

| INRD01u RFID

HW GUI User Manual

Version 1.0

History :

Version	Description	Time
1.0	Release	2010.12.08
2.0	Revised for Compliance Submission	2011.04.19

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1. Getting Started

1.1. Introduction

This manual provides you with the information needed to install and operate the MTI RFID ME™ HW GUI. After installing the software, a description on how to install the RFID ME™ HW (“Dongle”). Section 3, presents information on how to configure the RFID ME™ HW to read and write tags and discusses advanced RFID configuration settings. Section 4 describes reading tags (scanning and inventory runs). Section 5 presents information on Advanced Tag Settings including changing EPC, Kill, Lock and advanced feature settings for setting tags that use NXP’s G2iL+ chips. Reference Appendix A for RFID ME™ HW Technical Data Sheet.

2. Initial Setup

2.1. Software Installation

2.1.1. Double-click “MTI RFID ME™ HW GUI.exe” in the installation disk, then click “Next” to continue the installation, or click “Cancel” to exit the setup as shown in Figure 1.



Figure 1

2.1.2. Read the license agreement, and if acceptable select “I accept the agreement” as shown in Figure 2.

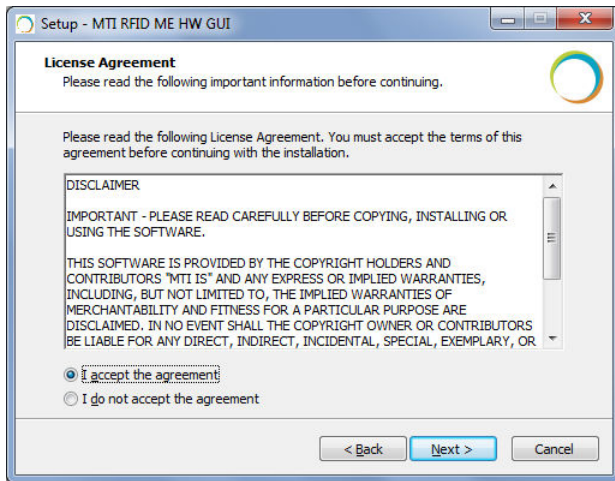


Figure 2

2.1.3. Select a Destination Folder. To select a different folder, click “Browse” and choose one of the available options as shown in Figure 3.

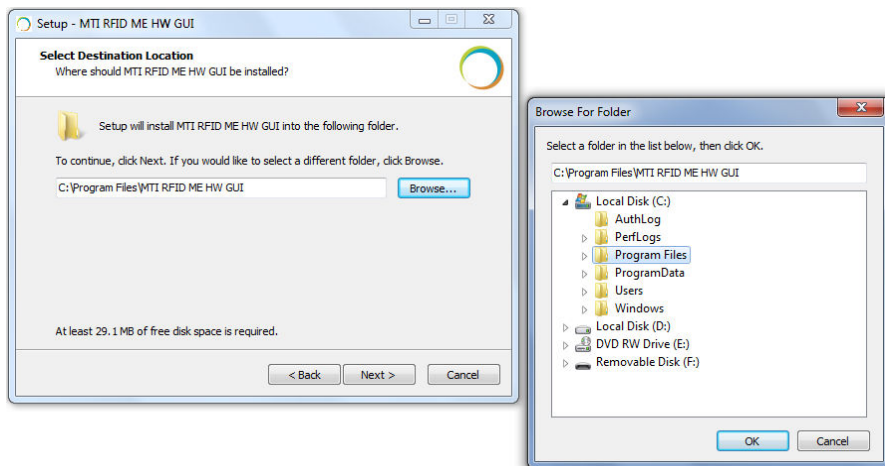


Figure 3

2.1.4. Select a destination for the program’s shortcut to appear. To select a different folder, click “Browse” and choose one of the available options as shown in Figure 4.

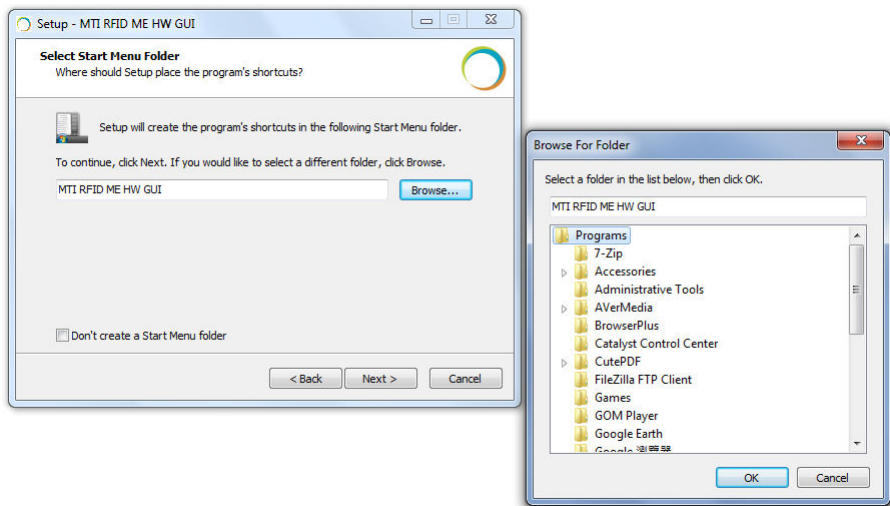


Figure 4

2.1.5. To add additional icons, “Check” the desired boxes as shown in Figure 5.

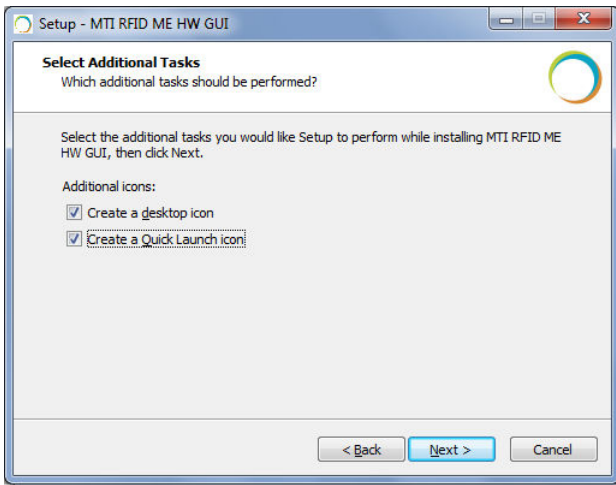


Figure 5

- “Checking” the ‘Create a desktop icon’ will generate an additional desktop icon;
- “Checking” the ‘Create a Quick Launch icon’ will generate an Additional Quick Launch icon located in the “Start” menu.

2.1.6. Press “Install” to begin software installation as shown in Figure 6.

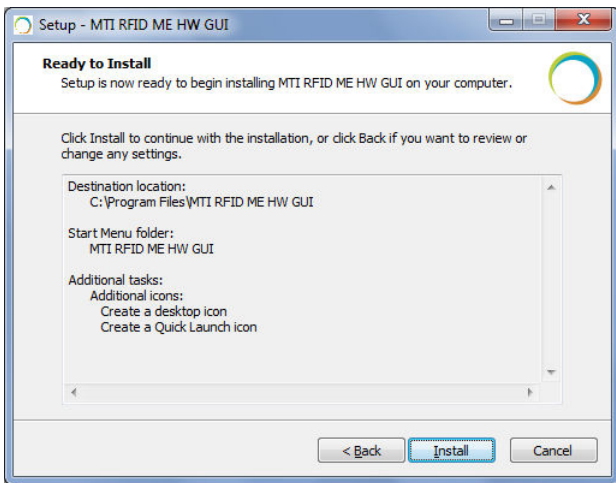


Figure 6

2.1.7. Congratulations! You have completed the RU-888-100 software installation. Press “Finish” to close the window. Select any of the installed icons to launch the MTI Reader Suite program as shown in Figure 7.



Figure 7

2.2. Hardware Setup

Insert USB dongle into the USB port, open the installed program, and make sure the status/state reads “Online” as shown in Figure 8.

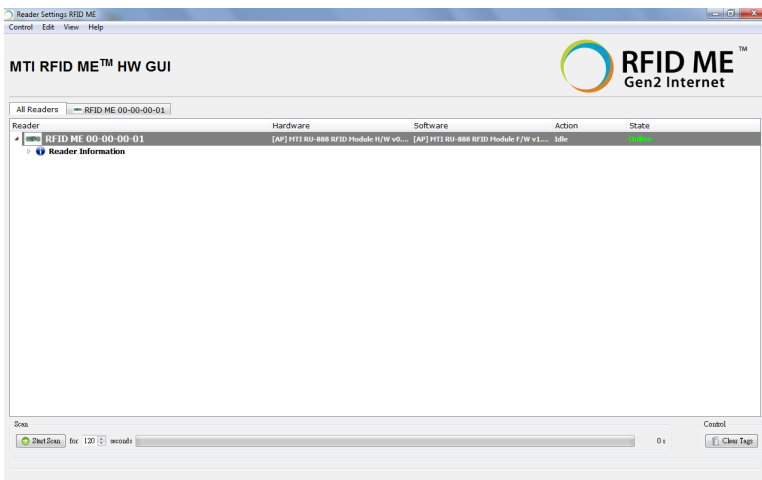


Figure 8

3. Reader Settings

3.1. Introduction

After opening MTI RFID ME™ HW GUI program, “Right Click” on the RFID ME™ to access the “Advanced Reader Settings”. This will allow you to see specific information about the device, including recommended settings as shown in Figure 9 and Figure 10.

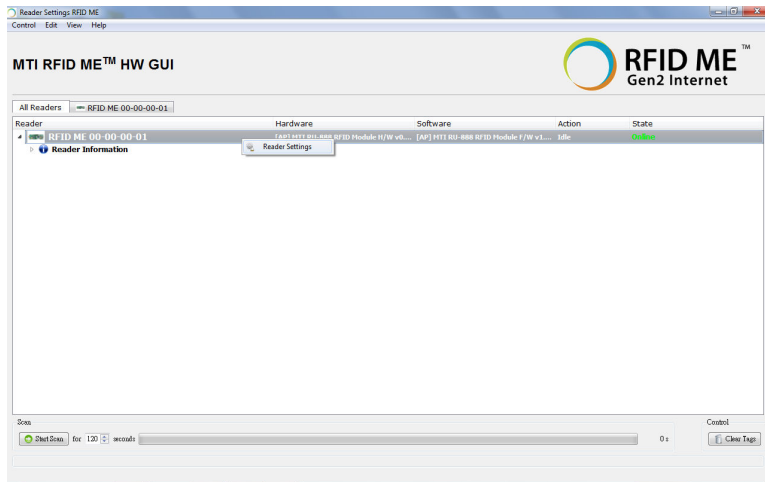


Figure 9

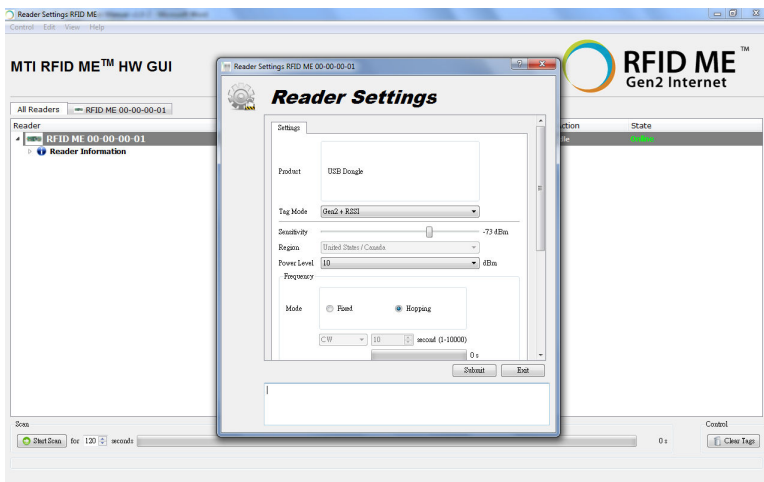


Figure 10

3.2. Advanced Reader Settings

3.2.1. Tag Mode: Gen2, Gen2+ RSSI, ISO6

- Gen2 : ISO 18000-6C Tag
- Gen2 + RSSI : ISO 18000-6C Tag, but with a more thorough evaluation, provides the Received Signal Strength Indication (RSSI), channel Q, and channel I- path readings
- ISO6B : ISO 18000-6B Tag

3.2.2. Region

MTI RFID ME™ HW GUI program will detect the region you are using automatically.

- RU-888-100 is pre-set to US automatically
- RU-888-110 is pre-set to EU automatically

Note: Due to regulatory requirements, it is not possible for the User to select the region as shown in Figure 11.

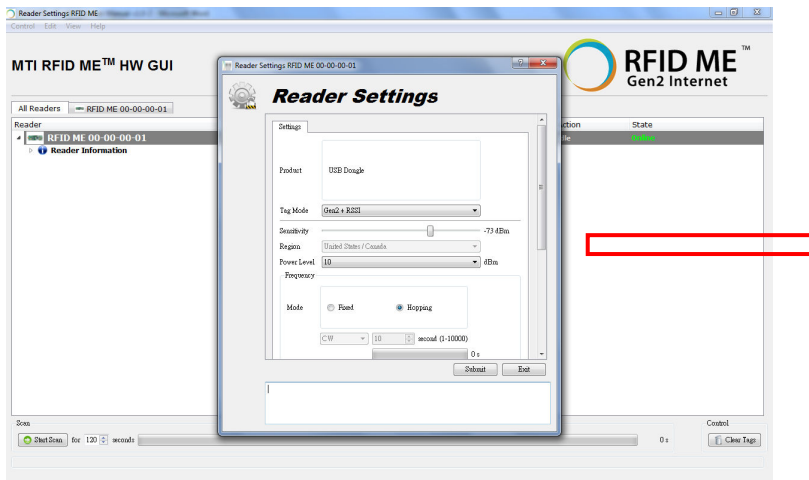


Figure 11

3.2.3. Power Level

- To achieve the longest reading or writing range, please set the power to the highest level (18dBm) as shown in Figure 12.
- Lower power levels decrease reading or writing range, but conserve energy consumption. It is possible to set the minimum power level to as low as 5 dBm.

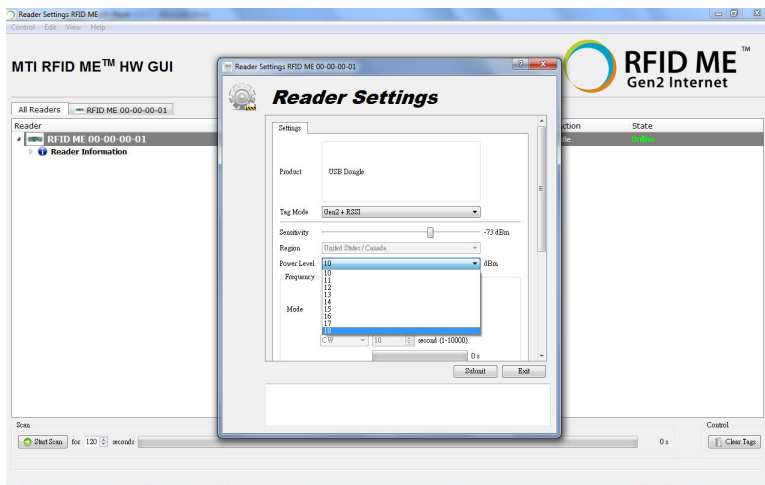


Figure 12

3.2.4. Frequency Setting (Fixed vs. Hopping)

- Hopping : Offered for the majority of customers as shown in Figure 13.

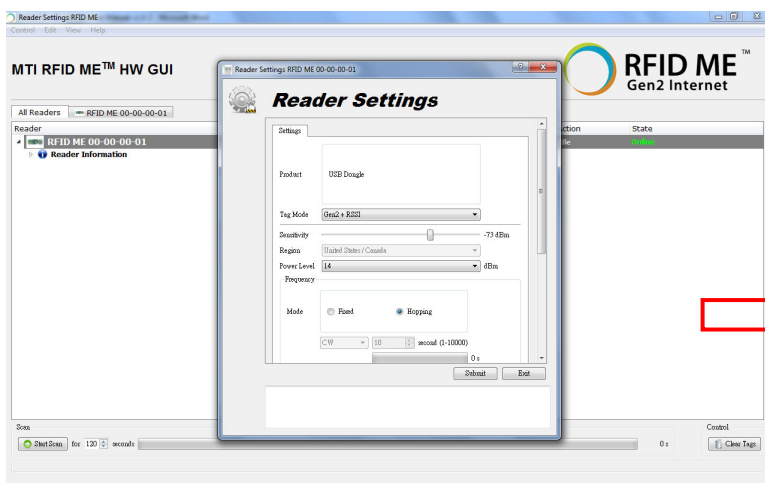


Figure 13

- Fixed : Offered for engineers and larger companies interested in more comprehensive testing.
- CW/Modulation/Pluse as shown in Figure 14.

CW : To test Output Power Linearity for the desired frequency.

Modulation : To test the Mask for the desired frequency.

Pluse : To test ETSI 302 208 v1.3.1

- Time- only used for modulation setting.

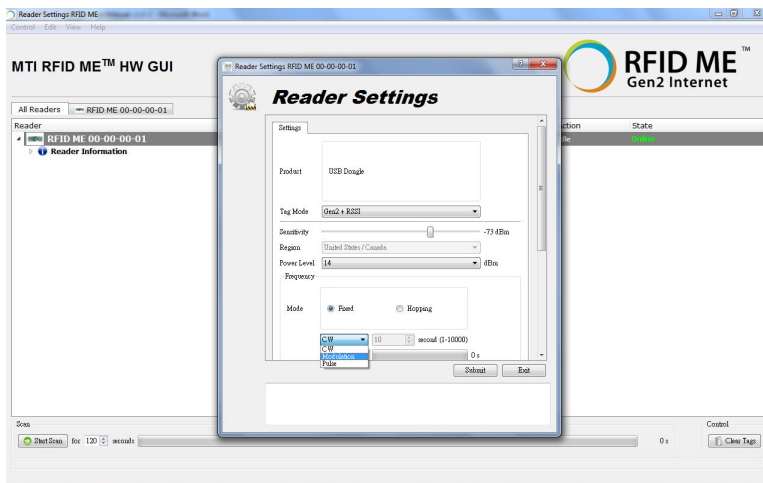


Figure 14

3.2.5. Gen2 Setting

This could let you modify the Gen2 profile between the RFID ME™ HW and the EPC tag as shown in Figure 15. For more details regarding these settings please reference the Class 1 Generation 2 UHF Air Interface Protocol Standard “Gen 2” at <http://www.epcglobalinc.org/standards/uhfc1g2>

- Default Setting :
 - Link Frequency : 160KHz
 - Session : S0

- Coding : Miller 2
- Q_Begin : 4

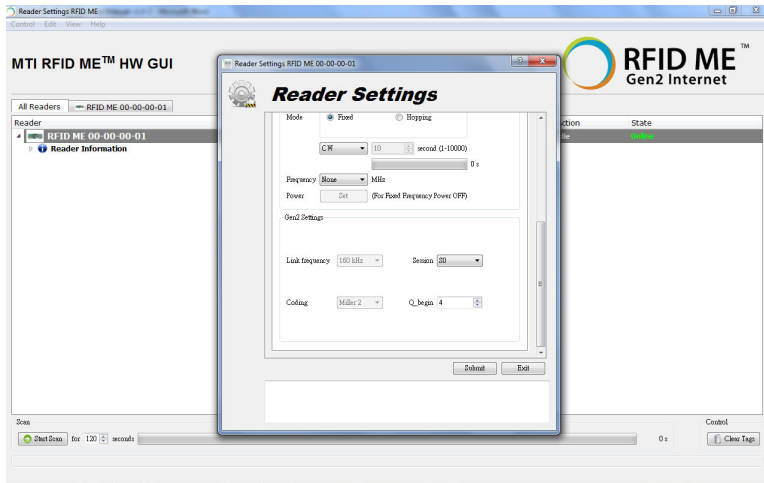


Figure 15

4. Inventory Run

To begin the inventory run, press the “Start Scan” button located in the lower left corner of the window as shown in Figure 16 .

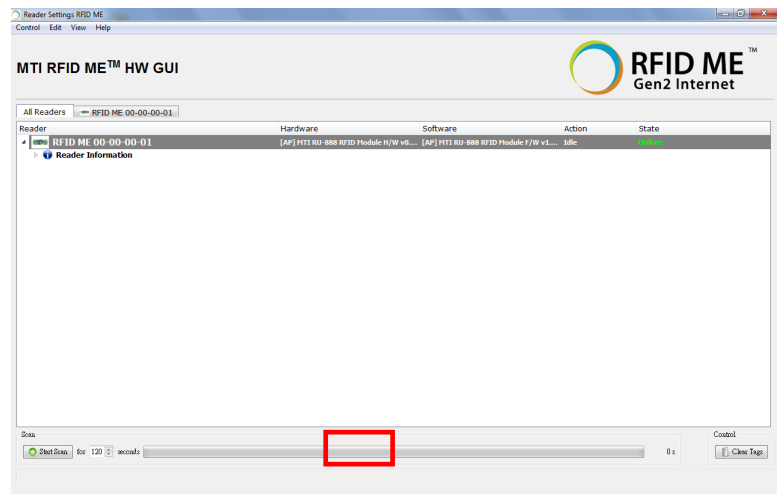


Figure 16

Figure 17 shows the results of a “Start Scan” operation and where the RFID ME™ HW is reading one tag. The EPC for each of the tags is provided and a Relative Signal Strength Indicator (RSSI) of the individual tags is presented. In this example EPC tag 00-00-00-00-00-00-00-00-00-33 has a RSSI of 63% at the particular time the tag was read.

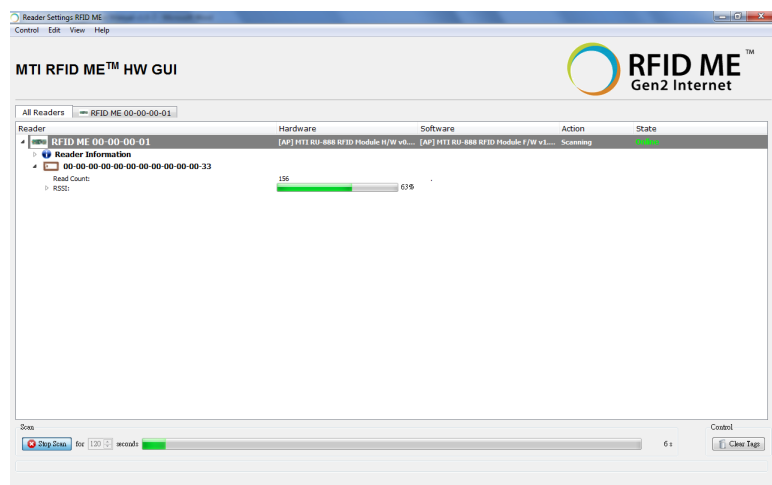


Figure 17

5. Tag Setting

To configure the tag (write to the tag), first stop the scan (Stop Scan), then Right Click on the EPC of the tag you want to modify, to access the “Advanced Tag Settings”. This will allow you set the parameters of the tag as shown in Figure 18.

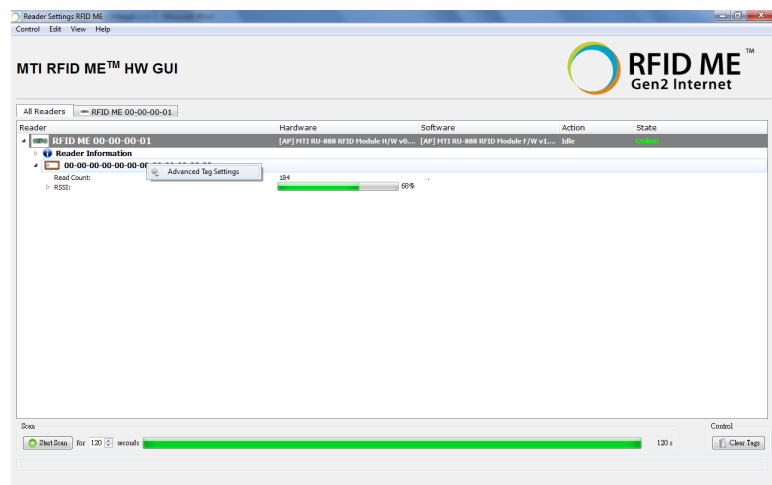


Figure 18

Next, move into the functions section, where you will be able to set tasks for your tags as described in the following points as shown in Figure 19.

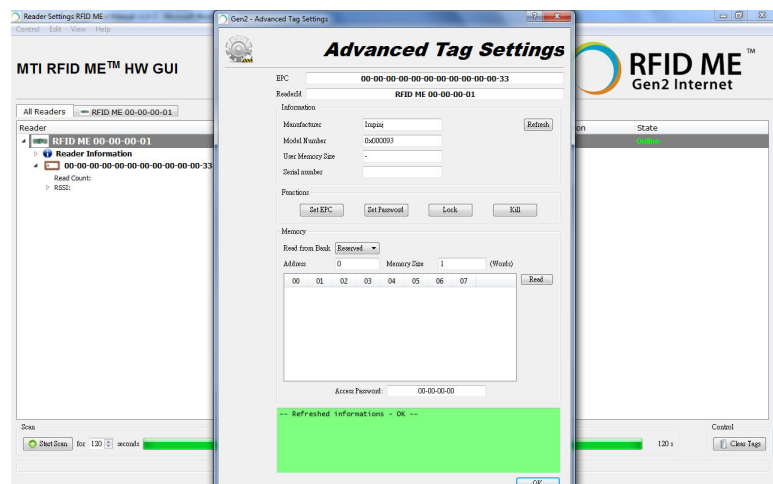


Figure 19

5.1. Tag Setting Function

5.1.1. Set EPC :

It will allow you to modify a tag's EPC, select and alter the "New EPC" section to the new EPC you desire, then press "OK" to rewrite as shown in Figure 20.

Note: The default setting for the "Current Access Password" is 00-00-00-00. For any other settings, please reference the Class 1 Generation 2 UHF Air Interface Protocol Standard "Gen 2" at <http://www.epcglobalinc.org/standards/uhf1g2>.

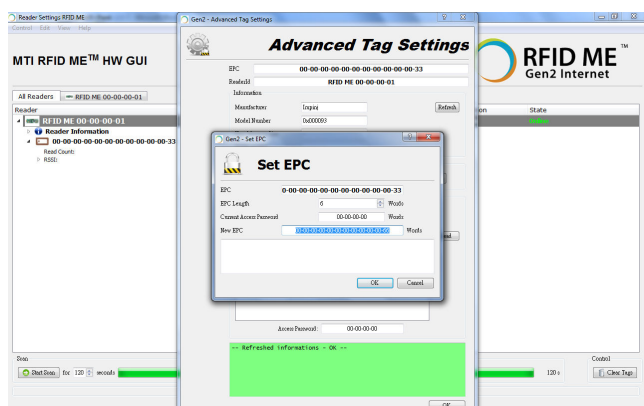


Figure 20

- Pass Message :

When the tag is re-written successfully, the message confirms with a response "Set EPC to New Tag value" as shown in Figure 21.

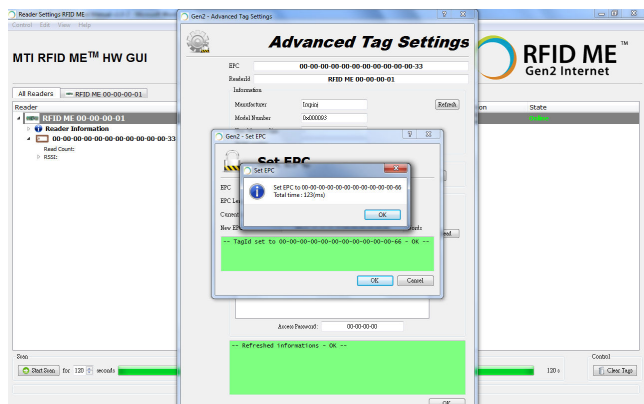


Figure 21

- Failed Message :

If the Set EPC fails, a message box like the one shown below in Figure 22 will be displayed. You can repeat the Set EPC process until you successfully write the new EPC.

Note: One remedy that can increase your Set EPC success, is to move the tag closer to the RFID ME™ HW, or increase the Transmit Output Power to a higher setting.

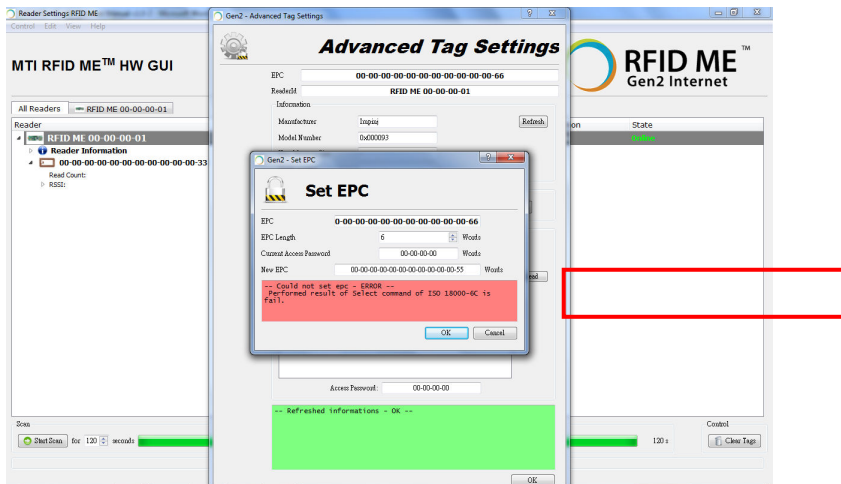


Figure 22

5.1.2. Set Password :

Set Kill or Access password as shown in Figure 23. The default Current Access Password is 00-00-00-00. For more detailed information regarding Password settings please reference the Class 1 Generation 2 UHF Air Interface Protocol Standard “Gen 2” at <http://www.epcglobalinc.org/standards/uhf1g2>

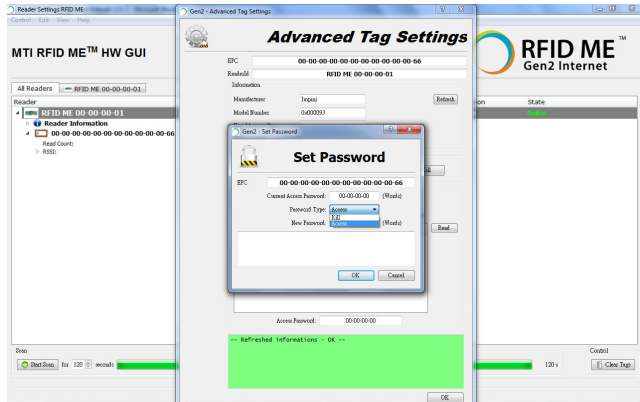


Figure 23

5.1.3. Lock :

You could use this function to lock the desired memory bank for each action as shown in Figure 24. For more information regarding Lock and Associated Memory Banks please reference the Class 1 Generation 2 UHF Air Interface Protocol Standard “Gen 2” at <http://www.epcglobalinc.org/standards/uhf1g2>

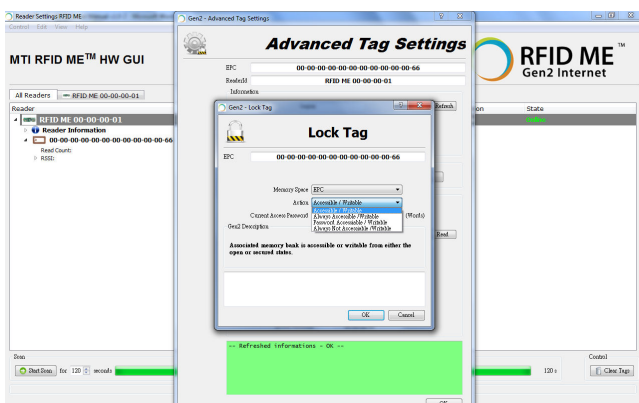


Figure 24

5.1.4. Kill :

To kill the tag, type in a kill password as shown in Figure 25. For more information about Kill and Kill Passwords please reference the Class 1 Generation 2 UHF Air Interface Protocol Standard “Gen 2” at <http://www.epcglobalinc.org/standards/uhfc1g2>

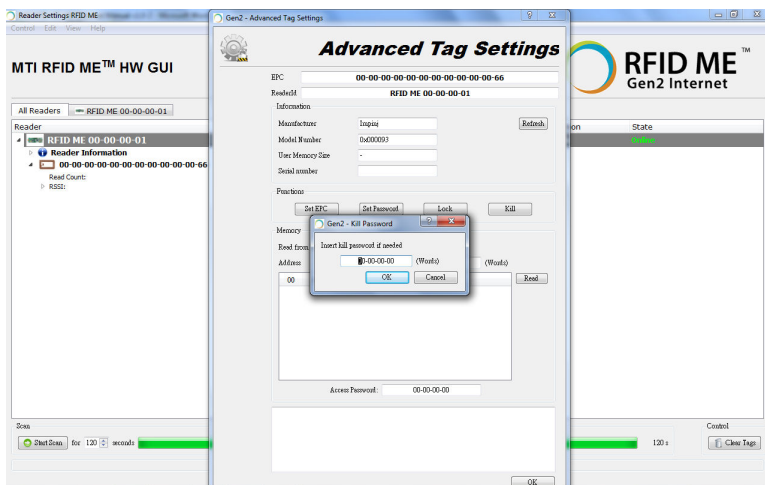


Figure 25

5.2. Memory Bank Setting

You could read from Reserved, EPC, TID, and TID Bank back once pressing “Read” button as shown in Figure 26. The memory size will show automatically. For more information about how to configure Memory Bank Settings for your use case, please reference the Class 1 Generation 2 UHF Air Interface Protocol Standard “Gen 2” at <http://www.epcglobalinc.org/standards/uhfc1g2>

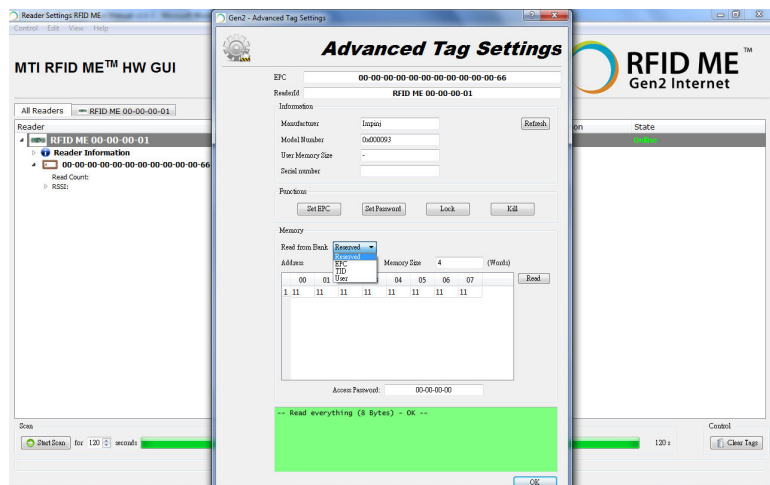


Figure 26

- Pass Message :

When you read memory back successfully, the message will confirm “everything OK” as shown in Figure 27.

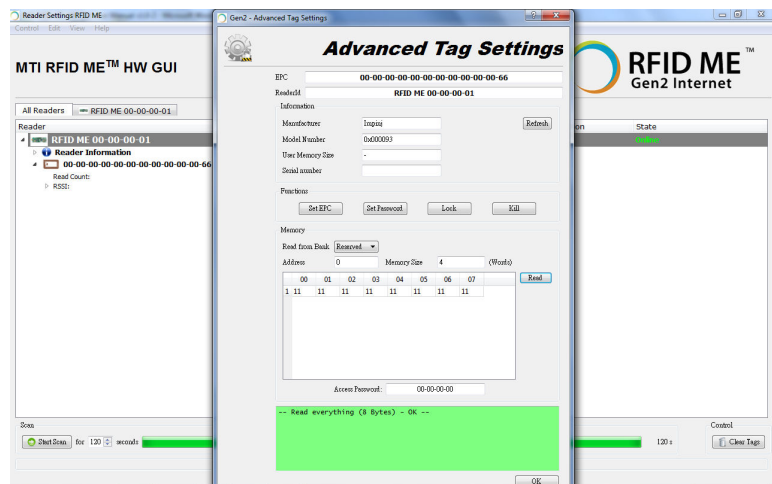


Figure 27

- Failed Message :

If the read memory bank fails, a message box like the one shown below in Figure 28 will be displayed. You can repeat the read memory bank process until you successfully write the new EPC.

Note: One remedy that can increase your read memory bank success, is to move the tag closer to the RFID ME™ HW, or increase the Transmit Output Power to a higher setting.

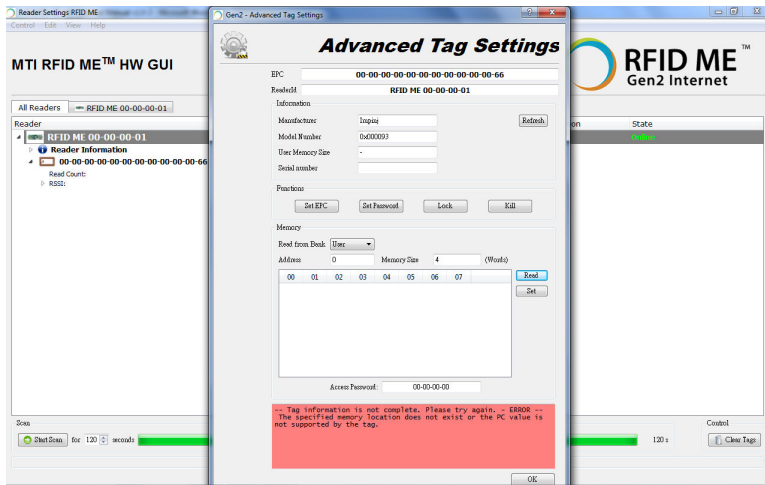


Figure 28

6. Troubleshooting/ FAQs

6.1. Initial Setup/ Software

If the software fails to install as shown in Figure 29, repeat the installation process, first delete the original installation, and then re-install using the same steps listed in section 2.1.

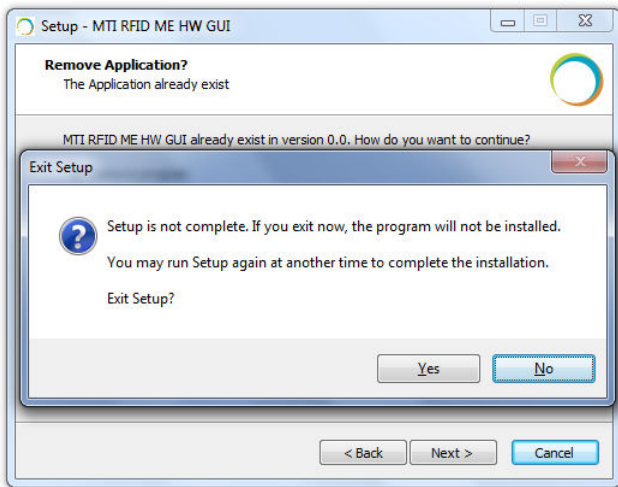


Figure 29

6.2. Tag reading

If reader is “Offline” and does not identify tags, make sure the state/status of the RFID ME™ HW is “Online” reference Figure 9 which shows “Online” status).

In general, reading tags depends on a lot of different conditions, please verify that there are no metal or liquid objects surrounding the RFID module and/or near the tags (such as a metal table, or glass of water).

6.3. Tag modification

If tag status displays “ERROR”, make sure the tag and reader proximity is very close (basically touching), and try again.

7. Caution and Warnings

Europe – EU Declaration of Conformity

Europe – EU Declaration of Conformity

This device complies with the essential requirements of the R&TTE Directive 1999/5/EC. The following test methods have been applied in order to prove presumption of conformity with the essential requirements of the R&TTE Directive 1999/5/EC:

- EN 60950-1 (2006:+A11:2009+A1:2010)

Safety of Information Technology Equipment

EN 302208-2 V1.2.1 (2008-04)

Electromagnetic compatibility and Radio spectrum Matters (ERM); radio Frequency Identification Equipment operating in the band 865 MHz to 868 MHz with power levels up to 2W; Part 2: Harmonized EN covering essential requirements of Article 3.2 of the R&TTE Directive

EN 50364:2001

Limitation of human exposure to electromagnetic fields from devices operating in the frequency range 0 Hz to 10GHz, used in Electronic Article Surveillance (EAS), Radio Frequency Identification (RFID) and similar applications

EN 301 489-1 V1.8.1: (2008-04)









Electromagnetic compatibility and Radio Spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 1: Common technical requirements

EN 301 489-3 V1.4.1 (2002-08)

Electromagnetic compatibility and Radio Spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 3: Specific conditions for

Short-Range Devices (SRD) operating on frequencies between 9 kHz and 40 GHz

CE 0560

 Český [Czech]	<p>[<i>Jméno výrobce</i>] tímto prohlašuje, že tento [<i>typ zařízení</i>] je ve shodě se základními požadavky a dalšími příslušnými ustanoveními směrnice 1999/5/ES.</p>
 Dansk [Danish]	<p>Undertegnede [<i>fabrikantens navn</i>] erklærer herved, at følgende udstyr [<i>udstyrets typebetegnelse</i>] overholder de væsentlige krav og øvrige relevante krav i direktiv 1999/5/EF.</p>
 Deutsch [German]	<p>Hiermit erkläre [<i>Name des Herstellers</i>], dass sich das Gerät [<i>Gerätetyp</i>] in Übereinstimmung mit den grundlegenden Anforderungen und den übrigen einschlägigen Bestimmungen der Richtlinie 1999/5/EG befindet.</p>
 Eesti [Estonian]	<p>Käesolevaga kinnitab [<i>tootja nimi = name of manufacturer</i>] seadme [<i>seadme tüüp = type of equipment</i>] vastavust direktiivi 1999/5/EÜ põhinõuetele ja nimetatud direktiivist tulenevatele teistele asjakohastele sätetele.</p>
 English	<p>Hereby, [<i>name of manufacturer</i>], declares that this [<i>type of equipment</i>] is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.</p>
 Español [Spanish]	<p>Por medio de la presente [<i>nombre del fabricante</i>] declara que el [<i>clase de equipo</i>] cumple con los requisitos esenciales y cualesquiera otras disposiciones aplicables o exigibles de la Directiva 1999/5/CE.</p>
 Ελληνική [Greek]	<p>ΜΕ ΤΗΝ ΠΑΡΟΥΣΑ [<i>name of manufacturer</i>] ΔΗΛΩΝΕΙ ΟΤΙ [<i>type of equipment</i>] ΣΥΜΜΟΡΦΩΝΕΤΑΙ ΠΡΟΣ ΤΙΣ ΟΥΣΙΩΔΕΙΣ ΑΠΑΙΤΗΣΕΙΣ ΚΑΙ ΤΙΣ ΛΟΙΠΕΣ ΣΧΕΤΙΚΕΣ ΔΙΑΤΑΞΕΙΣ ΤΗΣ ΟΔΗΓΙΑΣ 1999/5/EK.</p>
 Français [French]	<p>Par la présente [<i>nom du fabricant</i>] déclare que l'appareil [<i>type d'appareil</i>] est conforme aux exigences essentielles et aux autres dispositions pertinentes de la directive 1999/5/CE.</p>
 Italiano [Italian]	<p>Con la presente [<i>nome del costruttore</i>] dichiara che questo [<i>tipo di apparecchio</i>] è conforme ai requisiti essenziali ed alle altre disposizioni pertinenti stabilite dalla direttiva 1999/5/CE.</p>
Latviski [Latvian]	<p>Ar šo [<i>name of manufacturer / izgatavotāja nosaukums</i>] deklarē, ka [<i>type of equipment / iekārtas tips</i>] atbilst Direktīvas 1999/5/EK būtiskajām prasībām un</p>

	cietiem ar to saistītajiem noteikumiem.
Lietuvių [Lithuanian]	Šiuo [manufacturer name] deklaruoja, kad šis [equipment type] atitinka esminius reikalavimus ir kitas 1999/5/EB Direktyvos nuostatas.
 Nederlands [Dutch]	Hierbij verklaart [naam van de fabrikant] dat het toestel [type van toestel] in overeenstemming is met de essentiële eisen en de andere relevante bepalingen van richtlijn 1999/5/EG.
 Malti [Maltese]	Hawnhekk, [isem tal-manifattur], jiddikjara li dan [il-mudel tal-prodott] jikkonforma mal-ħtiġijiet essenzjali u ma provvedimenti oħrajn rilevanti li hemm fid-Direttiva 1999/5/EC.
 Magyar [Hungarian]	Alulírott, [gyártó neve] nyilatkozom, hogy a [... típus] megfelel a vonatkozó alapvető követelményeknek és az 1999/5/EC irányelv egyéb előírásainak.
 Polski [Polish]	Niniejszym [nazwa producenta] oświadczam, że [nazwa wyrobu] jest zgodny z zasadniczymi wymogami oraz pozostałymi stosownymi postanowieniami Dyrektywy 1999/5/EC.
 Português [Portuguese]	[Nome do fabricante] declara que este [tipo de equipamento] está conforme com os requisitos essenciais e outras disposições da Directiva 1999/5/CE.
 Slovensko [Slovenian]	[Ime proizvajalca] izjavlja, da je ta [tip opreme] v skladu z bistvenimi zahtevami in ostalimi relevantnimi določili direktive 1999/5/ES.
Slovensky [Slovak]	[Meno výrobcu] týmto vyhlasuje, že [typ zariadenia] spĺňa základné požiadavky a všetky príslušné ustanovenia Smernice 1999/5/ES.
 Suomi [Finnish]	[Valmistaja = manufacturer] vakuuttaa täten että [type of equipment = laitteen tyyppimerkintä] tyyppinen laite on direktiivin 1999/5/EY oleellisten vaatimusten ja sitä koskevien direktiivin muiden ehtojen mukainen.
 Svenska [Swedish]	Härmed intygar [företag] att denna [utrustningstyp] står i överensstämmelse med de väsentliga egenskapskrav och övriga relevanta bestämmelser som framgår av direktiv 1999/5/EG.

FCC statement in User's Manual (for class B)

“Federal Communications Commission(FCC) Statement”

This Equipment has been tested and found to comply with the limits for a class B digital device, pursuant to

Part 15 of the FCC rules. These Limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

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

FCC Caution:

1. The device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions:
 - (1) This device may not cause harmful interference, and
 - (2) This device must accept any interference received, including interference that may cause undesired operation.
2. This device and its antenna(s) must not be co-located or operating in conjunction with any other antenna or transmitter.
3. Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user authority to operate the equipment.

IMPORTANT NOTE:

This module is intended for OEM integrator. The OEM integrator is still responsible for the FCC compliance requirement of the end product which integrates this module.

20cm minimum distance has to be able to be maintained between the antenna and the users for the host this module is integrated into. Under such configuration, the FCC radiation exposure limits set forth for an population/uncontrolled environment can be satisfied.

Any changes or modifications not expressly approved by the manufacturer could void the user's authority to operate this equipment.

USERS MANUAL OF THE END PRODUCT:

In the users manual of the end product, the end product, the end user has to be informed to keep at least 20cm

separation with the antenna while this end product is installed and operated. The end user has to be informed that the FCC radio-frequency exposure guidelines for an uncontrolled environment can be satisfied. The end user has to also be informed that any changes or modifications not expressly approved by the manufacturer could void the user's authority to operate this equipment. If the size of the end product is smaller than 8x10cm, then additional FCC part 15.19 statement is required to be available in the users manual: This device complies with Part 15 of FCC rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference and (2) this device must accept any interference received, including interference that may cause undesired operation.

Professional Use:

FCC NOTICE: To comply with FCC part 15 rules, the system must be **professionally installed** to ensure compliance with the Part 15 certification. It is the responsibility of the operator and professional installer to ensure that only certified systems are deployed in the United States.

The final end product must be labeled in a visible area with the following: "Contains FCC ID: EHA-INRD01U".

Industry Canada statement:

This device complies with RSS-210 of the Industry Canada Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Ce dispositif est conforme à la norme CNR-210 d'Industrie Canada applicable aux appareils radio exempts de licence. Son fonctionnement est sujet aux deux conditions suivantes: (1) le dispositif ne doit pas produire de brouillage préjudiciable, et (2) ce dispositif doit accepter tout brouillage reçu, y compris un brouillage susceptible de provoquer un fonctionnement indésirable.

- 1) The antenna must be installed such that 20 cm is maintained between the antenna and users, and
- 2) The transmitter module may not be co-located with any other transmitter or antenna,

As long as 2 conditions above are met, further transmitter test will not be required. However, the OEM integrator is still responsible for testing their end-product for any additional compliance requirements required with this module installed.

Get appareil est conçu uniquement pour les intégrateurs OEM dans les conditions suivantes: (Pour

utilisation de dispositif module)

- 1) L'antenne doit être installée de telle sorte qu'une distance de 20 cm est respectée entre l'antenne et les utilisateurs, et
- 2) Le module émetteur peut ne pas être coïmplanté avec un autre émetteur ou antenne,

Tant que les 2 conditions ci-dessus sont remplies, des essais supplémentaires sur l'émetteur ne seront pas nécessaires. Toutefois, l'intégrateur OEM est toujours responsable des essais sur son produit final pour toutes exigences de conformité supplémentaires requis pour ce module installé.

IMPORTANT NOTE:

In the event that these conditions cannot be met (for example certain laptop configurations or co-location with another transmitter), then the Canada authorization is no longer considered valid and the IC ID cannot be used on the final product. In these circumstances, the OEM integrator will be responsible for re-evaluating the end product (including the transmitter) and obtaining a separate Canada authorization.

NOTE IMPORTANTE:

Dans le cas où ces conditions ne peuvent être satisfaites (par exemple pour certaines configurations d'ordinateur portable ou de certaines co-localisation avec un autre émetteur), l'autorisation du Canada n'est plus considéré comme valide et l'ID IC ne peut pas être utilisé sur le produit final. Dans ces circonstances, l'intégrateur OEM sera chargé de réévaluer le produit final (y compris l'émetteur) et l'obtention d'une autorisation distincte au Canada.

The final end product must be labeled in a visible area with the following: "Contains IC: 1223A-INRD01U".
Le produit final doit être étiqueté dans un endroit visible avec l'inscription suivante: "Contient des IC: 1223A-INRD01U".