USER GUIDE

Mobile WiMAX USB Adapter

US300

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IEEE 802.16e-2005 Mobile WiMAX USB Adapter,

US300
E022011-AP-R01
149100000134W

COMPLIANCES

FEDERAL COMMUNICATION COMMISSION INTERFERENCE 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 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 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

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.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

IMPORTANT NOTE:
FCC RADIATION EXPOSURE STATEMENT

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. End users must follow the specific operating instructions for satisfying RF exposure compliance. To maintain compliance with FCC RF exposure compliance requirements, please follow operation instruction as documented in this manual.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter. The availability of some specific channels and/or operational frequency bands are country dependent and are firmware programmed at the factory to match the intended destination. The firmware setting is not accessible by the end user.

Due to the essential high output power nature of WiMAX devices, use of this device with other transmitters at the same time may exceed the FCC RF exposure limit and such usage must be prohibited (unless such co-transmission has been approved by FCC in the future).

SAR (SPECIFIC ABSORPTION RATE) COMPLIANCES STATEMENT

SAR compliance has been established in typical laptop computer (s) with a USB slot, and the product can be used in typical laptop computers with USB slots. Other applications, such as handheld PCs or similar devices have not been verified and may not be in compliance with related RF exposure rules and such use shall be prohibited.

EC CONFORMANCE DECLARATION CE

Marking by the above symbol indicates compliance with the Essential Requirements of the R&TTE Directive of the European Union (1999/5/EC).

This device is intended for use in the following European Community countries.

「減少電磁波影響，請妥適使用」

About This Guide

Purpose This guide details the hardware features of the US300 WiMAX USB Adapter, including its physical and performance-related characteristics, and how to install the device and use its configuration software.

Audience This guide is for PC users with a working knowledge of computers. You should be familiar with Windows operating system concepts.

Conventions The following conventions are used throughout this guide to show information:

Note: Emphasizes important information or calls your attention to related features or instructions.

Caution: Alerts you to a potential hazard that could cause loss of data, or damage the system or equipment.

Warning: Alerts you to a potential hazard that could cause personal injury.

Related Publications The following publication gives basic information on how to install and use the WiMAX USB Adapter.

Quick Installation Guide

Also, as part of the card's configuration software, there is online help that describes all management features.

Revision History This section summarizes the changes in each revision of this guide.

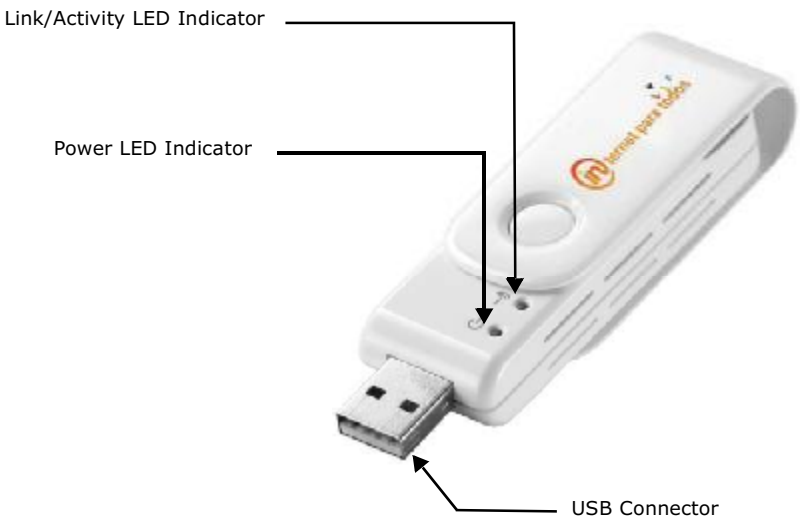
February 2011 Revision
This is the first revision of this guide. This guide is valid for software version 3.1.1.7.

CONTENTS

1 INTRODUCTION

The USB adapter plugs directly into a PC's compatible USB port and includes its own driver and configuration software for Windows XP, Windows Vista, and Windows 7.

Figure 1: WiMAX USB Adapter



FEATURES

- Mobile WiMAX IEEE 802.16e-2005 Wave 2 compliant
- USB 2.0 compliant
- Easy CD-less installation with a user-friendly interface
- Wide band supports: 2.5GHz to 2.7GHz
- Driver support for Windows XP with Service Pack 2 (SP2), Windows Vista and Windows 7

SYSTEM REQUIREMENTS

Before you install the WiMAX USB Adapter, check your system meets the following requirements:

- A notebook or desktop computer with a USB port
- Microsoft Windows XP, Windows Vista, or Windows 7
- A 1 GHz Pentium CPU or higher with a minimum of 256 MB of RAM

PACKAGE CHECKLIST

The WiMAX USB Adapter package includes these items:

- WiMAX USB Adapter (US300)
- Quick Installation Guide

Inform your dealer if there are any incorrect, missing or damaged items. If possible, retain the carton, including the original packing materials. Use them to repack the product in case there is a need to return it.

HARDWARE DESCRIPTION

The US300 WiMAX USB Adapter enables notebook PC users to connect to a WiMAX Internet access service provider.

USB CONNECTOR

The USB adapter can be installed in any notebook PC with a USB port. The notebook PC must be running Windows 7, Windows XP with Service Pack 2, or Windows Vista.

LED INDICATORS

The WiMAX USB Adapter includes two status LED indicators, as described in the following figure and table.

Figure 2: LED Indicators

Table 1: LED Indicators

LED	Status	Description
Power	On Blue	The USB adapter is correctly installed in a USB port and is receiving power.
Link/Activity	On Orange	Indicates one of the following. ◆ Driver initialization in progress. ◆ A firmware download is complete. ◆ There is no WiMAX connection.
	Flashing Orange	Firmware is being downloaded.
	Flashing Green	There is a valid WiMAX connection and data is being transmitted or received.

2 INSTALLATION

To install the WiMAX USB Adapter driver and software utility for Windows 7, Windows XP, or Windows Vista, follow these steps:

NOTE: Only the installation interface for Windows XP is shown in this guide. However, the utility installation screens are similar for all Microsoft Windows systems.

1. Turn on your notebook and wait until the Windows system has completely started.
2. Insert the adapter into an available USB port. When the USB adapter is inserted correctly, its blue LED turns on (see page 9).

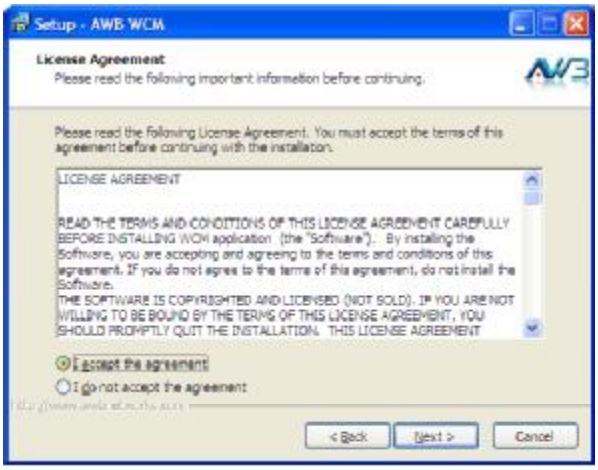
NOTE: If you encounter problems installing the USB adapter, see "Troubleshooting" on page 21.

3. The setup wizard should start automatically. If the wizard does not start automatically, use Windows Explorer to find the USB adapter, which appears as an external USB drive. Open the folder and find the file "Setup.exe" to start the install program.
4. Click Next to continue the installation.

Figure 3: Setup Wizard Start

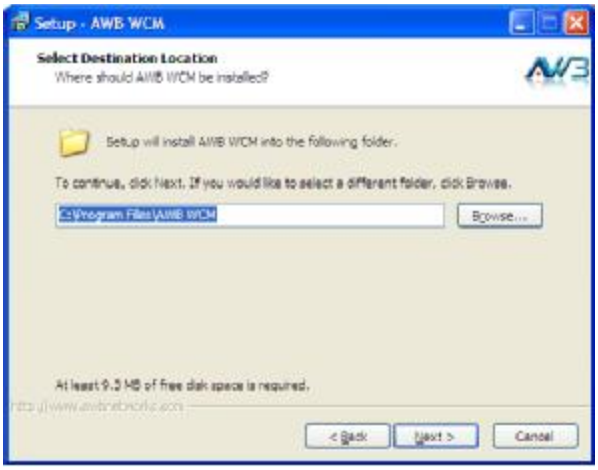
5. Select to accept the license agreement terms, then click Next.

Figure 4: Accept License Agreement Terms



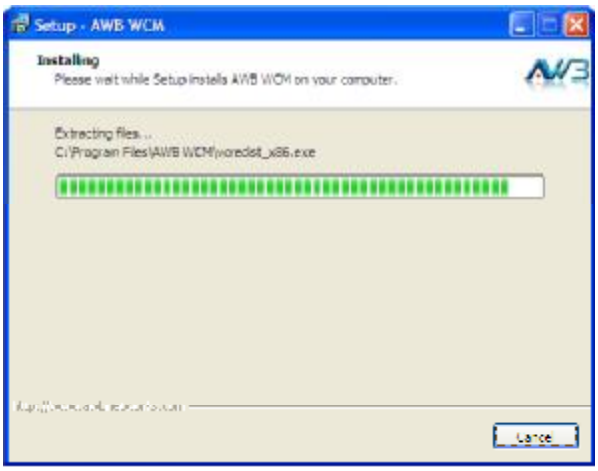
6. Confirm or change the location of the installation files on the PC before clicking Next.

Figure 5: Start the Installation



7. Wait for the software installation procedure to complete.

Figure 6: Installation in Progress



NOTE: If you are prompted to install the Microsoft Visual C++ 2005 Redistributable Package on your system click "Yes" and follow the instructions.

8. When the setup wizard complete message displays, click Finish.

Figure 7: Setup Wizard Complete

CAUTION: Safely remove the USB adapter by double-clicking the Safely Remove Hardware icon in the notification area, click the device and then click stop.

3 CONFIGURATION

The Wireless Connection Manager (WCM) provides all the tools to manage and monitor your WiMAX connection. After initial installation, the software starts automatically every time you insert the WiMAX USB Adapter.

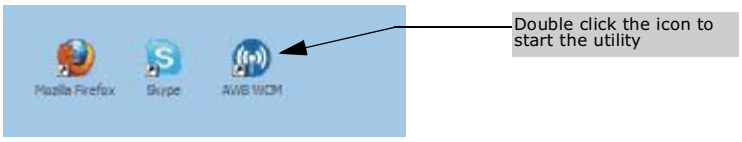
ACCESSING THE WCM UTILITY

Once the utility installation is complete, there are several methods of starting the WCM software other than by inserting the WiMAX USB Adapter.

NOTE: Only the installation interface for Windows XP is shown in this guide. However, the utility installation screens are similar for all Microsoft Windows systems.

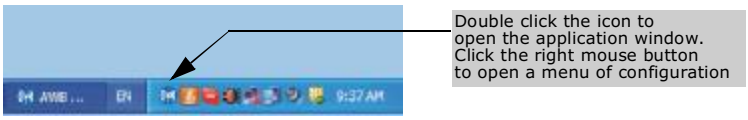
From the WCM shortcut icon on the Windows 7, Windows XP, or Windows Vista desktop:

Figure 8: WCM Desktop Icon



From the WCM icon on the Windows System Tray:

Figure 9: WCM System Tray Icon



The System Tray icon also indicates the WiMAX connection status.

No connection to a WiMAX network.

Connected to network with an assigned IP address. Yellow color bars indicate the receive signal level.

CONNECTION MANAGEMENT

The WCM login screen displays information about the wireless link to the service provider network.

Figure 10: Login Screen - Auto connecting

Auto connecting — Enter the "*Account*" and "*Password*" provided for your log in to the WiMAX service, then click the Connect button. Next time the WCM utility launches, it automatically logs in using the account details previously entered.

Remember my login data — If selected, the WCM utility saves the account name only when the Connect button is clicked. Next time the WCM utility is launched, the Account field retains the previous log-in information.

Remember my password — If selected, the WCM utility saves the account name and password when the Connect button is clicked. You will not need to sign in the next time the WCM utility is launched.

Figure 11: Login Screen - Remember my login data

Figure 12: Login Screen - Remember my password

Once connected to a WiMAX network, the WCM screen displays information about the wireless link to the service provider network.

Figure 13: Connected

The displayed items on this screen can be described as follows:

Provider — The service provider name to which the adapter is connected.

IP Address — The IP address assigned to the adapter.

Subnet Mask — Indicates the local subnet mask, such as 255.255.255.0.

Default Gateway — The gateway address provided by the WiMAX service provider.

DNS Server — Address of the DNS server, specified in the form of 0.0.0.0.

ADAPTER SETTINGS

The Setting screen enables specific adapter and WCM utility features to be configured.

Figure 14: Setting Screen - General Tab

The displayed items on this screen can be described as follows:

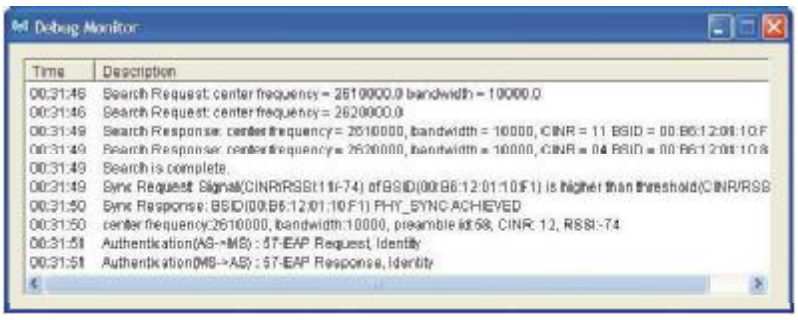
Auto-run WiMAX Connection Manager — Automatically starts the WCM utility when the adapter is inserted into a PC slot.

Run WiMAX Connection Manager as minimum size — When set to automatically start WCM, the utility starts in its Windows minimized form.

Automatically update — Automatically check for available WCM software updates.

Enable Debug Monitor — Enables logging of messages to the WCM debug monitor. The debug monitor window is displayed when the WCM utility restarts.

Figure 15: Debug Monitor Window



WiMAX Connection Statistics

The Statistics screen allows you to view information on the WiMAX connection.

Figure 16: Statistics Information

The displayed items on this screen can be described as follows:

BSID — The current base station ID to which the mobile station is currently connected.

Online Duration — The time the unit has had a link with the base station for the current session.

DL Data Volume — The downloaded data volume in Mbytes for the current online session.

UL Data Volume — The uploaded data volume in Mbytes for the current online session.

DL Data Rate — The current download data rate in Kbps.

UL Data Rate — The current upload data rate in Kbps.

CINR — The current carrier-to-interference-plus-noise ratio of the received WiMAX radio signal.

RSSI — The current receive signal strength indicator value of the received WiMAX radio signal.

Transmit Power — The current transmit power of the WiMAX radio signal.

ABOUT WIMAX CONNECTION MANAGER

The About page displays information about the software version the WCM utility.

Figure 17: About WCM Information

SOUNDS FOR EVENTS

The WCM utility allows alert sounds to be configured for certain system events. You can configure a sound for WiMAX connection established and connection lost.

Right-click on the system tray icon to open the configuration menu. From the configuration menu, select "Tools," then "Sounds for Events."

Figure 18: Tools Menu

In the configuration window, use the Browse button to locate a ".wav" sound file. The file may be a Windows system sound file or any other you may want to select.

Figure 19: Sounds for Events

A TROUBLESHOOTING

DIAGNOSING LED INDICATORS

Table 2: LED Indicators

LED Status	Probable Cause	Action
Blue LED is Off	The USB adapter is not receiving power	◆ Remove the USB adapter and reinsert it in the slot. Be sure the adapter is securely seated in the port. ◆ Try the USB adapter in another USB port. If this also fails, test your PC with another USB adapter that is known to operate correctly. ◆ Check the USB adapter and port connectors for any physical damage. ◆ Try the USB adapter in another PC's port that is known to operate correctly. ◆ If you cannot resolve the problem, contact your local dealer for assistance.
Green LED is Off/ Orange LED is On	The USB adapter cannot detect a WiMAX base station	◆ Verify the area covered by your WiMAX service provider. ◆ Move to another location within the WiMAX service area.

NETWORK CONNECTION PROBLEMS

If you cannot access the Internet from the PC, check the following:

- Make sure the WCM software and driver is correctly installed on your system. If necessary, try uninstalling and reinstalling the software.
- If you cannot access the Internet, be sure your Windows system is correctly configured for TCP/IP. The IP settings should be set to "obtain an IP address automatically."
- You may have moved out of the service area of the WiMAX network. The WCM main screen should indicate that there is no connection. Call the service provider for service coverage information.
- The service provider's profile may not be configured correctly. Check that the Authentication Mode settings are correct.

- If you cannot resolve the problem, check the error logs from the WCM Status screen and contact your service provider.

UNINSTALLING THE WCM SOFTWARE

If you are having problems with the WiMAX USB Adapter or the WCM software, you may need to uninstall the USB adapter driver and software from the Windows system.

Follow these steps:

1. From the Windows Start menu, go to the WCM software entry.
2. Click the Uninstall WCM option on the menu.

Figure 20: Uninstall WCM

3. Click the OK button to confirm the uninstall process.

Figure 21: Confirm Uninstall

4. When the uninstall is complete, click Finish to exit.

Figure 22: Uninstall Complete

GLOSSARY

AUTHENTICATION The process to verify the identity of a subscriber requesting network access.

BANDWIDTH The difference between the highest and lowest frequencies available for network signals. Also synonymous with network speed, the actual speed of data transmission through a medium.

BASE STATION A WIMAX service provider's equipment that is installed at a fixed location to provide network connectivity for subscriber stations within a defined service area.

CINR Carrier-to-Interference-Plus-Noise-Ration: A measurement of the channel quality in a WiMAX link. Subscriber stations measure the received CINR and send the information back to the base station. The base station can then adjust modulation and coding for the link to optimize throughput.

CENTER FREQUENCY The radio frequency at the center of a WiMAX channel. WiMAX channels can be of different widths (the channel bandwidth) and the transmitted radio signal is spread across the full width of the channel.

CHANNEL BANDWIDTH The range of frequencies occupied by a WiMAX radio signal. The amount of information that can be transmitted in a radio signal is related to the channel bandwidth, which is measured in Megahertz (MHz). WiMAX supports a range of channel bandwidths that can be defined by the service operator depending on performance requirements, operating preferences, and regulatory constraints.

CPE Customer-Premises Equipment: Terminal equipment provided by a service provider that is located at a subscriber's premises and supports a communication channel between a customer and the service provider.

CPU Central Processing Unit: The CPU, or processor, is the part of a computer where most calculations take place. In most of today's PCs, the CPU is contained on a single chip. The type and speed (in GHz) of a CPU largely defines the processing power of a computer.

DNS Domain Name System: A system used for translating host names for network nodes into IP addresses.

DHCP Dynamic Host Configuration Protocol: Provides a framework for passing configuration information to hosts on a TCP/IP network. DHCP is based on the Bootstrap Protocol (BOOTP), adding the capability of automatic allocation of reusable network addresses and additional configuration options.

ENCRYPTION Data passing between a base station and subscribers uses encryption to protect from interception and evesdropping.

EAP Extensible Authentication Protocol: An authentication protocol used to authenticate subscribers. EAP is used with TLS or TTLS authentication to provide "mutual authentication" between a subscriber and a WiMAX network.

IEEE 802.16E The WiMAX standard that provides mobile broadband wireless access using Scalable Orthogonal Frequency Division Multiple Access (SOFDMA).

INTERNET SERVICE PROVIDER A company that offers an access service that connects customers to the Internet.

IP ADDRESS The Internet Protocol (IP) address is a numerical identification assigned to a device that communicates in a network using the Internet Protocol.

LED Light Emitting Diode: Used for indicating a device or network condition.

LAN Local Area Network: A group of interconnected computers and support devices.

MAC ADDRESS The physical layer address used to uniquely identify network nodes.

MS-CHAPV2 Microsoft's version 2 of the Challenge-Handshake Authentication Protocol. Introduced by Microsoft with Windows 2000, MS-CHAPV2 (defined in RFC 2759) provides mutual authentication between peers using user names and passwords.

NETWORK ADAPTER A hardware device that enables a computer to communicate over a network. The adapter provides physical access to a particular networking medium.

RAM Random Access Memory: The memory in a computer where the operating system, application programs, and other data currently in use are stored. RAM is volatile memory where data is lost when the computer is turned off. Having more RAM in a computer reduces the time the processor takes to read data, which increases overall computer performance.

RSSI Receive Signal Strength Indicator: A measurement of the strength of a received wireless signal. The higher the RSSI value, the stronger the received signal from the antenna.

ROAMING The process where a WiMAX subscriber can move onto another operator's network while maintaining a continuous connection.

RSSI See *Receive Signal Strength Indicator*.

SOFDMA Scalable Orthogonal Frequency Division Multiple Access: The air interface defined for mobile WiMAX. SOFDMA is a multiple access method that allows simultaneous transmissions to and from several users, employing a subchannel structure that scales with bandwidth.

SERVICE PROVIDER See *Internet Service Provider*.

SIM Subscriber Identity Module: A standard for a small removable integrated circuit card that securely stores information used to identify a mobile wireless subscriber.

SUBSCRIBER STATION A general term for a customer's terminal equipment that provides connectivity with a WIMAX network.

TCP/IP Transmission Control Protocol/Internet Protocol: Protocol suite that includes TCP as the primary transport protocol, and IP as the network layer protocol.

TLS Transport Layer Security: An standard defined in RFC 5216, EAP-TLS is an authentication protocol that provides strong security through the use of client-side certificates.

TTLS Tunneled Transport Layer Security: EAP-TTLS is a protocol extension of EAP-TLS. The authentication server is authenticated to the client using its Certification Authority certificate, this establishes a secure "tunnel" through which the client is then authenticated.

USIM Universal Subscriber Identity Module: See *Subscriber Identity Module*.

URL Uniform Resource Locator: An easy-to-read character string that is used to represent a resource available on the Internet. For example, "http://www.url-example.com/."

WiMAX The IEEE 802.16 standard for Worldwide Interoperability for Microwave Access. The IEEE 802.16-2004 standard, known as "fixed WiMAX," supports only point-to-point links and has no support for mobility. The IEEE 802.16e-2005 standard, known as "mobile WiMAX," is an amendment to IEEE 802.16-2004 and supports mobility. Note that mobile WiMAX standard is not backward compatible with the fixed WiMAX standard.

INDEX

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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 302 544 V1.1.2: 2010/ EN 62311: 2008

EN 301 489-1 V1.8.1 (2008-04) / EN 301 489-17 V2.1.1 (2009-05)

EN 60950-1 :2006 + A11:2009

This device is a 2.5G Wimax wideband transmission system (transceiver), intended for use in all EU member states and EFTA countries, except in France and Italy where restrictive use applies.

In Italy the end-user should apply for a license at the national spectrum authorities in order to obtain authorization to use the device for setting up outdoor radio links and/or for supplying public access to telecommunications and/or network services.

CE 0560 !

cs Česky [Czech]	*[Jméno výrobce]* tímto prohlašuje, že tento *[typ zařízení]* je ve shodě se základními požadavky a dalšími příslušnými ustanoveními směrnice 1999/5/ES.
da Dansk [Danish]	Undertegnede *[fabrikantens navn]* erklærer herved, at følgende udstyr *[udstyrets typebetegnelse]* overholder de væsentlige krav og øvrige relevante krav i direktiv 1999/5/EF.
de Deutsch [German]	Hiermit erklärt *[Name des Herstellers]*, dass sich das Gerät *[Gerätetyp]* in Übereinstimmung mit den grundlegenden Anforderungen und den übrigen einschlägigen Bestimmungen der Richtlinie 1999/5/EG befindet.
et Eesti [Estonian]	Käesolevaga kinnitab *[tootja nimi = name of manufacturer]* seadme *[seadme tüüp = type of equipment]* vastavust direktiivi 1999/5/EÜ põhinõuetele ja nimetatud direktiivist tulenevatele teistele asjakohastele sätetele.
en English	Hereby, *[name of manufacturer]*, declares that this *[type of equipment]* is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.
es Español [Spanish]	Por medio de la presente *[nombre del fabricante]* declara que el *[clase de equipo]* cumple con los requisitos esenciales y cualesquiera otras disposiciones aplicables o exigibles de la Directiva 1999/5/CE.
el Ελληνική [Greek]	ΜΕ ΤΗΝ ΠΑΡΟΥΣΑ *[name of manufacturer]* ΔΗΛΩΝΕΙ ΟΤΙ *[type of equipment]* ΣΥΜΜΟΡΦΩΝΕΤΑΙ ΠΡΟΣ ΤΙΣ ΟΥΣΙΩΔΕΙΣ ΑΠΑΙΤΗΣΕΙΣ ΚΑΙ ΤΙΣ ΛΟΙΠΕΣ ΣΧΕΤΙΚΕΣ ΔΙΑΤΑΞΕΙΣ ΤΗΣ ΟΔΗΓΙΑΣ 1999/5/ΕΚ.
fr Français [French]	Par la présente *[nom du fabricant]* déclare que l'appareil *[type d'appareil]* est conforme aux exigences essentielles et aux autres dispositions pertinentes de la directive 1999/5/CE.
it Italiano [Italian]	Con la presente *[nome del costruttore]* dichiara che questo *[tipo di apparecchio]* è conforme ai requisiti essenziali ed alle altre disposizioni pertinenti stabilite dalla direttiva 1999/5/CE.
Latviski [Latvian]	Ar šo *[name of manufacturer / izgatavotāja nosaukums]* deklarē, ka *[type of equipment / iekārtas tips]* atbilst Direktīvas 1999/5/EK būtiskajām prasībām un citiem ar to saistītajiem noteikumiem.
Lietuvių [Lithuanian]	Šiuo *[manufacturer name]* deklaruoja, kad šis *[equipment type]* atitinka esminius reikalavimus ir kitas 1999/5/EB Direktyvos nuostatas.
nl 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.
mt Malti [Maltese]	Hawnhekk, *[isem tal-manifattur]*, jiddikjara li dan *[il-mudel tal-prodott]* jikkonforma mal-ħtiġijiet essenzjali u ma provvedimenti oħrajn relevanti li hemm fid-Dirrettiva 1999/5/EC.
hu Magyar [Hungarian]	Alulírott, *[gyártó neve]* nyilatkozom, hogy a *[... típus]* megfelel a vonatkozó alapvetõ követelményeknek és az 1999/5/EC irányelv egyéb elõírásainak.
pl Polski [Polish]	Niniejszym *[nazwa producenta]* oświadcza, że *[nazwa wyrobu]* jest zgodny z zasadniczymi wymogami oraz pozostałymi stosownymi postanowieniami Dyrektywy 1999/5/EC.
pt 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.
sl 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.
fi 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.
sv 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.