
| Description | Get the comparison behavior of the Selection Mask item of the RFID UHF module of the Device. |
| Return      | Mask6cAction                                                                                 |
| Parameters  | index : Integer specifying the radix of the item from 0 to GetSelectMask6cMaxSize.           |
| Example     | Mask6cAction mask6cAction = reader.BaseUHF.GetSelectMask6cAction(0);                         |

#### 4.2.6. SetSelectMask6cAction

|             |                                                                                                                                                                                                      |
|-------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Definition  | SetSelectMask6cAction(int index, <a href="#">Mask6cAction</a> action)                                                                                                                                |
| Description | Set the comparison behavior of the Selection Mask item of the UHF module.                                                                                                                            |
| Parameters  | <p>index : Integer specifying the radix of the item from 0 to GetSelectMask6cMaxSize.</p> <p>action : The Mask6cAction enumeration specifying how to compare the specified Selection Mask items.</p> |
| Example     | reader.BaseUHF.SetSelectMask6cAction(0, Mask6cAction.AB);                                                                                                                                            |

#### 4.2.7. GetSelectMask6cBank

|             |                                                                                                       |
|-------------|-------------------------------------------------------------------------------------------------------|
| Definition  | GetSelectMask6cBank(int index)                                                                        |
| Description | Get the memory bank to be compared with the specified Selection Mask item. Reserved bank is not used. |
| Return      | BankType                                                                                              |
| Parameters  | index : Integer specifying the radix of the item from 0 to GetSelectMask6cMaxSize.                    |
| Example     | BankType bankType = reader.BaseUHF.GetSelectMask6cBank(0);                                            |

#### 4.2.8. SetSelectMask6cBank

|             |                                                                                                                                                                                                                                                   |
|-------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Definition  | SetSelectMask6cBank(int index, <a href="#">BankType</a> bank)                                                                                                                                                                                     |
| Description | Set the memory bank to be compared of the Selection Mask item of the UHF module.                                                                                                                                                                  |
| Parameters  | <p>index : Integer specifying the radix of the item from 0 to GetSelectMask6cMaxSize.</p> <p>bank : The BankType enumeration that specifies the memory bank to be compared with the specified Selection Mask item. Reserved bank is not used.</p> |
| Example     | reader.BaseUHF.SetSelectMask6cBank(0, BankType.EPC);                                                                                                                                                                                              |

#### 4.2.9. GetSelectMask6cOffset

|             |                                                                                                                                                                    |
|-------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Definition  | GetSelectMask6cOffset(int index)                                                                                                                                   |
| Description | Get the starting address at which the specified Selection Mask item will start the comparison. The unit specifying the start address of the Selection Mask is bit. |
| Return      | int                                                                                                                                                                |
| Parameters  | index : Integer specifying the radix of the item from 0 to GetSelectMask6cMaxSize.                                                                                 |
| Example     | int mask6cOffset= reader.BaseUHF.GetSelectMask6cOffset(0);                                                                                                         |

#### 4.2.10. SetSelectMask6cOffset

|             |                                                                                                                                                                                                                                                                                         |
|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Definition  | SetSelectMask6cOffset(int index, int offset)                                                                                                                                                                                                                                            |
| Description | Set the starting address at which the specified Selection Mask item will start the comparison. The unit specifying the start address of the Selection Mask is bit.                                                                                                                      |
| Parameters  | index : Integer specifying the radix of the item from 0 to GetSelectMask6cMaxSize.<br><br>offset : An integer specifying the starting address at which the specified Selection Mask item will start the comparison. The unit specifying the start address of the Selection Mask is bit. |
| Example     | reader.BaseUHF.SetSelectMask6cOffset(0, 4);                                                                                                                                                                                                                                             |

#### 4.2.11. GetSelectMask6cPattern

|             |                                                                                                                   |
|-------------|-------------------------------------------------------------------------------------------------------------------|
| Definition  | GetSelectMask6cPattern(int index)                                                                                 |
| Description | Get an instance of Mask6cPattern specifying the comparison value and length of the specified Selection Mask item. |
| Return      | Mask6cPattern                                                                                                     |
| Parameters  | index : Integer specifying the radix of the item from 0 to GetSelectMask6cMaxSize.                                |
| Example     | Mask6cPattern pattern = reader.BaseUHF.GetSelectMask6cPattern(0);                                                 |

#### 4.2.12. SetSelectMask6cPattern

|             |                                                                                                                                                                                                                   |
|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Definition  | SetSelectMask6cPattern(int index, <a href="#">Mask6cPattern</a> pattern)                                                                                                                                          |
| Description | Set the comparison value and length of the Selection Mask item of the UHF module.                                                                                                                                 |
| Parameters  | index : Integer specifying the radix of the item from 0 to GetSelectMask6cMaxSize.<br><br>pattern : An instance of Mask6cPattern specifying the comparison value and length of the specified Selection Mask item. |
| Example     | reader.BaseUHF.SetSelectMask6cPattern(0, new Mask6cPattern(...));                                                                                                                                                 |

#### 4.2.13. GetSelectMask6c

|             |                                                                                        |
|-------------|----------------------------------------------------------------------------------------|
| Definition  | GetSelectMask6c(int index)                                                             |
| Description | Get an instance of SelectMask6cParam that specifies the specified Selection Mask item. |
| Return      | SelectMask6cParam                                                                      |
| Parameters  | index : Integer specifying the radix of the item from 0 to GetSelectMask6cMaxSize.     |
| Example     | SelectMask6cParam param = reader.BaseUHF.GetSelectMask6c(0);                           |

#### 4.2.14. SetSelectMask6c

|             |                                                                                                                                                                                    |
|-------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Definition  | SetSelectMask6c(int index, <a href="#">SelectMask6cParam</a> param)                                                                                                                |
| Description | Set the Selection Mask item of the UHF module.                                                                                                                                     |
| Parameters  | index : Integer specifying the radix of the item from 0 to GetSelectMask6cMaxSize.<br>pattern : An instance of SelectMask6cParam that specifies the specified Selection Mask item. |
| Example     | reader.BaseUHF.SetSelectMask6c(0, new SelectMask6cParam(...));                                                                                                                     |

|             |                                                                                                                                                                                                                                                                |
|-------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Definition  | SetSelectMask6c( <a href="#">TagSelectMode</a> mode, <a href="#">Mask6cTarget</a> target, <a href="#">Mask6cAction</a> action, <a href="#">TagSelectTruncate</a> truncate, <a href="#">BankType</a> memoryBank, ushort startAddress, byte length, string data) |
| Description | Set the Selection Mask item of the UHF module.                                                                                                                                                                                                                 |
| Parameters  | mode : Specifies the tag select mode.<br>target : The status of the Target of the tag which will be read by the Inventory operation.                                                                                                                           |

|         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|         | <p>action : The Indicating how to save the results for the condition of "Selection Mask".</p> <p>truncate : Specifies EPC response format.</p> <p>memoryBank : The BankType enumeration representing the memory bank of the tag to compare the pattern in "Selection Mask".</p> <p>startAddress : The integer representing the start address at which to begin comparing patterns in the "Selection Mask". The unit is bit.</p> <p>length : The integer representing the length of the pattern in "Selection Mask". The unit is bit.</p> <p>data : The string representing the comparison pattern for "Selection Mask".</p> |
| Example | <pre>reader.BaseUHF.SetSelectMask6c(TagSelectMode.ClearAdd, Mask6cTarget.SL, Mask6cAction.AB, TagSelectTruncate.EntireEPC, BankType.EPC, 32, 96, "11113411B802011718302455");</pre>                                                                                                                                                                                                                                                                                                                                                                                                                                         |

#### 4.2.15. Inventory6c

|             |                                                                              |
|-------------|------------------------------------------------------------------------------|
| Definition  | Inventory6c()                                                                |
| Description | Device instructs to inventory the RFID UHF tag of ISO18000-6c Gen2 standard. |
| Return      | ResultCode                                                                   |
| Example     | <pre>ResultCode ret = reader.BaseUHF.Inventory6c();</pre>                    |

|             |                                                                                          |
|-------------|------------------------------------------------------------------------------------------|
| Definition  | Inventory6c( <a href="#">BankType</a> bankType, int offset, int length, string password) |
| Description | Device instructs to inventory the RFID UHF tag of ISO18000-6c Gen2 standard.             |
| Return      | ResultCode                                                                               |
| Parameters  | <p>bankType : The BankType enumeration that specifies the Bank for reading memory.</p>   |

|         |                                                                                                                                                                                                                                                                                                                                                                                                      |
|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|         | <p>offset : An integer specifying the starting address to start reading from the specified bank. The unit is word.</p> <p>length : An integer that specifies the length of data to read from the specified start address. The unit is word.</p> <p>password : If the tag is locked, it is a hex string specifying the Access Password set in the tag. Up to 8 characters (2 words) can be input.</p> |
| Example | <pre>ResultCode ret = reader.BaseUHF.Inventory6c(BankType.EPC, 0, 4, "00000000");</pre>                                                                                                                                                                                                                                                                                                              |

#### 4.2.16. ReadMemory6c

|             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Definition  | ReadMemory6c( <a href="#">BankType</a> bankType, int offset, int length, string password)                                                                                                                                                                                                                                                                                                                                                                                                   |
| Description | Device instructs to read specific memory of RFID UHF tag of ISO18000-6c Gen2 standard.                                                                                                                                                                                                                                                                                                                                                                                                      |
| Return      | ResultCode                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Parameters  | <p>bankType : The BankType enumeration that specifies the Bank for reading memory.</p> <p>offset : An integer specifying the starting address to start reading from the specified bank. The unit is word.</p> <p>length : An integer that specifies the length of data to read from the specified start address. The unit is word.</p> <p>password : If the tag is locked, it is a hex string specifying the Access Password set in the tag. Up to 8 characters (2 words) can be input.</p> |
| Example     | <pre>ResultCode ret = reader.BaseUHF.ReadMemory6c(BankType.EPC, 0, 4, "00000000");</pre>                                                                                                                                                                                                                                                                                                                                                                                                    |

#### 4.2.17. WriteMemory6c

|             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Definition  | WriteMemory6c( <a href="#">BankType</a> bank, int offset, string data, string password)                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Description | Device instructs to store data in a specific memory of RFID UHF tag of ISO18000-6c Gen2 standard.                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Return      | ResultCode                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Parameters  | <p>bankType : The BankType enumeration that specifies the Bank for writing memory.</p> <p>offset : An integer specifying the starting address to start writing from the specified bank. The unit is word.</p> <p>data : An Hex type string that specifies the data to be stored in memory from the specified start address. Data must be specified in word units (4 characters).</p> <p>password : If the tag is locked, it is a hex string specifying the Access Password set in the tag. Up to 8 characters (2 words) can be input.</p> |
| Example     | ResultCode ret = reader.BaseUHF.WriteMemory6c(BankType.EPC, 0, "11113411B802011718302455", "00000000");                                                                                                                                                                                                                                                                                                                                                                                                                                   |

|             |                                                                                                                                                                                                               |
|-------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Definition  | WriteMemory6c( <a href="#">BankType</a> bank, int offset, int length, string data, string password)                                                                                                           |
| Description | Device instructs to store data in a specific memory of RFID UHF tag of ISO18000-6c Gen2 standard.                                                                                                             |
| Return      | ResultCode                                                                                                                                                                                                    |
| Parameters  | <p>bankType : The BankType enumeration that specifies the Bank for writing memory.</p> <p>offset : An integer specifying the starting address to start writing from the specified bank. The unit is word.</p> |

|         |                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|         | <p>length : An integer specifying the length to writing from the specified start bank. The unit is word.</p> <p>data : An Hex type string that specifies the data to be stored in memory from the specified start address. Data must be specified in word units (4 characters).</p> <p>password : If the tag is locked, it is a hex string specifying the Access Password set in the tag. Up to 8 characters (2 words) can be input.</p> |
| Example | <pre>ResultCode ret = reader.BaseUHF.WriteMemory6c(BankType.EPC, 0, 24, "11113411B802011718302455", "00000000");</pre>                                                                                                                                                                                                                                                                                                                   |

#### 4.2.18. WriteBlockMemory6c

|             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Definition  | WriteBlockMemory6c( <a href="#">BankType</a> bank, int offset, int length, string data, string password)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Description | Device instructs to store data in a specific memory of RFID UHF tag of ISO18000-6c Gen2 standard.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Return      | ResultCode                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Parameters  | <p>bankType : The BankType enumeration that specifies the Bank for writing memory.</p> <p>offset : An integer specifying the starting address to start writing from the specified bank. The unit is word.</p> <p>length : An integer specifying the length to writing from the specified start bank. The unit is word.</p> <p>data : An Hex type string that specifies the data to be stored in memory from the specified start address. Data must be specified in word units (4 characters).</p> <p>password : If the tag is locked, it is a hex string specifying the Access Password set in the tag. Up to 8 characters (2 words) can be input.</p> |

|         |                                                                                                                             |
|---------|-----------------------------------------------------------------------------------------------------------------------------|
| Example | <pre>ResultCode ret = reader.BaseUHF.WriteBlockMemory6c(BankType.EPC, 0, 24, "11113411B802011718302455", "00000000");</pre> |
|---------|-----------------------------------------------------------------------------------------------------------------------------|

#### 4.2.19. Lock6c

|             |                                                                                                                                                                                                                                                |
|-------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Definition  | Lock6c( <a href="#">Lock6cParam</a> param, string password)                                                                                                                                                                                    |
| Description | Instructs the Device to lock or unlock the RFID UHF tags of the ISO18000-6c Gen2 standard.                                                                                                                                                     |
| Return      | ResultCode                                                                                                                                                                                                                                     |
| Parameters  | <p>param : An instance of Lock6cParam that specifies the lock area of the tag memory.</p> <p>password : If the tag is locked, it is a hex string specifying the Access Password set in the tag. Up to 8 characters (2 words) can be input.</p> |
| Example     | <pre>ResultCode ret = reader.BaseUHF.Lock6c(new Lock6cParam(...), "00000000");</pre>                                                                                                                                                           |

#### 4.2.20. Lock6cIncPerma

|             |                                                                                                                                                                                                                                                             |
|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Definition  | Lock6cIncPerma( <a href="#">Lock6cIncPermaParam</a> param, string accessPassword)                                                                                                                                                                           |
| Description | Instructs the Device to permanent lock or unlock the RFID UHF tags of the ISO18000-6c Gen2 standard.                                                                                                                                                        |
| Return      | ResultCode                                                                                                                                                                                                                                                  |
| Parameters  | <p>param : An instance of Lock6cIncPermaParam that specifies a permanent lock area for tag memory.</p> <p>password : If the tag is locked, it is a hex string specifying the Access Password set in the tag. Up to 8 characters (2 words) can be input.</p> |

|         |                                                                                                        |
|---------|--------------------------------------------------------------------------------------------------------|
| Example | <code>ResultCode ret = reader.BaseUHF.Lock6cIncPerma(new Lock6cIncPermaParam(...), "00000000");</code> |
|---------|--------------------------------------------------------------------------------------------------------|

#### 4.2.21. PermaLock6c

|             |                                                                                                                                                                                                                                                          |
|-------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Definition  | PermaLock6c( <a href="#">PermaLock6cParam</a> param, string password)                                                                                                                                                                                    |
| Description | Instructs the Device to permanent lock or unlock the RFID UHF tags of the ISO18000-6c Gen2 standard.                                                                                                                                                     |
| Return      | ResultCode                                                                                                                                                                                                                                               |
| Parameters  | <p>param : An instance of PermaLock6cParam that specifies a permanent lock area for tag memory.</p> <p>password : If the tag is locked, it is a hex string specifying the Access Password set in the tag. Up to 8 characters (2 words) can be input.</p> |
| Example     | <code>ResultCode ret = reader.BaseUHF.PermaLock6c(new PermaLock6cParam (...), "00000000");</code>                                                                                                                                                        |

#### 4.2.22. Kill6c

|             |                                                                                                |
|-------------|------------------------------------------------------------------------------------------------|
| Definition  | Kill6c(string password)                                                                        |
| Description | Device instructs the RFID UHF tag of ISO18000-6c Gen2 specification to be no longer available. |
| Return      | ResultCode                                                                                     |
| Parameters  | password : Hex type string that specifies the Kill Password set in the tag.                    |
| Example     | <code>ResultCode ret = reader.BaseUHF.Kill6c("00000000");</code>                               |

## 4.2.23. Stop

|             |                                                             |
|-------------|-------------------------------------------------------------|
| Definition  | Stop()                                                      |
| Description | Instructs the Device to stop the operation being performed. |
| Return      | ResultCode                                                  |
| Example     | ResultCode ret = reader.BaseUHF.Stop();                     |

## 4.3. Events

### 4.3.1. AccessResultEvent

|             |                                                                                      |
|-------------|--------------------------------------------------------------------------------------|
| Type        | EventHandler< <a href="#">AccessResultEventArgs</a> >                                |
| Description | The event used to receive the access result from the read/write/lock/kill operation. |

### 4.3.2. InventoryDoneEvent

|             |                                                           |
|-------------|-----------------------------------------------------------|
| Type        | EventHandler< <a href="#">InventoryDoneEventArgs</a> >    |
| Description | The event used to receive the RFID module Inventory done. |

### 4.3.3. ProgressRateEvent

|             |                                                                       |
|-------------|-----------------------------------------------------------------------|
| Type        | EventHandler<double>                                                  |
| Description | The event used to receive the progress rate from the firmware update. |

#### 4.3.4. TagReadEvent

|             |                                                                 |
|-------------|-----------------------------------------------------------------|
| Type        | EventHandler< <a href="#">TagReadEventArgs</a> >                |
| Description | The event used to receive the tag from the Inventory operation. |

## 5. EventArgs Classes

EventArgs class defines the trigger events for the reader.

### 5.1. AccessResultEventArgs

#### 5.1.1. ActionState

|             |                                                                    |
|-------------|--------------------------------------------------------------------|
| Type        | <a href="#">ActionState</a>                                        |
| Description | Get the state of the operation.                                    |
| Example     | Get : ActionState actionState = accessResultEventArgs.ActionState; |

#### 5.1.2. BankType

|             |                                                           |
|-------------|-----------------------------------------------------------|
| Type        | <a href="#">BankType</a>                                  |
| Description | Get the bank of the operation.                            |
| Example     | Get : BankType bankType = accessResultEventArgs.BankType; |

#### 5.1.3. Data

|             |                                                 |
|-------------|-------------------------------------------------|
| Type        | string                                          |
| Description | Get the data of the operation.                  |
| Example     | Get : string data = accessResultEventArgs.Data; |

#### 5.1.4. EPC

|             |                                               |
|-------------|-----------------------------------------------|
| Type        | string                                        |
| Description | Get the EPC of the tag.                       |
| Example     | Get : string epc = accessResultEventArgs.EPC; |

#### 5.1.5. ResultCode

|             |                                                                 |
|-------------|-----------------------------------------------------------------|
| Type        | <a href="#">ResultCode</a>                                      |
| Description | Get the result code of the operation.                           |
| Example     | Get : ResultCode resultCode = accessResultEventArgs.ResultCode; |

### 5.2. ActionStateEventArgs

#### 5.2.1. ActionState

|             |                                                                   |
|-------------|-------------------------------------------------------------------|
| Type        | <a href="#">ActionState</a>                                       |
| Description | Get the current action state of the UHFReader.                    |
| Example     | Get : ActionState actionState = actionStateEventArgs.ActionState; |

#### 5.2.2. Reader

|             |                                                            |
|-------------|------------------------------------------------------------|
| Type        | <a href="#">BaseReader</a>                                 |
| Description | Get the reader which to trigger the event.                 |
| Example     | Get : BaseReader baseReader = actionStateEventArgs.Reader; |

## 5.3. BatteryStateEventArgs

### 5.3.1. Battery

|             |                                                    |
|-------------|----------------------------------------------------|
| Type        | int                                                |
| Description | Get the current status of battery.                 |
| Example     | Get : int battery = batteryStateEventArgs.Battery; |

### 5.3.2. Reader

|             |                                                             |
|-------------|-------------------------------------------------------------|
| Type        | <a href="#">BaseReader</a>                                  |
| Description | Get the reader which to trigger the event.                  |
| Example     | Get : BaseReader baseReader = batteryStateEventArgs.Reader; |

## 5.4. ConnectStateEventArgs

### 5.4.1. ConnectState

|             |                                                                       |
|-------------|-----------------------------------------------------------------------|
| Type        | <a href="#">ConnectState</a>                                          |
| Description | Get the current state of connection.                                  |
| Example     | Get : ConnectState connectState = connectStateEventArgs.ConnectState; |

### 5.4.2. Reader

|             |                                                             |
|-------------|-------------------------------------------------------------|
| Type        | <a href="#">BaseReader</a>                                  |
| Description | Get the reader which to trigger the event.                  |
| Example     | Get : BaseReader baseReader = connectStateEventArgs.Reader; |

## 5.5. DetectDeviceEventArgs

### 5.5.1. BTMACAddress

|             |                                                               |
|-------------|---------------------------------------------------------------|
| Type        | string                                                        |
| Description | Get the Bluetooth MAC address of the detected device.         |
| Example     | Get : string macAddress = detectDeviceEventArgs.BTMACAddress; |

### 5.5.2. ConnectType

|             |                                                                    |
|-------------|--------------------------------------------------------------------|
| Type        | <a href="#">ConnectType</a>                                        |
| Description | Get the communication type of the detected device.                 |
| Example     | Get : ConnectType connectType = detectDeviceEventArgs.ConnectType; |

### 5.5.3. DeviceType

|             |                                                                 |
|-------------|-----------------------------------------------------------------|
| Type        | <a href="#">DeviceType</a>                                      |
| Description | Get the type of the detected device.                            |
| Example     | Get : DeviceType deviceType = detectDeviceEventArgs.DeviceType; |

#### 5.5.4. Name

|             |                                                 |
|-------------|-------------------------------------------------|
| Type        | string                                          |
| Description | Get the name of the detected device.            |
| Example     | Get : string name = detectDeviceEventArgs.Name; |

#### 5.5.5. Port

|             |                                                 |
|-------------|-------------------------------------------------|
| Type        | string                                          |
| Description | Get the serial port of the detected device.     |
| Example     | Get : string port = detectDeviceEventArgs.Port; |

#### 5.5.6. SerialNumber

|             |                                                                 |
|-------------|-----------------------------------------------------------------|
| Type        | string                                                          |
| Description | Get the serial number of the detected device.                   |
| Example     | Get : string serialNumber = detectDeviceEventArgs.SerialNumber; |

## 5.6. InventoryDoneEventArgs

### 5.6.1. OperationErrorAntennaID

|             |                                                                       |
|-------------|-----------------------------------------------------------------------|
| Type        | byte                                                                  |
| Description | Get the antenna id of the operation error.                            |
| Example     | Get : byte antennalD= InventoryDoneEventArgs.OperationErrorAntennaID; |

### 5.6.2. OperationErrorCode

|             |                                                                  |
|-------------|------------------------------------------------------------------|
| Type        | int                                                              |
| Description | Get the error code of the operation error.                       |
| Example     | Get : int errorCode = InventoryDoneEventArgs.OperationErrorCode; |

### 5.6.3. SystemErrorCode

|             |                                                               |
|-------------|---------------------------------------------------------------|
| Type        | int                                                           |
| Description | Get the error code of the system error.                       |
| Example     | Get : int errorCode = InventoryDoneEventArgs.SystemErrorCode; |

## 5.7. KeyEventArgs

### 5.7.1. KeyState

|             |                                                  |
|-------------|--------------------------------------------------|
| Type        | <a href="#">KeyState</a>                         |
| Description | Get the state of the key.                        |
| Example     | Get : KeyState keyState = keyEventArgs.KeyState; |

### 5.7.2. KeyType

|             |                                               |
|-------------|-----------------------------------------------|
| Type        | <a href="#">KeyType</a>                       |
| Description | Get the key type of the event.                |
| Example     | Get : KeyType keyType = keyEventArgs.KeyType; |

### 5.7.3. Reader

|             |                                                    |
|-------------|----------------------------------------------------|
| Type        | <a href="#">BaseReader</a>                         |
| Description | Get the reader which to trigger the event.         |
| Example     | Get : BaseReader baseReader = keyEventArgs.Reader; |

## 5.8. LogEventArgs

### 5.8.1. DateTime

|             |                                                                                                 |
|-------------|-------------------------------------------------------------------------------------------------|
| Type        | DateTime                                                                                        |
| Description | Get/Set the created time of the log event.                                                      |
| Example     | Get : DateTime dateTime = logEventArgs.DateTime;<br>Set : logEventArgs.DateTime = DateTime.Now; |

### 5.8.2. Level

|             |                                                                                            |
|-------------|--------------------------------------------------------------------------------------------|
| Type        | <a href="#">LogLevel</a>                                                                   |
| Description | Get/Set the log level of the log event.                                                    |
| Example     | Get : LogLevel logLevel = logEventArgs.Level;<br>Set : logEventArgs.Level = LogLevel.Info; |

### 5.8.3. Log

|             |                                                                          |
|-------------|--------------------------------------------------------------------------|
| Type        | string                                                                   |
| Description | Get/Set the log of the log event.                                        |
| Example     | Get : string log = logEventArgs.Log;<br>Set : logEventArgs.Log = "xxxx"; |

#### 5.8.4. Tag

|             |                                                                                              |
|-------------|----------------------------------------------------------------------------------------------|
| Type        | string                                                                                       |
| Description | Get/Set the tag information of the log event.                                                |
| Example     | Get : string tag = logEventArgs.Tag;<br>Set : logEventArgs.Tag = "11113411B802011718302455"; |

### 5.9. TagReadEventArgs

#### 5.9.1. Antenna

|             |                                                 |
|-------------|-------------------------------------------------|
| Type        | short                                           |
| Description | Get the Antenna of the tag read.                |
| Example     | Get : short antenna = tagReadEventArgs.Antenna; |

#### 5.9.2. EPC

|             |                                          |
|-------------|------------------------------------------|
| Type        | string                                   |
| Description | Get the EPC of the tag.                  |
| Example     | Get : string epc = tagReadEventArgs.EPC; |

### 5.9.3. Frequency

|             |                                                     |
|-------------|-----------------------------------------------------|
| Type        | float                                               |
| Description | Get the Frequency of the tag read.                  |
| Example     | Get : float frequency = tagReadEventArgs.Frequency; |

### 5.9.4. PC

|             |                                        |
|-------------|----------------------------------------|
| Type        | string                                 |
| Description | Get the PC of the tag.                 |
| Example     | Get : string pc = tagReadEventArgs.PC; |

### 5.9.5. Q

|             |                                     |
|-------------|-------------------------------------|
| Type        | short                               |
| Description | Get the Q value of the tag.         |
| Example     | Get : short q = tagReadEventArgs.Q; |

### 5.9.6. RawEPC

|             |                                                |
|-------------|------------------------------------------------|
| Type        | byte[]                                         |
| Description | Get the EPC of the tag.                        |
| Example     | Get : byte[] rawEPC = tagReadEventArgs.RawEPC; |

### 5.9.7. RawPC

|             |                                              |
|-------------|----------------------------------------------|
| Type        | byte[]                                       |
| Description | Get the PC of the tag.                       |
| Example     | Get : byte[] rawPC = tagReadEventArgs.RawPC; |

### 5.9.8. RawTID

|             |                                                |
|-------------|------------------------------------------------|
| Type        | byte[]                                         |
| Description | Get the TID of the tag.                        |
| Example     | Get : byte[] rawTID = tagReadEventArgs.RawTID; |

### 5.9.9. RSSI

|             |                                           |
|-------------|-------------------------------------------|
| Type        | float                                     |
| Description | Get the RSSI of the tag.                  |
| Example     | Get : float rssi = tagReadEventArgs.RSSI; |

### 5.9.10. TID

|             |                                          |
|-------------|------------------------------------------|
| Type        | string                                   |
| Description | Get the TID of the tag.                  |
| Example     | Get : string tid = tagReadEventArgs.TID; |

## 5.10. TemperatureEventArgs

### 5.10.1. Reader

|             |                                                            |
|-------------|------------------------------------------------------------|
| Type        | <a href="#">BaseReader</a>                                 |
| Description | Get the reader which to trigger the event.                 |
| Example     | Get : BaseReader baseReader = temperatureEventArgs.Reader; |

### 5.10.2. Temperature

|             |                                                              |
|-------------|--------------------------------------------------------------|
| Type        | double                                                       |
| Description | Get the current status of temperature.                       |
| Example     | Get : double temperature = temperatureEventArgs.Temperature; |

## 6. Model Classes

Model class defines structure of the model.

### 6.1. Algorithm

#### 6.1.1. AlgorithmSingulation

|             |                                                                                                                                       |
|-------------|---------------------------------------------------------------------------------------------------------------------------------------|
| Type        | <a href="#">AlgorithmType</a>                                                                                                         |
| Description | Get/Set the algorithm that the UHF module of the appliance uses to perform the Inventory.                                             |
| Example     | Get : AlgorithmType algorithmType = algorithm.AlgorithmSingulation;<br>Set : algorithm.AlgorithmSingulation = AlgorithmType.DynamicQ; |

#### 6.1.2. DualTarget

|             |                                                                                                                     |
|-------------|---------------------------------------------------------------------------------------------------------------------|
| Type        | <a href="#">AlgorithmDualTarget</a>                                                                                 |
| Description | Get/Set the status of the dual target that the UHF module of the appliance uses to perform the Inventory operation. |
| Example     | Get : AlgorithmDualTarget target = algorithm.DualTarget;<br>Set : algorithm.DualTarget = AlgorithmDualTarget.Off;   |

#### 6.1.3. InitQ

|             |                                                                   |
|-------------|-------------------------------------------------------------------|
| Type        | byte                                                              |
| Description | Get/Set the Init Q value for algorithm of the UHF module.         |
| Example     | Get : byte initQ = algorithm.InitQ;<br>Set : algorithm.InitQ = 4; |

#### 6.1.4. MaxQ

|             |                                                                                                              |
|-------------|--------------------------------------------------------------------------------------------------------------|
| Type        | byte                                                                                                         |
| Description | Get/Set the maximum Q value for algorithm of the UHF module. The value must be greader than the Min Q value. |
| Example     | Get : byte maxQ = algorithm.MaxQ;<br>Set : algorithm.MaxQ = 15;                                              |
| Note        | The range is 0 to 15.                                                                                        |

#### 6.1.5. MinQ

|             |                                                                                                           |
|-------------|-----------------------------------------------------------------------------------------------------------|
| Type        | byte                                                                                                      |
| Description | Get/Set the minimum Q value for algorithm of the UHF module. The value msut be less than the Max Q value. |
| Example     | Get : byte minQ = algorithm.MinQ;<br>Set : algorithm.MinQ = 0;                                            |
| Note        | The range is 0 to 15.                                                                                     |

## 6.2. AntennaSetting

### 6.2.1. Antennald

|             |                                                                                         |
|-------------|-----------------------------------------------------------------------------------------|
| Type        | byte                                                                                    |
| Description | Get/Set the antenna id of the UHF module.                                               |
| Example     | Get : byte antennald = antennaSetting.Antennald;<br>Set : antennaSetting.Antennald = 1; |

### 6.2.2. DwellTime

|             |                                                                                              |
|-------------|----------------------------------------------------------------------------------------------|
| Type        | ushort                                                                                       |
| Description | Get/Set the dwell time value of the UHF module. The unit is milliseconds.                    |
| Example     | Get : ushort dwellTime = antennaSetting.DwellTime;<br>Set : antennaSetting.DwellTime = 2000; |

### 6.2.3. PowerLevel

|             |                                                                                                 |
|-------------|-------------------------------------------------------------------------------------------------|
| Type        | ushort                                                                                          |
| Description | Get/Set the power level value of the UHF module. The unit is cdBm.                              |
| Example     | Get : ushort powerLevel = antennaSetting.PowerLevel;<br>Set : antennaSetting.PowerLevel = 3000; |
| Note        | The cdBm is hundredths of dBm.                                                                  |

## 6.3. AntennaState

### 6.3.1. Antennald

|             |                                                                                     |
|-------------|-------------------------------------------------------------------------------------|
| Type        | byte                                                                                |
| Description | Get/Set the antenna id of the UHF module.                                           |
| Example     | Get : byte antennald = antennaState.Antennald;<br>Set : antennaState.Antennald = 1; |

### 6.3.2. State

|             |                                                                                                       |
|-------------|-------------------------------------------------------------------------------------------------------|
| Type        | <a href="#">AntennaState</a>                                                                          |
| Description | Get/Set the antenna state of the UHF module.                                                          |
| Example     | Get : AntennaState antennaState = antennaState.State;<br>Set : antennaState.State = AntennaState.Off; |

## 6.4. CarrierWave

### 6.4.1. Antennald

|             |                                                                                   |
|-------------|-----------------------------------------------------------------------------------|
| Type        | byte                                                                              |
| Description | Get/Set the carrier wave antenna id of the UHF module.                            |
| Example     | Get : byte antennald = carrierWave.Antennald;<br>Set : carrierWave.Antennald = 1; |

## 6.4.2. PowerLevel

|             |                                                                                           |
|-------------|-------------------------------------------------------------------------------------------|
| Type        | ushort                                                                                    |
| Description | Get/Set the carrier wave power level of the UHF module. The unit is cdBm.                 |
| Example     | Get : ushort powerLevel = carrierWave.PowerLevel;<br>Set : carrierWave.PowerLevel = 3000; |
| Note        | The cdBm is hundredths of dBm.                                                            |

## 6.4.3. Frequency

|             |                                                                                          |
|-------------|------------------------------------------------------------------------------------------|
| Type        | uint                                                                                     |
| Description | Get/Set the carrier wave frequency of the UHF module.                                    |
| Example     | Get : uint frequency = antennaState.Frequency;<br>Set : antennaState.Frequency = 902750; |

## 6.5. DataRange

### 6.5.1. Length

|             |                                                                                                                   |
|-------------|-------------------------------------------------------------------------------------------------------------------|
| Type        | int                                                                                                               |
| Description | Get/Set the integer that specifies the length of data to read from the specified start address. The unit is word. |
| Example     | Get : int length = dataRange.Length;<br>Set : dataRange.Length = 0;                                               |

## 6.5.2. Offset

|             |                                                                                                                 |
|-------------|-----------------------------------------------------------------------------------------------------------------|
| Type        | int                                                                                                             |
| Description | Get/Set the integer specifying the starting address to start reading from the specified bank. The unit is word. |
| Example     | Get : int offset = dataRange.Offset;<br>Set : dataRange.Offset = 0;                                             |

## 6.6. DisplayOutput

### 6.6.1. Data

|             |                                                                                                   |
|-------------|---------------------------------------------------------------------------------------------------|
| Type        | char[]                                                                                            |
| Description | Get/Set the data display of the device output.                                                    |
| Example     | Get : char[] data = displayOutput.Data;<br>Set : displayOutput.Data = "11113411B802011718302455"; |

### 6.6.2. Parameter

|             |                                                                                          |
|-------------|------------------------------------------------------------------------------------------|
| Type        | byte                                                                                     |
| Description | Get/Set the data display row/column position on screen.                                  |
| Example     | Get : byte parameter = displayOutput.Parameter;<br>Set : displayOutput.Parameter = 0xA0; |

## 6.7. DisplayTags

### 6.7.1. BeepAndVibrate

|             |                                                                                                                       |
|-------------|-----------------------------------------------------------------------------------------------------------------------|
| Type        | bool                                                                                                                  |
| Description | Get/Set whether the device beeps and vibrates when displaying data.                                                   |
| Example     | Get : bool beepAndVibrate = displayTags.BeepAndVibrate;<br>Set : displayTags.BeepAndVibrate = BeepAndVibrateState.On; |

### 6.7.2. ReadOnce

|             |                                                                                               |
|-------------|-----------------------------------------------------------------------------------------------|
| Type        | bool                                                                                          |
| Description | Get/Set the device read mode.                                                                 |
| Example     | Get : bool readOnce = displayTags.ReadOnce;<br>Set : displayTags.ReadOnce = ReadOnceState.On; |

## 6.8. EventNotify

### 6.8.1. Id

|             |                                                                                                              |
|-------------|--------------------------------------------------------------------------------------------------------------|
| Type        | <a href="#">EventNotifyID</a>                                                                                |
| Description | Get/Set the event notify id of the UHF module.                                                               |
| Example     | Get : EventNotifyID eventNotifyID = eventNotify.Id;<br>Set : eventNotify.Id = EventNotifyID.AntennaBeginEnd; |

## 6.8.2. Setting

|             |                                                                                                                           |
|-------------|---------------------------------------------------------------------------------------------------------------------------|
| Type        | <a href="#">EventNotifySetting</a>                                                                                        |
| Description | Get/Set the event notify setting of the UHF module.                                                                       |
| Example     | Get : EventNotifySetting eventNotifySetting = eventNotify.Setting;<br>Set : eventNotify.Setting = EventNotifySetting.Off; |

## 6.9. FindDevice

### 6.9.1. Mode

|             |                                                                                                 |
|-------------|-------------------------------------------------------------------------------------------------|
| Type        | <a href="#">FindDeviceMode</a>                                                                  |
| Description | Get/Set the mode of FindDevice function.                                                        |
| Example     | Get : FindDeviceMode mode = findDevice.Mode;<br>Set : findDevice.Mode = FindDeviceMode.Vibrate; |

### 6.9.2. Timeout

|             |                                                                           |
|-------------|---------------------------------------------------------------------------|
| Type        | int                                                                       |
| Description | Get/Set the timeout of FindDevice function. The unit is tenth of seconds. |
| Example     | Get : int timeout = findDevice.Timeout;<br>Set : findDevice.Timeout = 10; |

## 6.10. FixedFrequency

### 6.10.1. Number

|             |                                                                                |
|-------------|--------------------------------------------------------------------------------|
| Type        | byte                                                                           |
| Description | Get/Set the number of fixed frequencies.                                       |
| Example     | Get : byte number = fixedFrequency.Number;<br>Set : fixedFrequency.Number = 0; |

### 6.10.2. Frequency

|             |                                                                                                                  |
|-------------|------------------------------------------------------------------------------------------------------------------|
| Type        | uint[]                                                                                                           |
| Description | Get/Set the multiple fixed frequencies value.                                                                    |
| Example     | Get : uint[] frequencies = fixedFrequency.Frequency;<br>Set : fixedFrequency.Frequency = new uint[50] { ..... }; |

## 6.11. Lock6cIncPermaParam

### 6.11.1. AccessPassword

|             |                                                                                                                                                  |
|-------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| Type        | <a href="#">LockStateIncPerma</a>                                                                                                                |
| Description | Get/Set the TAG Access operation for 'Access Password Area of Reserved Memory'.                                                                  |
| Example     | Get : LockStateIncPerma lockState =<br>lock6cIncPermaParam.AccessPassword;<br>Set : lock6cIncPermaParam.AccessPassword = LockStateIncPerma.Lock; |

### 6.11.2. EPC

|             |                                                                                                                         |
|-------------|-------------------------------------------------------------------------------------------------------------------------|
| Type        | <a href="#">LockStateIncPerma</a>                                                                                       |
| Description | Get/Set the TAG Access action for 'EPC memory'.                                                                         |
| Example     | Get : LockStateIncPerma lockState = lock6cIncPermaParam.EPC;<br>Set : lock6cIncPermaParam.EPC = LockStateIncPerma.Lock; |

### 6.11.3. KillPassword

|             |                                                                                                                                           |
|-------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| Type        | <a href="#">LockStateIncPerma</a>                                                                                                         |
| Description | Get/Set the TAG Access operation for 'Kill Password Area of Reserved Memory'.                                                             |
| Example     | Get : LockStateIncPerma lockState = lock6cIncPermaParam.KillPassword;<br>Set : lock6cIncPermaParam.KillPassword = LockStateIncPerma.Lock; |

### 6.11.4. TID

|             |                                                                                                                         |
|-------------|-------------------------------------------------------------------------------------------------------------------------|
| Type        | <a href="#">LockStateIncPerma</a>                                                                                       |
| Description | Get/Set the TAG Access operation for 'TID memory'.                                                                      |
| Example     | Get : LockStateIncPerma lockState = lock6cIncPermaParam.TID;<br>Set : lock6cIncPermaParam.TID = LockStateIncPerma.Lock; |

### 6.11.5. User

|             |                                                                                                                           |
|-------------|---------------------------------------------------------------------------------------------------------------------------|
| Type        | <a href="#">LockStateIncPerma</a>                                                                                         |
| Description | Get/Set the TAG Access action for 'User memory'.                                                                          |
| Example     | Get : LockStateIncPerma lockState = lock6cIncPermaParam.User;<br>Set : lock6cIncPermaParam.User = LockStateIncPerma.Lock; |

## 6.12. Lock6cParam

### 6.12.1. AccessPassword

|             |                                                                                                               |
|-------------|---------------------------------------------------------------------------------------------------------------|
| Type        | <a href="#">LockState</a>                                                                                     |
| Description | Get/Set the TAG Access operation for 'Access Password Area of Reserved Memory'.                               |
| Example     | Get : LockState lockState = lock6cParam.AccessPassword;<br>Set : lock6cParam.AccessPassword = LockState.Lock; |

### 6.12.2. EPC

|             |                                                                                         |
|-------------|-----------------------------------------------------------------------------------------|
| Type        | <a href="#">LockState</a>                                                               |
| Description | Get/Set the TAG Access action for 'EPC memory'.                                         |
| Example     | Get : LockState lockState = lock6cParam.EPC;<br>Set : lock6cParam.EPC = LockState.Lock; |

### 6.12.3. KillPassword

|             |                                                                                                           |
|-------------|-----------------------------------------------------------------------------------------------------------|
| Type        | <a href="#">LockState</a>                                                                                 |
| Description | Get/Set the TAG Access operation for 'Kill Password Area of Reserved Memory'.                             |
| Example     | Get : LockState lockState = lock6cParam.KillPassword;<br>Set : lock6cParam.KillPassword = LockState.Lock; |

### 6.12.4. TID

|             |                                                                                         |
|-------------|-----------------------------------------------------------------------------------------|
| Type        | <a href="#">LockState</a>                                                               |
| Description | Get/Set the TAG Access operation for 'TID memory'.                                      |
| Example     | Get : LockState lockState = lock6cParam.TID;<br>Set : lock6cParam.TID = LockState.Lock; |

### 6.12.5. User

|             |                                                                                           |
|-------------|-------------------------------------------------------------------------------------------|
| Type        | <a href="#">LockState</a>                                                                 |
| Description | Get/Set the TAG Access action for 'User memory'.                                          |
| Example     | Get : LockState lockState = lock6cParam.User;<br>Set : lock6cParam.User = LockState.Lock; |

## 6.13. Mask6cPattern

### 6.13.1. Length

|             |                                                                                                   |
|-------------|---------------------------------------------------------------------------------------------------|
| Type        | int                                                                                               |
| Description | Get/Set the integer representing the length of the pattern. The length of the pattern is in bits. |
| Example     | Get : int length = mask6cPattern.Length;<br>Set : mask6cPattern.Length = 0;                       |

### 6.13.2. Pattern

|             |                                                                                    |
|-------------|------------------------------------------------------------------------------------|
| Type        | string                                                                             |
| Description | Get/Set the Hex type string representing a mask pattern.                           |
| Example     | Get : string pattern = mask6cPattern.Pattern;<br>Set : mask6cPattern.Pattern = ""; |

## 6.14. PermaLock6cParam

### 6.14.1. AccessPassword

|             |                                                                                                                         |
|-------------|-------------------------------------------------------------------------------------------------------------------------|
| Type        | <a href="#">LockState</a>                                                                                               |
| Description | Get/Set the TAG Access operation for 'Access Password Area of Reserved Memory'.                                         |
| Example     | Get : LockState lockState = permaLock6cParam.AccessPassword;<br>Set : permaLock6cParam.AccessPassword = LockState.Lock; |

### 6.14.2. EPC

|             |                                                                                                   |
|-------------|---------------------------------------------------------------------------------------------------|
| Type        | <a href="#">LockState</a>                                                                         |
| Description | Get/Set the TAG Access action for 'EPC memory'.                                                   |
| Example     | Get : LockState lockState = permaLock6cParam.EPC;<br>Set : permaLock6cParam.EPC = LockState.Lock; |

### 6.14.3. KillPassword

|             |                                                                                                                     |
|-------------|---------------------------------------------------------------------------------------------------------------------|
| Type        | <a href="#">LockState</a>                                                                                           |
| Description | Get/Set the TAG Access operation for 'Kill Password Area of Reserved Memory'.                                       |
| Example     | Get : LockState lockState = permaLock6cParam.KillPassword;<br>Set : permaLock6cParam.KillPassword = LockState.Lock; |

### 6.14.4. TID

|             |                                                                                                   |
|-------------|---------------------------------------------------------------------------------------------------|
| Type        | <a href="#">LockState</a>                                                                         |
| Description | Get/Set the TAG Access operation for 'TID memory'.                                                |
| Example     | Get : LockState lockState = permaLock6cParam.TID;<br>Set : permaLock6cParam.TID = LockState.Lock; |

### 6.14.5. User

|             |                                                                                                     |
|-------------|-----------------------------------------------------------------------------------------------------|
| Type        | <a href="#">LockState</a>                                                                           |
| Description | Get/Set the TAG Access action for 'User memory'.                                                    |
| Example     | Get : LockState lockState = permaLock6cParam.User;<br>Set : permaLock6cParam.User = LockState.Lock; |

## 6.15. PowerRange

### 6.15.1. Max

|             |                                                                           |
|-------------|---------------------------------------------------------------------------|
| Type        | int                                                                       |
| Description | Get/Set the maximum of antenna output of the UHF module. The unit is dBm. |
| Example     | Get : int max = powerRange.Max;<br>Set : powerRange.Max = 20;             |

### 6.15.2. Min

|             |                                                                           |
|-------------|---------------------------------------------------------------------------|
| Type        | int                                                                       |
| Description | Get/Set the minimum of antenna output of the UHF module. The unit is dBm. |
| Example     | Get : int min = powerRange.Min;<br>Set : powerRange.Min = 10;             |

## 6.16. QueryGroup

### 6.16.1. Selected

|             |                                                                                                           |
|-------------|-----------------------------------------------------------------------------------------------------------|
| Type        | <a href="#">QueryGroupSelected</a>                                                                        |
| Description | Get/Set the query group selected of the tag to be read by the Inventory operation.                        |
| Example     | Get : QueryGroupSelected qqSelected = queryGroup.Selected;<br>Set : queryGroup.Selected = queryGroup.All; |

### 6.16.2. Session

|             |                                                                                       |
|-------------|---------------------------------------------------------------------------------------|
| Type        | <a href="#">Session</a>                                                               |
| Description | Get/Set the query group session of the tag to be read by the Inventory operation.     |
| Example     | Get : Session session = queryGroup.Session;<br>Set : queryGroup.Session = Session.S0; |

### 6.16.3. Target

|             |                                                                                          |
|-------------|------------------------------------------------------------------------------------------|
| Type        | <a href="#">Target</a>                                                                   |
| Description | Get/Set the query group target of the tag which will be read by the Inventory operation. |
| Example     | Get : Target target = queryGroup.Target;<br>Set : queryGroup.Target = Target.A;          |

## 6.17. RFIDConfig

### 6.17.1. Algorithm

|             |                                                                                                                   |
|-------------|-------------------------------------------------------------------------------------------------------------------|
| Type        | <a href="#">AlgorithmType</a>                                                                                     |
| Description | Get/Set the algorithm that the UHF module of the appliance uses to perform the Inventory.                         |
| Example     | Get : AlgorithmType algorithmType = rfidConfig.Algorithm;<br>Set : rfidConfig.Algorithm = AlgorithmType.DynamicQ; |

### 6.17.2. BLFType

|             |                                                                                                             |
|-------------|-------------------------------------------------------------------------------------------------------------|
| Type        | <a href="#">BLFType</a>                                                                                     |
| Description | Get/Set the status of the BLF that the UHF module of the appliance uses to perform the Inventory operation. |
| Example     | Get : BLFType blfType = rfidConfig.BLFType;<br>Set : rfidConfig.BLFType = BLFType.BLF_256;                  |

### 6.17.3. ContinuousMode

|             |                                                                                                   |
|-------------|---------------------------------------------------------------------------------------------------|
| Type        | bool                                                                                              |
| Description | Get/Set the UHF module will continue to perform Inventory operations.                             |
| Example     | Get : bool continuousMode = rfidConfig.ContinuousMode;<br>Set : rfidConfig.ContinuousMode = true; |

#### 6.17.4. Encoding

|             |                                                                                                                  |
|-------------|------------------------------------------------------------------------------------------------------------------|
| Type        | <a href="#">Encoding</a>                                                                                         |
| Description | Get/Set the status of the Encoding that the UHF module of the appliance uses to perform the Inventory operation. |
| Example     | Get : Encoding encoding = rfidConfig.Encoding;<br>Set : rfidConfig.Encoding = Encoding.FM0;                      |

#### 6.17.5. FastMode

|             |                                                                                                                   |
|-------------|-------------------------------------------------------------------------------------------------------------------|
| Type        | bool                                                                                                              |
| Description | Get/Set the status of the fast mode that the UHF module of the appliance uses to perform the Inventory operation. |
| Example     | Get : bool fastMode = rfidConfig.FastMode;<br>Set : rfidConfig.FastMode = false;                                  |

#### 6.17.6. IdleTime

|             |                                                                                                                                                          |
|-------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|
| Type        | int                                                                                                                                                      |
| Description | Get/Set the time at which radio waves are actually not output from the Inventory operation of the UHF module in the instrument. The unit is millisecond. |
| Example     | Get : int idleTime = rfidConfig.IdleTime;<br>Set : rfidConfig.IdleTime = 0;                                                                              |

### 6.17.7. InventoryTime

|             |                                                                                                                                                      |
|-------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| Type        | int                                                                                                                                                  |
| Description | Get/Set the time at which radio waves are actually output from the Inventory operation of the UHF module in the instrument. The unit is millisecond. |
| Example     | Get : int inventoryTime = rfidConfig.InventoryTime;<br>Set : rfidConfig.InventoryTime = 40;                                                          |

### 6.17.8. MaxQ

|             |                                                                                                              |
|-------------|--------------------------------------------------------------------------------------------------------------|
| Type        | int                                                                                                          |
| Description | Get/Set the maximum Q value for algorithm of the UHF module. The value must be greader than the Min Q value. |
| Example     | Get : int maxQ = rfidConfig.MaxQ;<br>Set : rfidConfig.MaxQ = 15;                                             |
| Note        | The range is 0 to 15.                                                                                        |

### 6.17.9. MinQ

|             |                                                                                                           |
|-------------|-----------------------------------------------------------------------------------------------------------|
| Type        | int                                                                                                       |
| Description | Get/Set the minimum Q value for algorithm of the UHF module. The value msut be less than the Max Q value. |
| Example     | Get : int minQ = rfidConfig.MinQ;<br>Set : rfidConfig.MinQ = 0;                                           |
| Note        | The range is 0 to 15.                                                                                     |

### 6.17.10. ModuleProfile

|             |                                                                                                                          |
|-------------|--------------------------------------------------------------------------------------------------------------------------|
| Type        | int                                                                                                                      |
| Description | Get/Set the status of the module's profile that the UHF module of the appliance uses to perform the Inventory operation. |
| Example     | Get : int moduleProfile = rfidConfig.ModuleProfile;<br>Set : rfidConfig.ModuleProfile = 0;                               |

### 6.17.11. Power

|             |                                                                     |
|-------------|---------------------------------------------------------------------|
| Type        | int                                                                 |
| Description | Get/Set the antenna output of the UHF module. The unit is dBm.      |
| Example     | Get : int power = rfidConfig.Power;<br>Set : rfidConfig.Power = 22; |

### 6.17.12. Session

|             |                                                                                       |
|-------------|---------------------------------------------------------------------------------------|
| Type        | <a href="#">Session</a>                                                               |
| Description | Get/Set the state of Session of the tag to be read by the Inventory operation.        |
| Example     | Get : Session session = rfidConfig.Session;<br>Set : rfidConfig.Session = Session.S0; |

### 6.17.13. StartQ

|             |                                                                       |
|-------------|-----------------------------------------------------------------------|
| Type        | int                                                                   |
| Description | Get/Set the start Q value for algorithm of the UHF module.            |
| Example     | Get : int startQ = rfidConfig.StartQ;<br>Set : rfidConfig.StartQ = 4; |

### 6.17.14. Target

|             |                                                                                            |
|-------------|--------------------------------------------------------------------------------------------|
| Type        | <a href="#">Target</a>                                                                     |
| Description | Get/Set the status of the Target of the tag which will be read by the Inventory operation. |
| Example     | Get : Target target = rfidConfig.Target;<br>Set : rfidConfig.Target = Target.A;            |

### 6.17.15. TARIType

|             |                                                                                                              |
|-------------|--------------------------------------------------------------------------------------------------------------|
| Type        | <a href="#">TARIType</a>                                                                                     |
| Description | Get/Set the status of the TARI that the UHF module of the appliance uses to perform the Inventory operation. |
| Example     | Get : TARIType tariType = rfidConfig.TARIType;<br>Set : rfidConfig.TARIType = TARIType.T_6_25;               |

### 6.17.16. ToggleTarget

|             |                                                                                                                       |
|-------------|-----------------------------------------------------------------------------------------------------------------------|
| Type        | bool                                                                                                                  |
| Description | Get/Set the status of the toggle target that the UHF module of the appliance uses to perform the Inventory operation. |
| Example     | Get : bool toggleTarget = rfidConfig.ToggleTarget;<br>Set : rfidConfig.ToggleTarget = true;                           |

## 6.18. ScreenOffTime

### 6.18.1. Minutes

|             |                                                                                  |
|-------------|----------------------------------------------------------------------------------|
| Type        | byte                                                                             |
| Description | Get/Set the device screen off time (minutes).                                    |
| Example     | Get : byte minutes = screenOffTime.Minutes;<br>Set : screenOffTime.Minutes = 10; |

### 6.18.2. Seconds

|             |                                                                                 |
|-------------|---------------------------------------------------------------------------------|
| Type        | byte                                                                            |
| Description | Get/Set the device screen off time (seconds).                                   |
| Example     | Get : byte seconds = screenOffTime.Seconds;<br>Set : screenOffTime.Seconds = 0; |

## 6.19. SelectMask6cParam

### 6.19.1. Action

|             |                                                                                                                  |
|-------------|------------------------------------------------------------------------------------------------------------------|
| Type        | <a href="#">Mask6cAction</a>                                                                                     |
| Description | Get/Set the Indicating how to save the results for the condition of "Selection Mask".                            |
| Example     | Get : Mask6cAction mask6cAction = selectMask6cParam.Action;<br>Set : selectMask6cParam.Action = Mask6cAction.AB; |

### 6.19.2. Bank

|             |                                                                                                                      |
|-------------|----------------------------------------------------------------------------------------------------------------------|
| Type        | <a href="#">BankType</a>                                                                                             |
| Description | Get/Set the BankType enumeration representing the memory bank of the tag to compare the pattern in "Selection Mask". |
| Example     | Get : BankType bankType = selectMask6cParam.Bank;<br>Set : selectMask6cParam.Bank = BankType.EPC;                    |

### 6.19.3. IsUsed

|             |                                                                                         |
|-------------|-----------------------------------------------------------------------------------------|
| Type        | bool                                                                                    |
| Description | Get/Set the Indicating whether to use the condition of "Selection Mask".                |
| Example     | Get : bool isUsed = selectMask6cParam.IsUsed;<br>Set : selectMask6cParam.IsUsed = true; |

#### 6.19.4. Length

|             |                                                                                                  |
|-------------|--------------------------------------------------------------------------------------------------|
| Type        | int                                                                                              |
| Description | Get/Set the integer representing the length of the pattern in "Selection Mask". The unit is bit. |
| Example     | Get : int length = selectMask6cParam.Length;<br>Set : selectMask6cParam.Length = 96;             |

#### 6.19.5. Offset

|             |                                                                                                                                   |
|-------------|-----------------------------------------------------------------------------------------------------------------------------------|
| Type        | int                                                                                                                               |
| Description | Get/Set the integer representing the start address at which to begin comparing patterns in the "Selection Mask". The unit is bit. |
| Example     | Get : int offset = selectMask6cParam.Offset;<br>Set : selectMask6cParam.Offset = 0;                                               |

#### 6.19.6. Pattern

|             |                                                                                                                    |
|-------------|--------------------------------------------------------------------------------------------------------------------|
| Type        | string                                                                                                             |
| Description | Get/Set the string representing the comparison pattern for "Selection Mask".                                       |
| Example     | Get : string pattern = selectMask6cParam.Pattern;<br>Set : selectMask6cParam.Pattern = "11113411B802011718302455"; |

### 6.19.7. Target

|             |                                                                                                                  |
|-------------|------------------------------------------------------------------------------------------------------------------|
| Type        | <a href="#">Mask6cTarget</a>                                                                                     |
| Description | Get/Set the Indicating the flag of the tag to store the result of the "Selection Mask" condition.                |
| Example     | Get : Mask6cTarget mask6cTarget = selectMask6cParam.Target;<br>Set : selectMask6cParam.Target = Mask6cTarget.SL; |

## 6.20. TxOnOffTime

### 6.20.1. OnTime

|             |                                                                               |
|-------------|-------------------------------------------------------------------------------|
| Type        | ushort                                                                        |
| Description | Get/Set the Tx On time of the UHF module. The unit is ms.                     |
| Example     | Get : ushort onTime = txOnOffTime.OnTime;<br>Set : txOnOffTime.OnTime = 1000; |

### 6.20.2. OffTime

|             |                                                                                  |
|-------------|----------------------------------------------------------------------------------|
| Type        | ushort                                                                           |
| Description | Get/Set the Tx Off time of the UHF module. The unit is ms.                       |
| Example     | Get : ushort offTime = txOnOffTime.OffTime;<br>Set : txOnOffTime.OffTime = 1000; |

## 6.21. TxRandData

### 6.21.1. CW

|             |                                                                                                                |
|-------------|----------------------------------------------------------------------------------------------------------------|
| Type        | <a href="#">CarrierWave</a>                                                                                    |
| Description | Get/Set the Tx random data carrier wave of the UHF module.                                                     |
| Example     | Get : <code>CarrierWave cw = txRandData.CW;</code><br>Set : <code>txRandData.CW = new CarrierWave(...);</code> |

### 6.21.2. Duration

|             |                                                                                                           |
|-------------|-----------------------------------------------------------------------------------------------------------|
| Type        | uint                                                                                                      |
| Description | Get/Set the Tx random data duration of the UHF module. The unit is ms.                                    |
| Example     | Get : <code>uint duration = txRandData.Duration;</code><br>Set : <code>txRandData.Duration = 2000;</code> |

## 7. Utility Classes

Utility class defines the collection of static methods that perform common, standalone functions.

### 7.1. Enums

#### 7.1.1. ActionState

| Type | int                                                                                                                                                                                                                                                                           |
|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| List | Stop = 0<br>Inventory6c = 0x0003<br>ReadMemory6c = 0x0005<br>WriteMemory6c = 0x0007<br>Lock = 0x0009<br>PermaLock = 0x000A<br>Kill = 0x000B<br>BlockErase = 0x000C<br>BlockWrite = 0x000D<br>Decoding = 0x10001<br>DefaultParameter = 0x20004<br>InventoryAndDecode = 0x30001 |

#### 7.1.2. AlgorithmDualTarget

| Type | byte              |
|------|-------------------|
| List | Off = 0<br>On = 1 |

### 7.1.3. AlgorithmType

|      |                            |
|------|----------------------------|
| Type | byte                       |
| List | FixedQ = 0<br>DynamicQ = 1 |

### 7.1.4. AntennaState

|      |                   |
|------|-------------------|
| Type | byte              |
| List | Off = 0<br>On = 1 |

### 7.1.5. AntennaSwitchMode

|      |                                              |
|------|----------------------------------------------|
| Type | byte                                         |
| List | Off = 0 // StopMode<br>On = 1 // NonStopMode |

### 7.1.6. BankType

|      |                                                |
|------|------------------------------------------------|
| Type | byte                                           |
| List | Reserved = 0<br>EPC = 1<br>TID = 2<br>User = 3 |

### 7.1.7. BeepAndVibrateState

|      |                   |
|------|-------------------|
| Type | byte              |
| List | Off = 0<br>On = 1 |

### 7.1.8. BeeperState

|      |                                              |
|------|----------------------------------------------|
| Type | byte                                         |
| List | Off = 0<br>Low = 1<br>Medium = 2<br>High = 3 |

### 7.1.9. BiStaticAntennaSetting

|      |                   |
|------|-------------------|
| Type | byte              |
| List | Off = 0<br>On = 1 |

### 7.1.10. BLFType

| Type | byte         |                                   |
|------|--------------|-----------------------------------|
| List | BLF_40 = 0   | // Backscatter-link frequency 40  |
|      | BLF_160 = 6  | // Backscatter-link frequency 160 |
|      | BLF_213 = 8  | // Backscatter-link frequency 213 |
|      | BLF_256 = 9  | // Backscatter-link frequency 256 |
|      | BLF_320 = 12 | // Backscatter-link frequency 320 |
|      | BLF_640 = 15 | // Backscatter-link frequency 640 |

### 7.1.11. CfgStorageMode

| Type | byte                      |
|------|---------------------------|
| List | SaveToRamAndFlashMode = 0 |
|      | SaveToRamOnlyMode = 1     |

### 7.1.12. ConnectState

| Type | byte             |
|------|------------------|
| List | Disconnected = 0 |
|      | Listen = 1       |
|      | Connecting = 2   |
|      | Connected = 3    |

### 7.1.13. ConnectType

|      |                                                               |
|------|---------------------------------------------------------------|
| Type | byte                                                          |
| List | Unknown = 0<br>Bluetooth = 1<br>BluetoothLe = 2<br>Serial = 5 |

### 7.1.14. DataFormat

|      |                      |
|------|----------------------|
| Type | byte                 |
| List | HEX = 0<br>ASCII = 1 |

### 7.1.15. DataInfo

|      |                                |
|------|--------------------------------|
| Type | byte                           |
| List | EPC = 0<br>User = 1<br>TID = 2 |

### 7.1.16. DataTerminator

|      |                                  |
|------|----------------------------------|
| Type | byte                             |
| List | None = 0<br>CR_LF = 1<br>Tab = 2 |

### 7.1.17. DeviceType

|      |                                        |
|------|----------------------------------------|
| Type | byte                                   |
| List | Unknown = 0<br>RP902 = 1<br>RM300P = 2 |

### 7.1.18. Encoding

|      |                                       |
|------|---------------------------------------|
| Type | byte                                  |
| List | FM0 = 0<br>M2 = 1<br>M4 = 2<br>M8 = 3 |

### 7.1.19. ErrorIndicator

|      |                                                                             |
|------|-----------------------------------------------------------------------------|
| Type | int                                                                         |
| List | Trace = 0<br>Debug = 1<br>Info = 2<br>Warning = 3<br>Error = 4<br>Fatal = 5 |

### 7.1.20. EventNotifyID

|      |                                            |
|------|--------------------------------------------|
| Type | byte                                       |
| List | AntennaBeginEnd = 0xE0<br>LbtStatus = 0xE1 |

### 7.1.21. EventNotifySetting

|      |                   |
|------|-------------------|
| Type | byte              |
| List | Off = 0<br>On = 1 |

### 7.1.22. FastIdSetting

|      |                   |
|------|-------------------|
| Type | byte              |
| List | Off = 0<br>On = 1 |

### 7.1.23. FindDeviceMode

|      |                                                       |
|------|-------------------------------------------------------|
| Type | byte                                                  |
| List | Off = 0<br>Vibrate = 1<br>Beep = 2<br>VibrateBeep = 3 |

### 7.1.24. FreqSwitchMode

|      |                                              |
|------|----------------------------------------------|
| Type | byte                                         |
| List | Off = 0 // StopMode<br>On = 1 // NonStopMode |

### 7.1.25. FwUpdateMode

|      |                                            |
|------|--------------------------------------------|
| Type | byte                                       |
| List | FileUpdateMode = 0<br>YModemUpdateMode = 1 |

### 7.1.26. GlobalBandType

|      |                                                                                                                                                 |
|------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| Type | byte                                                                                                                                            |
| List | Unknown = 0<br>Europe = 1<br>USA = 2<br>China = 5<br>Taiwan = 6<br>Japan = 3<br>Japan250mW = 7<br>Australia = 8<br>Singapore = 9<br>Brazil = 10 |

### 7.1.27. GpioPinDirection

|      |                         |
|------|-------------------------|
| Type | byte                    |
| List | Input = 0<br>Output = 1 |

### 7.1.28. GpioPinState

|      |                     |
|------|---------------------|
| Type | byte                |
| List | Low = 0<br>High = 1 |

### 7.1.29. KeyState

|      |                          |
|------|--------------------------|
| Type | byte                     |
| List | KeyUp = 0<br>KeyDown = 1 |

### 7.1.30. KeyType

|      |                                            |
|------|--------------------------------------------|
| Type | byte                                       |
| List | Trigger = 0<br>RightKey = 1<br>LeftKey = 2 |

### 7.1.31. LbtSetting

|      |                   |
|------|-------------------|
| Type | byte              |
| List | Off = 0<br>On = 1 |

### 7.1.32. LockState

|      |                                         |
|------|-----------------------------------------|
| Type | byte                                    |
| List | NoChanged = 0<br>Unlock = 1<br>Lock = 2 |

### 7.1.33. LockStateIncPerma

|      |                                                                             |
|------|-----------------------------------------------------------------------------|
| Type | byte                                                                        |
| List | Unlock = 0<br>PermaUnlock = 1<br>Lock = 2<br>PermaLock = 3<br>NoChanged = 4 |

### 7.1.34. LogLevel

|      |                                                                             |
|------|-----------------------------------------------------------------------------|
| Type | int                                                                         |
| List | Trace = 0<br>Debug = 1<br>Info = 2<br>Warning = 3<br>Error = 4<br>Fatal = 5 |

### 7.1.35. Mask6cAction

| Type | byte   |                                                                                            |
|------|--------|--------------------------------------------------------------------------------------------|
| List | AB = 0 | // Matching is Inventoried A or Assert SL,<br>Not-Matching is Inventoried B or Deassert SL |
|      | AN = 1 | // Matching is Inventoried A or Assert SL,<br>Not-Matching is Do Nothing                   |
|      | NB = 2 | // Matching is Do Nothing,<br>Not-Matching is Inventoried B or Deassert SL                 |
|      | MN = 3 | // Matching is Invert Session or Negate SL,<br>Not-Matching is Do Nothing                  |
|      | BA = 4 | // Matching is Inventoried B or Deassert SL,<br>Not-Matching is Inventoried A or Assert SL |
|      | BN = 5 | // Matching is Inventoried B or Deassert SL,<br>Not-Matching is Do Nothing                 |
|      | NA = 6 | // Matching is Do Nothing,<br>Not-Matching is Inventoried A or Assert SL                   |
|      | NM = 7 | // Matching is Do Nothing,<br>Not-Matching is Invert Session or Negate SL                  |

### 7.1.36. Mask6cTarget

| Type | byte   |
|------|--------|
| List | S0 = 0 |
|      | S1 = 1 |
|      | S2 = 2 |
|      | S3 = 3 |
|      | SL = 4 |

### 7.1.37. OperatingMode

|      |                                                                |
|------|----------------------------------------------------------------|
| Type | byte                                                           |
| List | USBSP = 0<br>BTSP = 1<br>BTHID = 2<br>Buffer = 3<br>BLEHID = 4 |

### 7.1.38. OperationMode

|      |                                     |
|------|-------------------------------------|
| Type | byte                                |
| List | Continuous = 0<br>NonContinuous = 1 |

### 7.1.39. PowerMode

|               |                                                                                                                                                                              |            |                   |               |                                                            |
|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|-------------------|---------------|------------------------------------------------------------|
| Type          | int                                                                                                                                                                          |            |                   |               |                                                            |
| List          | <table> <tr> <td>Normal = 0</td><td>// Normal process</td></tr> <tr> <td>Optimized = 1</td><td>// Refer to battery level to change duty cycle dynamically</td></tr> </table> | Normal = 0 | // Normal process | Optimized = 1 | // Refer to battery level to change duty cycle dynamically |
| Normal = 0    | // Normal process                                                                                                                                                            |            |                   |               |                                                            |
| Optimized = 1 | // Refer to battery level to change duty cycle dynamically                                                                                                                   |            |                   |               |                                                            |

### 7.1.40. PowerSaveMode

|      |                                        |
|------|----------------------------------------|
| Type | byte                                   |
| List | PowerSavingMode = 0<br>PowerOnMode = 1 |

### 7.1.41. QueryGroupSelected

|      |                                           |
|------|-------------------------------------------|
| Type | byte                                      |
| List | All = 1<br>Deasserted = 2<br>Asserted = 3 |

### 7.1.42. ReadMode

|      |                                                                     |
|------|---------------------------------------------------------------------|
| Type | byte                                                                |
| List | SingleRead = 0<br>MultiRead = 1<br>CounterRead = 2<br>RapidRead = 3 |

### 7.1.43. ReadOnceState

|      |                   |
|------|-------------------|
| Type | byte              |
| List | Off = 0<br>On = 1 |

#### 7.1.44. Region

|      |                                                |
|------|------------------------------------------------|
| Type | byte                                           |
| List | FCC = 0<br>ETSI = 1<br>Japan = 2<br>Taiwan = 3 |

#### 7.1.45. ResetType

|      |                                    |
|------|------------------------------------|
| Type | byte                               |
| List | RebootOnly = 0<br>FactoryReset = 1 |

#### 7.1.46. ResultCode

|      |                                                                                                                                                                                                                                                        |                                                                                                                                                                                                             |
|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Type | int                                                                                                                                                                                                                                                    |                                                                                                                                                                                                             |
| List | NoError = 0x0000<br>OtherError = 0x0001<br>Undefined = 0x0002<br>MemoryOverrun = 0x0003<br>MemoryLocked = 0x0004<br>InsufficientPower = 0x000B<br>NonSpecificError = 0x000F<br>InvalidModule = 0x4000<br>NotSupported = 0x4001<br>InOperation = 0x4002 | // No Error<br>// Other Error<br>// Undefined<br>// Memory Overrun<br>// Memory Locked<br>// Insufficient Power<br>// Non-Specific Error<br>// Invalid Module Object<br>// Not Supported<br>// In Operation |

|                                  |                                      |
|----------------------------------|--------------------------------------|
| OutOfRange = 0x4003              | // Out of Range                      |
| NotSupportedBeep = 0x4010        | // Not Supported Beep Function       |
| NotSupportedVibrate = 0x4011     | // Not Supported Vibration Function  |
| NotSupportedLight = 0x4012       | // Not Supported Light Function      |
| NotSupportedNormalMode = 0x4013  | // Not Supported Normal Mode         |
| NotSupportedBarcodeMode = 0x4014 | // Not Supported Barcode Mode        |
| NotSupportedKeyMode = 0x4015     | // Not Supported Barcode Mode        |
| InvalidResponse = 0x5000         | // Invalid Response                  |
| InvalidResponseIndex = 0x5001    | // Invalid Response Index            |
| InvalidParameter = 0x5002        | // Invalid Parameter                 |
| InvalidResponseData = 0x5003     | // Invalid Response Data             |
| InvalidResponseExParam = 0x5004  | // Invalid Response Extend Parameter |
| FailedParameter = 0x5005         | // Failed to process Parameter       |
| NotFoundParameter = 0x5006       | // Not Found Parameter               |
| SendFail = 0x6000                | // Send Failed                       |
| ReceiveFail = 0x6001             | // Receive Failed                    |
| SendTimeout = 0x6002             | // Send Timeout                      |
| ReceiveTimeout = 0x6003          | // Receive Timeout                   |
| InvalidSendPacket = 0x6004       | // Invalid Send Packet               |
| InvalidReceivePacket = 0x6005    | // Invalid Receive Packet            |
| ConnectFail = 0x6006             | // Connect Failed                    |
| Timeout = 0x7000                 | // Timeout                           |
| UnknownError = 0x7FFE            | // Unknown Error                     |
| SystemError = 0x7FFF             | // System Error                      |
| HandleMismatch = 0xF001          | // Handle Mismatch                   |
| CRCErrror = 0xF002               | // CRC error on tag response         |
| NoTagReply = 0xF003              | // No tag reply                      |
| InvalidPassword = 0xF004         | // Invalid password                  |
| ZeroKillPassword = 0xF005        | // Zero kill password                |

|  |                             |                         |
|--|-----------------------------|-------------------------|
|  | TagLost = 0xF006            | // Tag lost             |
|  | CommandFormatError = 0xF007 | // Command format error |
|  | ReadCountInvalid = 0xF008   | // Read count invalid   |
|  | OutOfRetries = 0xF009       | // Out of retries       |
|  | ParamError = 0xFFFB         | // Parameter error      |
|  | BusyDevice = 0xFFFC         | // Busy Device          |
|  | InvalidCommand = 0xFFFD     | // Invalid command      |
|  | LowBattery = 0xFFFE         | // Low battery          |
|  | OperationFailed = 0xFFFF    | // Operation failed     |

#### 7.1.47. RfMode

| Type | byte                                                                                                                                                                                                                                         |
|------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| List | RF_103 = 103<br>RF_302 = 302<br>RF_120 = 120<br>RF_323 = 323<br>RF_202 = 202<br>RF_345 = 345<br>RF_344 = 344<br>RF_223 = 223<br>RF_222 = 222<br>RF_241 = 241<br>RF_244 = 244<br>RF_285 = 285<br>RF_203 = 203<br>RF_226 = 226<br>RF_225 = 225 |

### 7.1.48. Session

| Type | byte                                 |
|------|--------------------------------------|
| List | S0 = 0<br>S1 = 1<br>S2 = 2<br>S3 = 3 |

### 7.1.49. SKUIId

| Type | byte                                                                        |
|------|-----------------------------------------------------------------------------|
| List | Unknown = 0<br>FCC = 1<br>ETSI = 2<br>FCCETSI = 3<br>JPN = 4<br>JPNETSI = 6 |

### 7.1.50. SKUType

| Type | byte                                                  |
|------|-------------------------------------------------------|
| List | Unknown = 0<br>EU = 1<br>US = 2<br>JP = 3<br>USJP = 4 |

### 7.1.51. TagFocusSetting

|      |                   |
|------|-------------------|
| Type | byte              |
| List | Off = 0<br>On = 1 |

### 7.1.52. Target

|      |                |
|------|----------------|
| Type | byte           |
| List | A = 0<br>B = 1 |

### 7.1.53. TARIType

|      |             |         |
|------|-------------|---------|
| Type | byte        |         |
| List | T_6_25 = 0  | // 6.25 |
|      | T_12_50 = 1 | // 12.5 |
|      | T_25_00 = 2 | // 25   |

### 7.1.54. TagSelectMode

|      |                                      |
|------|--------------------------------------|
| Type | byte                                 |
| List | Clear = 0<br>Add = 1<br>ClearAdd = 2 |

### 7.1.55. TagSelectTruncate

|      |                                 |
|------|---------------------------------|
| Type | byte                            |
| List | EntireEPC = 0<br>PartialEPC = 1 |

### 7.1.56. TempProtMode

|      |                   |                               |
|------|-------------------|-------------------------------|
| Type | byte              |                               |
| List | Off = 0<br>On = 1 | // StopMode<br>// NonStopMode |

### 7.1.57. VibratorState

|      |                   |
|------|-------------------|
| Type | byte              |
| List | Off = 0<br>On = 1 |

## 8. Appendix

### 8.1. Methods

Overview of the methods provided by the unitechRFID.

#### 8.1.1. Transport

- [TransportSerial](#)  
(DeviceType deviceType, string address, int baudRate, int dataBits, Parity parity, StopBits stopBits)
- [TransportBluetooth](#) (DeviceType deviceType, string btMACAddress)

#### 8.1.2. Reader

- [Connect \(\)](#)
- [CWOFF \(\)](#)
- [CWOn \(CarrierWave parms\)](#)
- [Disconnect \(\)](#)
- [Dispose \(\)](#)
- [FactoryReset \(\)](#)
- [FirmwareUpdate \(string filename\)](#)
- [FirmwareUpdateCancel \(\)](#)
- [GetAntennaSetting \(int antennald\)](#)
- [GetAntennaState \(int antennald\)](#)
- [GetGpioPinsConfig \(int number\)](#)
- [GetGpioPinsState \(int number\)](#)
- [SetAntennaSetting \(AntennaSetting antennaSetting\)](#)
- [SetAntennaState \(AntennaState antennaState\)](#)
- [SetGpioPinsConfig \(int number, GpioPinDirection direction\)](#)
- [SetGpioPinsState \(int number, GpioPinState state\)](#)
- [StartDetect \(\)](#)
- [StopDetect \(\)](#)

- [TxRandomData \(TxRandData parms\)](#)
- [UHFReader \(BaseTransport baseTransprot\)](#)
- [GetSelectMask6cEnabled \(int index\)](#)
- [SetSelectMask6cEnabled \(int index, bool enabled\)](#)
- [GetSelectMask6cTarget \(int index\)](#)
- [SetSelectMask6cTarget \(int index, Mask6cTarget target\)](#)
- [GetSelectMask6cAction \(int index\)](#)
- [SetSelectMask6cAction \(int index, Mask6cAction action\)](#)
- [GetSelectMask6cBank \(int index\)](#)
- [SetSelectMask6cBank \(int index, BankType bank\)](#)
- [GetSelectMask6cOffset \(int index\)](#)
- [SetSelectMask6cOffset \(int index, int offset\)](#)
- [GetSelectMask6cPattern \(int index\)](#)
- [SetSelectMask6cPattern \(int index, Mask6cPattern pattern\)](#)
- [GetSelectMask6c \(int index\)](#)
- [SetSelectMask6c \(int index, SelectMask6cParam param\)](#)
- [SetSelectMask6c \(TagSelectMode mode, Mask6cTarget target, Mask6cAction action, TagSelectTruncate truncate, BankType memoryBank, ushort startAddress, byte length, string data\)](#)
- [Inventory6c \(\)](#)
- [Inventory6c \(BankType bankType, int offset, int length, string password\)](#)
- [ReadMemory6c \(BankType bankType, int offset, int length, string password\)](#)
- [WriteMemory6c \(BankType bank, int offset, string data, string password\)](#)
- [WriteMemory6c \(BankType bank, int offset, int length, string data, string password\)](#)
- [WriteBlockMemory6c \(BankType bank, int offset, int length, string data, string password\)](#)
- [Lock6c \(Lock6cParam param, string password\)](#)
- [Lock6cIncPerma \(Lock6cIncPermaParam param, string accessPassword\)](#)
- [PermaLock6c \(PermaLock6cParam param, string password\)](#)
- [Kill6c \(string password\)](#)
- [Stop \(\)](#)