RTX3741

DECT DONGLE

Product overview,
Features and operation

Technical Reference Document
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1 About This Document

This document describes the configuration, customization, management, operation, maintenance and troubleshooting of the RTX3741 DECT Dongle. For customer specific modes, refer to specific customer agreements, which describe the software operational deviations from this document.

1.1 Audience

Who should read this guide? First, this guide is intended for networking professionals responsible for designing and implementing RTX based enterprise networks.
Second, network administrators and IT support personnel that need to install, configure, maintain, and monitor elements in a "live" SME VoIP network will find this document helpful. Furthermore, anyone who wishes to gain knowledge on fundamental features in the RTX DECT system, can also benefit from this material.

1.2 When Should I Read This Guide

Read this guide before you install the core network devices of VoIP SME System and when you are ready to setup or configure the RTX724x DECT headsets or DECT Speakerphones.

This manual will enable you to set up components in your network to communicate with each other and deploy a fully functionally system.

1.3 Important Assumptions

This document was written with the following assumptions in mind:

1) You understand network deployment in general
2) You have working knowledge of basic TCP/IP/SIP protocols, Network Address Translation, etc...
3) A proper site survey has been performed, and the administrator have access to these plans

1.4 What's Inside This Guide

We summarize the contents of this document in the table below:

WHERE IS IT?	CONTENT	PURPOSE
CHAPTER 2	Product overview	Learn about the product
CHAPTER 3	Product features	Check the available features
CHAPTER 4	PC setup tool	Overview of a software configuration tool
CHAPTER 5	Use case scenarios	See an example setup
Appendix	General requirements	Read more about the regulatory and environmental compliances

1.5 What's Not in This guide

This guide provides overview material on network deployment, how-to procedures, and configuration examples that will enable you to begin configuring your system.

It is not intended as a comprehensive reference to all detail and specific steps on how to configure other vendor specific components/devices needed to make the SME VoIP System functional. For such a reference to vendor specific devices, please contact the respective vendor for documentation.

1.6 References/Related Documentation

RTX8663 SME VoIP System Guide_SIP_V4.8
How to Deploy SME VOIP System v1.4
PC setup tool

1.7 Document History

REVISION	AUTHOR	ISSUE DATE	COMMENTS
1.0	DKO	29.01.2020	First release

1.8 Documentation Feedback

We always strive to produce the best and we also value your comments and suggestions about our documentation. If you have any comments about this guide, please enter them through the Feedback link on the RTX website. We will use your feedback to improve the documentation.

2 Product overview

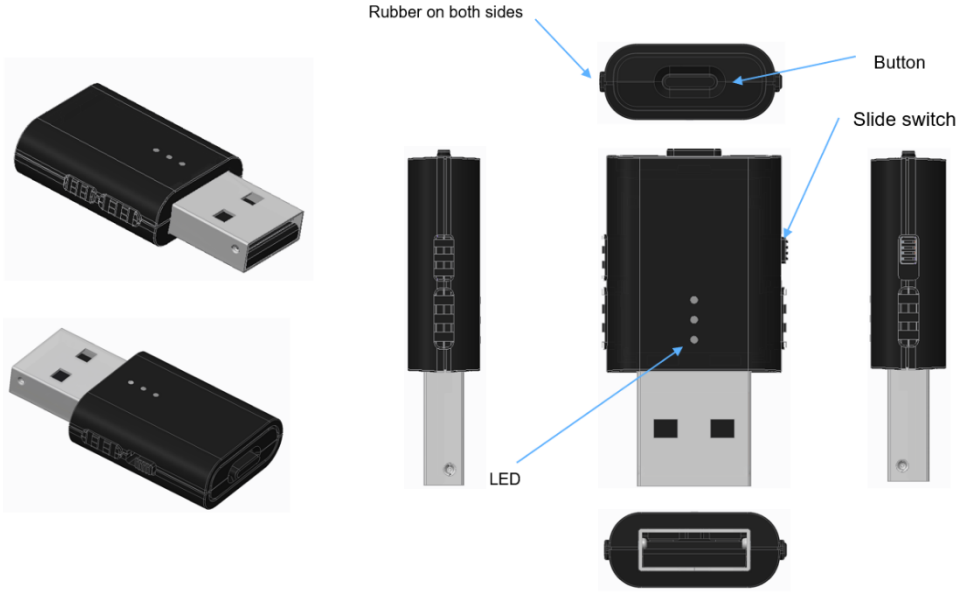
RTX3741 is a USB type A dongle with slide switch that can establish a wireless connection with the RTX headsets from the RTX725x series and B169 DECT Speakerphone. The dongle supports dual mode, meaning that it can be used either as a Fixed part (FP), or Portable part (PP).

- Base / FP mode:
  - Acts as a DECT base for the RTX725x headsets
  - Acts as a DECT base for the B169 DECT speakerphone

- Headset / PP part:
  - Enables DECT access for a USB desktop phone on the RTX VoIP system

Since the DECT dongle can run one mode at a time, you can switch between the two functionalities by using the slider switch.

The device is designed to be easy to use with a desk phone/PC/laptop with a very good sound quality. The chosen microphone is balanced together with the headset filters to reduce the background noise, in order to provide an ultimate speech intelligibility. The receivers are balanced to the receiver housing and cushion, allowing the headset to provide the user extreme stereo experience. Since the device is using the DECT technology, it can remember 4 registrations – one primary and three secondary. However, only one single registration can be a DECT speakerphone. The audio can be directed to the headset or speakerphone, depending on the user's choice. When the headset is connected via the RTX3741 DECT Dongle to a PC, the user may access calls from Soft Call Clients, such as Skype for Business (see *3.2 Soft Client support* for more details).



2.1 Package – Contents/Damage inspection

Before Package Is Opened

Please, examine the shipping package for evidence of physical damage or mishandling prior to opening. If there is a proof of mishandling prior to opening, you must report it to the relevant support center of the regional representative or operator.

Contents of Package

Please, make sure all relevant components are available in the package before proceeding to the next step.
Every shipped unit package/box contains a DECT dongle and a safety sheet.

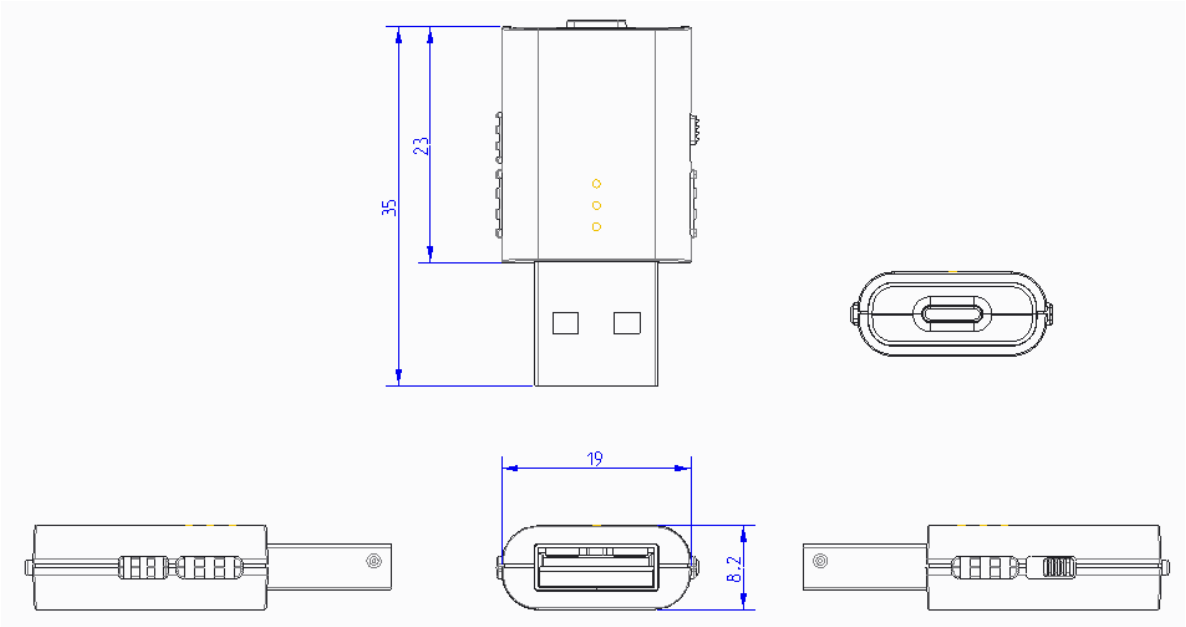
Damage Inspection

The following is the recommended procedure for you to use for inspection:

1. Examine all relevant components for damage.
2. Make a “defective on arrival – DOA” report or RMA to the operator. Do not move the shipping carton until the operator has examined it. If possible, send pictures of the damage. The operator/regional representative will initiate the necessary procedure to process this RMA. They will guide the network administrator on how to return the damaged package if necessary.
3. If no damage is found, then unwrap all the components and dispose of empty package/carton(s) in accordance with country specific environmental regulations.

2.2 RTX DECT Dongle Mechanics

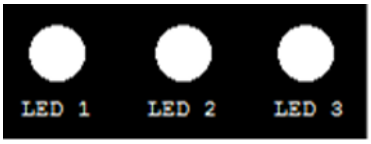
With such small dimensions as 35mm (length) and 19mm (width), the device can be easily carried and plugged into any computer, supporting a USB. For more details, please see the drawing below.



2.3 LED Indicators

The dongle has 3 LED indicators that signal different functional states of the device. The indicators are off when the unit is not powered on. To give you a better understanding of the LED color and states, we have numbered them as LED 1, LED 2 and LED 3.

Button side



Connector side

Depending on the LEDs color, they will indicate call and registration status to the user. Each LED has its own color identification, which is presented in the table below.

LED	COLOR
1	RED
2	BLUE
3	GREEN

2.4 LED Patterns

The LED supports different kinds of patterns, such as fast/normal/slow blink and breathing. Technical details are explained in the table below.

LED	COLOR
BLINKING	500ms ON, 500ms OFF
BREATHING	OFF-ON-OFF, 166 steps, 20ms per step

2.5 LED Indications

The table summarizes the various LED states. It shows the LED indication for different statuses of the DECT dongle.

FUNCTION	STATUS	LED	PATTERN
SYSTEM	Dongle reset started	Red, Blue and Green	Blink 3 times
DECT CONNECTION	Registration, In progress	Blue	Blink alternately
	Registration, Success	Blue and Green	Blink 3 times
	Registration, Failed	Blue and Red	Blink 3 times
	Master headset registered	Blue	ON
	Master headset lost link	Red	ON
CALL	Ringing	Green	Blink
	Talk or Hold	Green	ON
	Conference or intrusion call	Green	Breathing

2.6 Button features

The DECT dongle has one key which serves for starting the DECT registration and for resetting the device. Therefore, all setup is done by using the PC Setup tool.

3 Product features

The following chapter will introduce you to the features of the RTX3741. The two tables represent two separate categories – dongle and main features. Each of the features are followed by a short description.

3.1 Dongle features

FEATURES	DESCRIPTION
LED INDICATOR	3x LED, see *2.3. LED indicators*
HARDWARE FEATURES	

Button	Yes
Functionality	Registration and reset
Slider switch	Yes, switch between base and headset mode
Operating conditions	-0 ^{o}C to 45^{o}C
CALL FEATURES	
Call waiting	Yes
Hold / Retrieve	Yes
No. of simultaneous calls	2, only 1 on hold
Call conference	Yes
Call swap	Yes
DECT	
Output power	18dBm
Sensitivity	-92dBm
Antenna	2 for fast antenna diversity
Range	200m LOS
SOFTWARE UPDATE	
Downloadable	Yes, using PC tool

3.2 Main features

MAIN FEATURES	RTX3741
COMPATIBLE WITH:	
Headset RTX725x	Yes
B169 Speakerphone	Yes
CONFERENCE SUPPORT	Up to 4 users (headsets only)
RINGER BUILT-IN BASE	No
CUSTOMER LOGO	Silk screen
DONGLE COLOR OPTIONS	<TBD>
CALL INDICATION LED ON DONGLE	Yes
BATTERY CHARGE INDICATION ON DONGLE	No
DECT CONNECTION STATUS LED ON DONGLE	Yes
CONNECTION TO LAPTOP / PC	Yes, via USB
CONFIGURABLE VIA PC SETUP TOOL	Yes, via USB
FIRMWARE UPDATE SUPPORT	Yes, via PC Setup Tool
USB CONNECTOR	Type A
PC WINDOWS SUPPORT	Yes
MACOS SUPPORT	Yes
DECT AUDIO SUPPORT	
Wideband Audio	CELT, G.722, BV32
Narrowband Audio	G.726, BV16
CALL CLIENT SUPPORT	
Skype for business	Yes
ADEPTIVE POWER CONTROL (DECT)	Yes

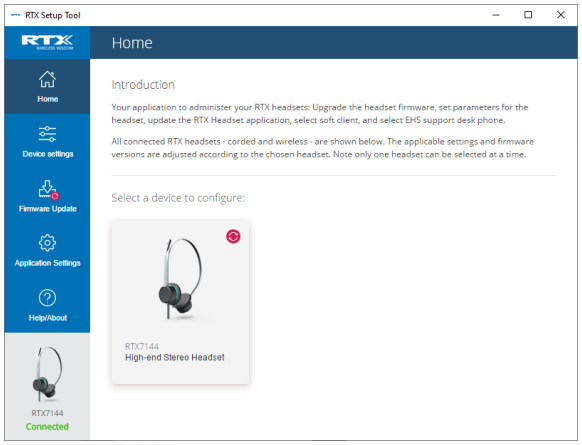
3.3 Soft Client Support

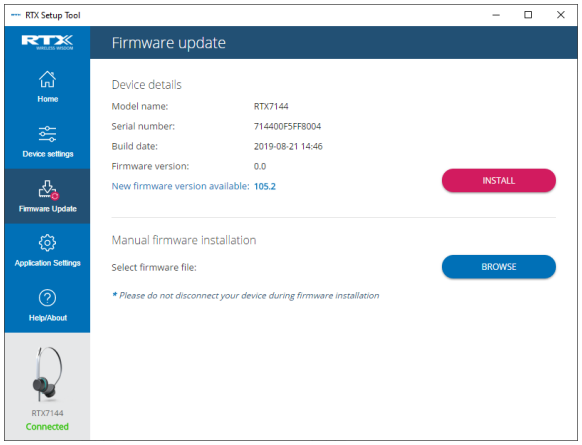
Combined with one of our four RTX headsets, the DET dongle supports the audio and USB API for the Skype for Business (Lync) application. Moreover, other call clients can be supported, but they require either a PC tool to be running (see chapter *4 PC setup tool)*, or an RTX USB HID API to be supported by the client.

All call related controls are managed via the headset controls and/or desk phone/PC. The call is initiated from the Soft Call Client running on the PC/laptop. It cannot be initiated from the speakerphone. It is outside the scope of the RTX3741 product.

4 PC setup tool

An external PC configuration tool is available for the DECT headset/dongle/base. It allows you to configure these devices by changing their parameters, upgrading their firmware and do upgrades of the PC tool itself. It is compatible with corded and wireless headsets – RTX7xxx series. The PC Tool is available in a Windows version and a MacOS version. An example of the GUI interface is shown in the screenshots below. For a more detailed guide of the PC setup tool, please refer to the PC tool manual.



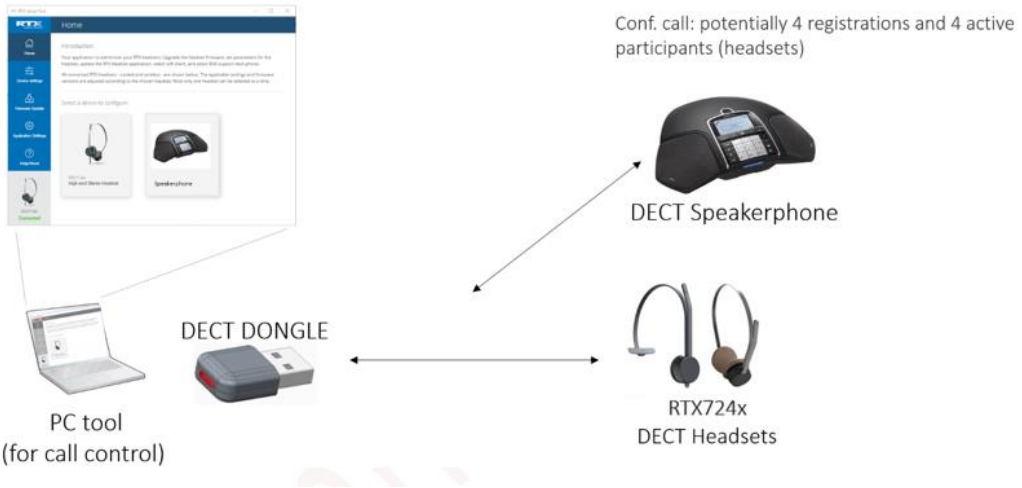


5 Use case scenarios

The following chapter aims to give you an example of a certain system setup in order to show the connection and functionality of the device.

5.1 DECT USB dongle on PC

The following use case presents a DECT dongle connected to a laptop that acts like a base with Call control (e.g. Skype for Business).

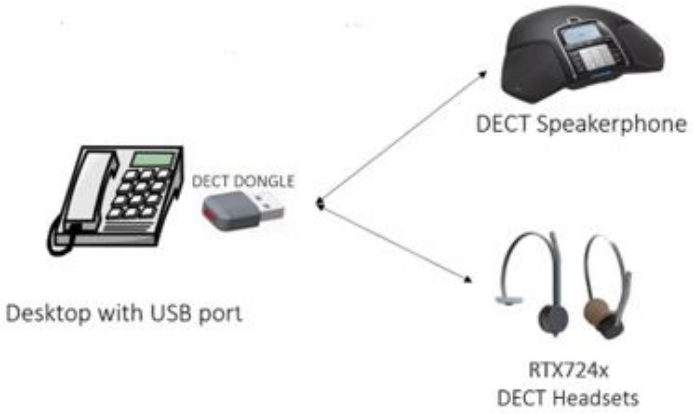


Use case details:

- All calls are originated from the Windows / MacOS PC using e.g. Skype for Business
- The DECT registration of the headset and the DECT speaker phone is done by putting both dongle and headset in registration mode.
- The user selects the DECT headset or the DECT speaker phone on the Windows / MacOS PC. One active audio device can be selected at a time. The active device is chosen via the PC Tool.
- The user can mute/un-mute headset either from PC (softphone) or from headset.
- No call controls are mapped from the speakerphone to the call application on the Windows / MacOS PC.
- The connected device is visible in the PC Tool
- The Windows / MacOS PC audio devices settings apply to the connected master devices.

5.2 DECT USB dongle on corded phone (FP)

The following presents a use case where the DECT dongle is connected to a desk phone and acts as a base for the DECT headsets/speakerphone. A Desktop phone support is required in order to select the audio device (headset or DECT speaker phone). RTX will provide HID interface, however, the customer is responsible for the implementation of relevant phones.

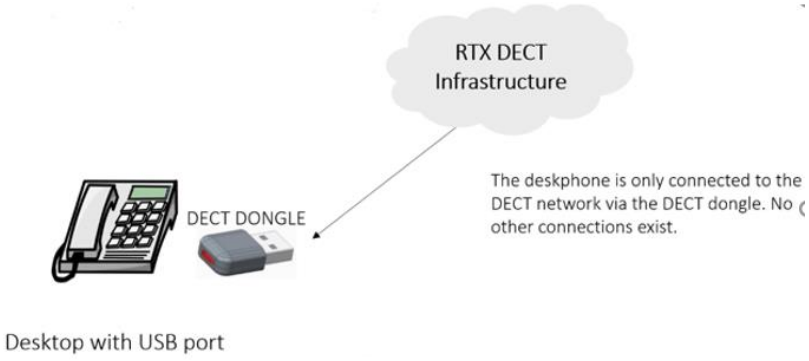


Use case details:

- All calls are originated from the desk phone (with USB DECT dongle). Call control to be provided by customer for the desk phone. RTX provides the API.
- The DECT registration of the headset and the DECT speaker phone is done by setting both dongle and headset in registration mode. Functionality can also be added to the desk phone by the customer.
- The user selects the DECT headset or the DECT speaker phone on the desk phone. One active audio device can be selected at a time.
- The user can mute/un-mute headset from the headset.
- No call controls are mapped from the DECT speakerphone to the call application on the desk phone.
- The DECT dongle is configured using the Windows / MacOS PC audio.

5.3 DECT USB dongle on corded phone (PP)

This use case presents the DECT dongle acting as a headset when connected to a desk phone. As mentioned in the previous chapter, a desktop phone support is required. The HID interface is provided by RTX, whereas the customer is responsible for the implementation of the relevant phones.



Use case details:

- The user plugs-in the USB DECT dongle to the desk phone, and it is registered to the RTX VoIP network. The functionality is added and controlled by the customer, whereas RTX provides the API for the configuration
- The DECT registration of the desk phone to the VoIP network is done as effortless as possible.
- The DECT dongle is configured using the Windows / MacOS PC tool.

Appendix

General requirements

Requirements	Descriptions
DECT frequency bands:	1880 – 1895 MHz (Taiwan) 1880 – 1900 MHz (EMEA) 1910 – 1920 MHz (Brazil & Uruguay) 1910 – 1930 MHz (LATAM, Argentina, Chile) 1920 – 1930 MHz (USA, Canada)
Narrowband Audio:	G726, BV16
Wideband Audio (HD):	G722, BV32
Music	CELT 128 kbit/s
DECT Registration	Possible to remember 4 registrations, one primary and three secondary registrations.

Environmental Compliances

RoHS

Per Directive 2011/65/EU on the Restriction of the use of certain Hazardous Substances in Electrical and Electronic Equipment

REACH

Per Directive 2006/121/EC on Registration, Evaluation and Authorization of Chemicals

WEEE

Per Directive 2012/19/EU on Waste Electrical and Electronic Equipment

(RTX will add waste bin information on product labels).

Packaging: EU Directive 97/129/EC establishing the identification system for packaging materials pursuant to European Parliament and Council Directive 94/62/EC on packaging and packaging waste.

Regulatory compliances

Approval	Standard
	General – Safety
Safety	CB Test Report IEC62368, EN62368, IEC60950, EN60950 with the national difference
Safety	UL62368 and cUL 62368
Safety	CB Scheme Certificate
	US
FCC	FCC Part 15B
FCC	FCC Part 15D
FCC	FCC Part 15.247
FCC	FCC SAR evaluation
FCC	FCC ID
	Canada
IC	ICES-003 Issue 6, 2016
IC	IC RSS-213 Issue 3,March 2015
IC	IC RSS-102 issue 5 SAR evaluation
IC	IC REL Cert and registration
IC	ISED ID
	European
CE	EN55032:2015 EMC-EMI&EMS EN55024:2010 EN55035
CE	EN62479:2010
CE	EN301489-1 V2.2.0 (2017-03) EN301489-6 V2.2.0 (2017-03)
CE	IEC61000-4-2 Level 3 criteria B (Contact+/-8KV,Air +/-15K) EN61000- 4-3 Level 3 criteria A
CE	EN301406V2.2.2(2016-09)
CE	SAR-EN62209-1:2006/EN62209-2:2010 ; EN50360 :2001+A1:2012 EN 50566:2013/AC:2014
CE	AOC certificate
	Australia/NZ
RCM	AS/NZS CISPR 32:2015
RCM	EMC-AS/NZS CISPR 22:2009+A1:2010
RCM	RF-AS/NZS 4268:2017
RCM	SAR-AS/NZS 2772.1; AS/NZS 2772.2:2011
RCM	Acoustic AS/CA S004
RCM	HAC AS/ACIF S040

FCC Caution.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:
(1) This device may not cause harmful interference, and
(2) this device must accept any interference received, including interference that may cause undesired operation.

Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note: 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 will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one 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.

IC Warning

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

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes:
(1) l'appareil ne doit pas produire de brouillage, et
(2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

RF Exposure Information and Statement

The SAR limit of USA is 1.6 W/kg averaged over one gram of tissue. Device types: USB DECT Dongle (IC: 4979B-U3741) has also been tested against this SAR limit. The highest SAR value reported under this standard during product certification for properly worn on the body is 0.094W/kg. This device was tested for typical body-worn operations kept 5mm from the body. To maintain compliance with IC RF exposure requirements, use accessories that maintain a 5mm separation distance. The use of accessories that do not satisfy these requirements may not comply with IC RF exposure requirements, and should be avoided.

Body-worn Operation

This device was tested for typical body-worn operations. To comply with RF exposure requirements, a minimum separation distance of 5mm must be maintained, including the antenna. Accessories used by this device should not contain any metallic components.
Body-worn accessories that do not meet these requirements may not comply with RF exposure requirements and should be avoided. Use only the supplied or an approved antenna.

RF exposition Information et Déclaration

La limite SAR des Etats-Unis est de 1,6 W / kg en moyenne par gramme de tissu. Types d'appareil: Clé USB DECT (IC: 4979B-U3741) a également été testé contre ces valeurs. La valeur SAR la plus élevée déclarée en vertu de cette norme lors de la certification de produit pour lorsqu'il est correctement porté sur le corps est 0.094W / kg. Ce dispositif a été testé pour les opérations typiques portés sur le corps avec 5mm du corps. Afin de maintenir la conformité aux exigences de la IC, utilisez des accessoires qui maintiennent une distance de séparation 5mm. L'utilisation de pinces de ceinture, étuis et accessoires similaires ne doivent pas contenir de composants métalliques dans son ensemble. L'utilisation d'accessoires qui ne satisfont pas à ces exigences ne peuvent pas se conformer aux exigences de la IC, et devrait être évitée.

Porté au corps Opération

Ce dispositif a été testé pour les opérations typiques portés sur le corps. Pour se conformer aux exigences d'exposition aux radiofréquences, une distance de séparation minimale de 5mm doit être maintenue. Les accessoires utilisés par cet appareil ne doivent contenir aucun composant m étallique. Les accessoires portés sur le corps qui ne répondent pas à ces exigences peuvent ne pas être conformes aux exigences d'exposition aux RF et doivent être évités. Utilisez uniquement l'antenne fournie ou approuvée.

The device has been evaluated to meet general RF exposure requirement. The device can be used in portable exposure condition without restriction.