

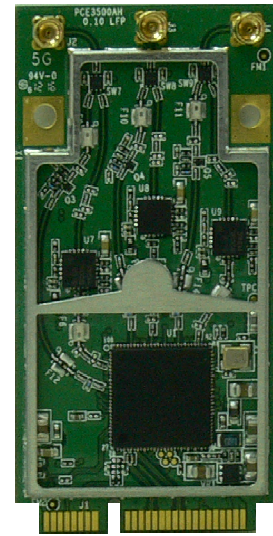
# **User Manual**

## **802.11 an PCIe Module**

### **WLAN194XF2**

## PRODUCT DESCRIPTION

The WLAN194XF2 is utilizing Qualcomm Atheros AR9590B (i-Temp) solution, and is targeting enterprise-class platforms. It is acting at 5GHz frequency band.



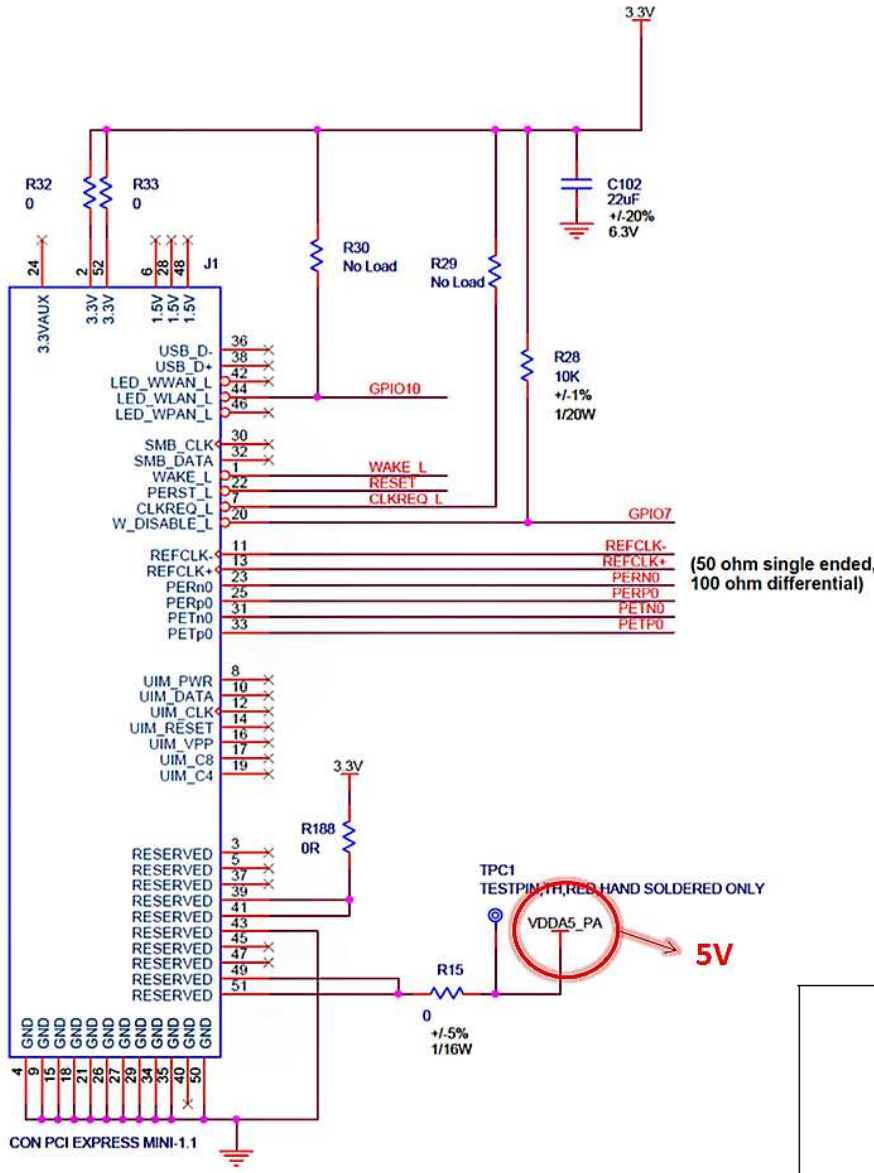
## PRODUCT SPECIFICATION

General information	
Chipset	Atheros AR9590B
PA	SiGe SE5003L
Interface	PCIe
Operating voltage	Support both 3.3V and 5V power voltage input PCIe Slot : DC 3.3 V $\pm$ 5% with Advanced DC Power management support PA: Extended DC power supply 5V
Antenna connectors	3 MMCX connectors
Temperature range	-40°C to + 55 °C (Operating temperature)
	-45°C to + 85°C (Storage temperature)
Security	WPA, WPA2, 64/128 bit WEP, TKIP, and AES. hardware-based IEEE 802.11i encryption engine
Data rates	<p><b>802.11a:</b> 6, 9, 12, 18, 24, 36, 48, 54Mbps</p> <p><b>802.11n:</b> 20MHz channel:</p> <ul style="list-style-type: none"> <li>1Nss: 65Mbps @ 800ns GI; 72.2Mbps @ 400ns GI (Max);</li> <li>2Nss: 130Mbps @ 800ns GI; 144.44Mbps @ 400ns GI (Max);</li> <li>3Nss: 195Mbps @ 800ns GI; 216.7Mbps @ 400ns GI (Max);</li> </ul> <p><b>802.11n:</b> 40MHz channel:</p> <ul style="list-style-type: none"> <li>1Nss: 135Mbps @ 800ns GI; 150Mbps @ 400ns GI (Max.);</li> <li>2Nss: 270Mbps @ 800ns GI; 300Mbps @ 400ns GI (Max.);</li> <li>3Nss: 405Mbps @ 800ns GI; 450Mbps @ 400ns GI (Max.);</li> </ul>
Tx channel width support	20MHz / 40MHz
Standard/Compliance	WECA (Wi-Fi & Wi-Fi5 compliance), IEEE802.11,a/n, RoHS and WEEE
Regulation Certifications	FCC Part 15
PCB dimension	L x W 58 x 31 mm

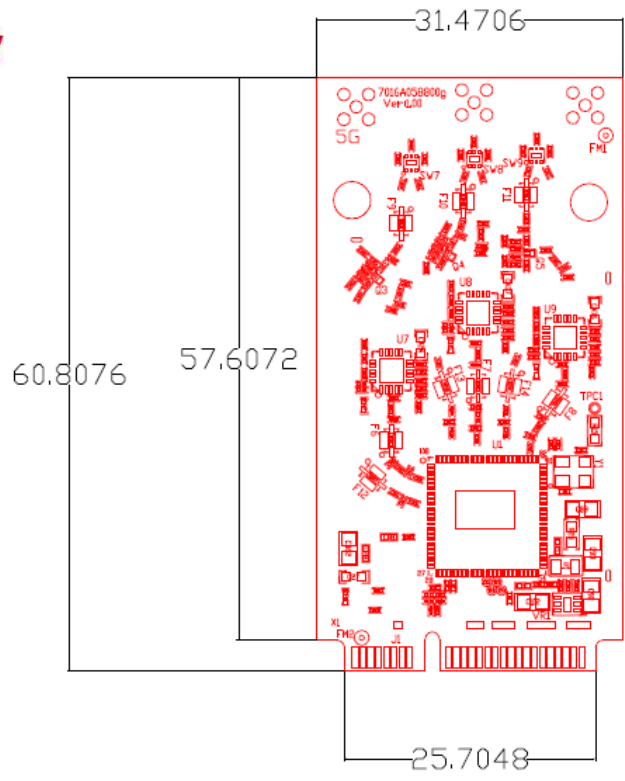
Preliminary Radio Specification				
Channel	Data rate	Typical AVG. Power @ per chain (dBm)	Tolerance	Typical Rx Sensitivity @combined (dBm)
<b>802.11a</b>	6 ~ 24 Mbps	24	+/- 1.5dBm	≤ -92 dBm
	36 Mbps	22.5	+/- 1.5dBm	
	48 Mbps	21.5	+/- 1.5dBm	
	54 Mbps	19.5	+/- 1.5dBm	≤ -76 dBm
<b>802.11n_HT20</b>	MCS 0/8/16	22.5	+/- 1.5dBm	≤ -92 dBm
	MCS 1/9/17	22.5	+/- 1.5dBm	
	MCS 2/10/18	21.5	+/- 1.5dBm	
	MCS 3/11/19	21.5	+/- 1.5dBm	
	MCS 4/12/20	21.5	+/- 1.5dBm	
	MCS 5/13/21	20.5	+/- 1.5dBm	
	MCS 6/14/22	19.5	+/- 1.5dBm	
	MCS 7/15/23	18.5	+/- 1.5dBm	≤ -76 dBm
<b>802.11n_HT40</b>	MCS 0/8/16	22.5	+/- 1.5dBm	≤ -86 dBm
	MCS 1/9/17	22.5	+/- 1.5dBm	
	MCS 2/10/18	21.5	+/- 1.5dBm	
	MCS 3/11/19	21.5	+/- 1.5dBm	
	MCS 4/12/20	21.5	+/- 1.5dBm	
	MCS 5/13/21	20.5	+/- 1.5dBm	
	MCS 6/14/22	19.5	+/- 1.5dBm	
	MCS 7/15/23	18.5	+/- 1.5dBm	≤ -72 dBm

Current consumption information		
<b>Tx current consumption (without Jump wire)</b>	Continuous TX (99% duty)	7 W
<b>Sleep Current</b>	Sleep mode	≤ 100 mA
<b>OS support</b>	Windows 2000/XP/Vista, Linux	

# PCIe CONNECTOR PIN DEFINITION



(50 ohm single ended, 100 ohm differential)



### **Federal Communication Commission Interference Statement**

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.

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.

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.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Operations in the 5.15-5.25GHz band are restricted to indoor usage only.

### **Radiation Exposure Statement:**

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

**This device is intended only for OEM integrators under the following conditions:**

- 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

**IMPORTANT NOTE:** In the event that these conditions cannot be met (for example certain laptop configurations or co-location with another transmitter), then the FCC authorization is no longer considered valid and the FCC 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 FCC authorization.

### **End Product Labeling**

This transmitter module is authorized only for use in device where the antenna may be installed such that 20 cm may be maintained between the antenna and users. The final end product must be labeled in a visible area with the following: “Contains FCC ID: **HDCWLAN194XF2**”. The grantee's FCC ID can be used only when all FCC compliance requirements are met.

### **Manual Information To the End User**

The OEM integrator has to be aware not to provide information to the end user regarding how to install or remove this RF module in the user’s manual of the end product which integrates this module.

The end user manual shall include all required regulatory information/warning as show in this manual.

**Industry Canada statement:**

This device complies with RSS-247 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-247 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.

**Radiation Exposure Statement:**

This equipment complies with IC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

**Déclaration d'exposition aux radiations:**

Cet équipement est conforme aux limites d'exposition aux rayonnements IC établies pour un environnement non contrôlé. Cet équipement doit être installé et utilisé avec un minimum de 20cm de distance entre la source de rayonnement et votre corps.

**This device is intended only for OEM integrators under the following conditions:****(For module device use)**

- 1) The antenna must be installed such that 20cm 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.

**Cet 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 20cm 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.

**End Product Labeling**

This transmitter module is authorized only for use in device where the antenna may be installed such that 20 cm may be maintained between the antenna and users. The final end product must be labeled in a visible area with the following: “Contains IC: **2250A-WLAN194XF2**”.

**Plaque signalétique du produit final**

Ce module émetteur est autorisé uniquement pour une utilisation dans un dispositif où l'antenne peut être installée de telle sorte qu'une distance de 20cm peut être maintenue entre l'antenne et les utilisateurs. Le produit final doit être étiqueté dans un endroit visible avec l'inscription suivante: "Contient des IC: **2250A-WLAN194XF2**".

**Manual Information To the End User**

The OEM integrator has to be aware not to provide information to the end user regarding how to install or remove this RF module in the user's manual of the end product which integrates this module.

The end user manual shall include all required regulatory information/warning as show in this manual.

**Manuel d'information à l'utilisateur final**

L'intégrateur OEM doit être conscient de ne pas fournir des informations à l'utilisateur final quant à



la façon d'installer ou de supprimer ce module RF dans le manuel de l'utilisateur du produit final qui intègre ce module.

Le manuel de l'utilisateur final doit inclure toutes les informations réglementaires requises et avertissements comme indiqué dans ce manuel.

**Caution :**

(i) the device for operation in the band 5150-5250 MHz is only for indoor use to reduce the potential for harmful interference to co-channel mobile satellite systems;

(ii) high-power radars are allocated as primary users (i.e. priority users) of the bands 5250-5350 MHz and 5650-5850 MHz and that these radars could cause interference and/or damage to LE-LAN devices.

**Avertissement:**

(i) les dispositifs fonctionnant dans la bande 5150-5 250 MHz sont réservés uniquement pour une utilisation à l'intérieur afin de réduire les risques de brouillage préjudiciable aux systèmes de satellites mobiles utilisant les mêmes canaux;

(ii) De plus, les utilisateurs devraient aussi être avisés que les utilisateurs de radars de haute puissance sont désignés utilisateurs principaux (c.-à-d., qu'ils ont la priorité) pour les bandes 5250-5 350 MHz et 5650-5 850 MHz et que ces radars pourraient causer du brouillage et/ou des dommages aux dispositifs LAN-EL.

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	Master Wave Technology CO., LTD	98618UNXX000	Dipole Antenna	MMCX	7
2	Master Wave Technology CO., LTD	98618UNXX000	Dipole Antenna	MMCX	7
3	Master Wave Technology CO., LTD	98618UNXX000	Dipole Antenna	MMCX	7

Note: The EUT has three antennas. (3TX/3RX)

## 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:

- EN60950-1
- Safety of Information Technology Equipment
  
- EN50385
- Generic standard to demonstrate the compliance of electronic and electrical apparatus with the basic restrictions related to human exposure to electromagnetic fields (0 Hz - 300 GHz)
  
- EN 300 328
- Electromagnetic compatibility and Radio spectrum Matters (ERM); Wideband Transmission systems; Data transmission equipment operating in the 2,4 GHz ISM band and using spread spectrum modulation techniques; Harmonized EN covering essential requirements under article 3.2 of the R&TTE Directive

EN 301 893

Broadband Radio Access Networks (BRAN); 5 GHz high performance RLAN; Harmonized EN covering essential requirements of article 3.2 of the R&TTE Directive

EN 301 489-1

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












- EN 301 489-17
- Electromagnetic compatibility and Radio spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 17: Specific conditions for 2,4 GHz wideband transmission systems and 5 GHz high performance RLAN equipment





This device is a 5GHz 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!

 Český [Czech]	<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.
 Dansk [Danish]	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.
 Deutsch [German]	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.
 Eesti [Estonian]	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.
 English	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.
 Español [Spanish]	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.
 Ελληνική [Greek]	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/ΕΚ.
 Français [French]	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.
 Italiano [Italian]	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.
Latviski [Latvian]	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 citiem ar to saistītajiem noteikumiem.
Lietuvių [Lithuanian]	Šiuo <i>[manufacturer name]</i> deklaruoją, kad šis <i>[equipment type]</i> atitinka esminius reikalavimus ir kitas 1999/5/EB Direktyvos nuostatas.
 Nederlands [Dutch]	Hierbij verklaart <i>[naam van de fabrikant]</i> dat het toestel <i>[type van toestel]</i> in overeenstemming is met de essentiële eisen en de andere relevante bepalingen van richtlijn 1999/5/EG.
 Malti [Maltese]	Hawnhekk, <i>[isem tal-manifattur]</i> , jiddikjara li dan <i>[il-mudal tal-prodott]</i> jikkonforma mal-htigijiet essenzjali u ma provvedimenti oħrajn relevanti li hemm fid-Dirrettiva 1999/5/EC.
 Magyar [Hungarian]	Alulírott, <i>[gyártó neve]</i> nyilatkozom, hogy a <i>[... típus]</i> megfelel a vonatkozó alapvető követelményeknek és az 1999/5/EC irányelv egyéb előírásainak.
 Polski [Polish]	Niniejszym <i>[nazwa producenta]</i> oświadczam, że <i>[nazwa wyrobu]</i> jest zgodny z zasadniczymi wymogami oraz pozostałymi

	stosownymi postanowieniami Dyrektywy 1999/5/EC.
 Português [Portuguese]	[ <i>Nome do fabricante</i> ] declara que este [ <i>tipo de equipamento</i> ] está conforme com os requisitos essenciais e outras disposições da Directiva 1999/5/CE.
 Slovensko [Slovenian]	[ <i>Ime proizvajalca</i> ] izjavlja, da je ta [ <i>tip opreme</i> ] v skladu z bistvenimi zahtevami in ostalimi relevantnimi določili direktive 1999/5/ES.
Slovensky [Slovak]	[ <i>Meno výrobcu</i> ] týmto vyhlasuje, že [ <i>typ zariadenia</i> ] spĺňa základné požiadavky a všetky príslušné ustanovenia Smernice 1999/5/ES.
 Suomi [Finnish]	[ <i>Valmistaja = manufacturer</i> ] vakuuttaa täten että [ <i>type of equipment = laitteen tyyppimerkintä</i> ] tyypinen laite on direktiivin 1999/5/EY oleellisten vaatimusten ja sitä koskevien direktiivin muiden ehtojen mukainen.
 Svenska [Swedish]	Härmed intygar [ <i>företag</i> ] att denna [ <i>utrustningstyp</i> ] står i överensstämmelse med de väsentliga egenskapskrav och övriga relevanta bestämmelser som framgår av direktiv 1999/5/EG.