SIEMENS

SIMATIC NET

Betriebsanleitung (kompakt)
Operating Instructions (Compact)

A5E00434665

Ausgabe/Release 05/2009

IWLAN/PB LINK PN IO

Deutsch/English

A5E00434665-07

Siemens AG
Automation and Drives
Industrial Communication
Postfach 4848, D-90327 Nürnberg

Haftungsausschluss

Wir haben den Inhalt der Druckschrift auf Übereinstimmung mit der beschriebenen Hard- und Software geprüft. Dennoch können Abweichungen nicht ausgeschlossen werden, so dass wir für die vollständige Übereinstimmung keine Gewähr übernehmen. Die Angaben in dieser Druckschrift werden regelmäßig überprüft und notwendige Korrekturen sind in den nachfolgenden Auflagen enthalten. Für Verbesserungsvorschläge sind wir dankbar.

Technische Änderungen bleiben vorbehalten.

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Disclaimer of Liability

We have checked the contents of this manual for agreement with the hardware and software described. Since deviations cannot be precluded entirely, we cannot guarantee full agreement. However, the data in this manual are reviewed regularly and any necessary corrections included in subsequent editions. Suggestions for improvement are welcome.

Technical data subject to change without prior notice.

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Inhaltsverzeichnis / Table of Contents

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http://support.automation.siemens.com/WW/view/**at**/21379908
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http://support.automation.siemens.com/WW/view/**fr/**21379908
http://support.automation.siemens.com/WW/view/**lu/**21379908

Osservare le avvertenze di sicurezza e le informazioni aggiuntive nel manuale d'istruzioni (compatto) nella propria lingua in Internet:
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Por favor, observe las indicaciones de advertencia y las informaciones adicionales en las instrucciones de servicio (compactas) en su idioma disponibles en Internet:
http://support.automation.siemens.com/WW/view/**cl/**21379908
http://support.automation.siemens.com/WW/view/**es/**21379908

Berte prosím v úvahu výstražné pokyny a dodatečné informace v provozním návodu (kompakt) na internetu ve vaší řeči:
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Huomioi internetissä oman kielisessäsi käyttöohjeessa (kompakti) olevat varoitusohjeet ja lisäinformaatiot:
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Προσέξτε παρακαλώ τις προειδοποιητικές υποδείξεις και τις πρόσθετες πληροφορίες στις οδηγίες λειτουργίας (συνεπτηγμένες) στη γλώσσα σας στο διαδίκτυο.
http://support.automation.siemens.com/WW/view/**gr/**21379908

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http://support.automation.siemens.com/WW/view/**hk**/21379908
http://support.automation.siemens.com/WW/view/**sg**/21379908

Kérjük, vegye figyelembe az Interneten található magyar nyelvű használati utasításban (kompakt) olvasható figyelmeztető utasításokat és a kiegészítő információkat!
http://support.automation.siemens.com/WW/view/**hu/**21379908

Vinsamlegast athugið varúðarábendingar og viðbótarupplýsingar í notendahandbókinni (stytt útgáfa) á Netinu:
http://support.automation.siemens.com/WW/view/**is/**21379908

以下のインターネットアドレスでお客様の言語による取扱説明書（コンパクト版）をご覧 http://support.automation.siemens.com/WW/view/**jp**/21379908 いただけます。同取扱説明書内に記載された警告事項および補足情報にご注意ください。

인터넷 http://support.automation.siemens.com/WW/view/**kr**/21379908 에서 귀하의 사용 언어로 된 사용자 설명서(컴팩트)의 경고 및 추가 정보를 확인하십시오.

برجاء مراعاة إرشادات التحذير والمعلومات الإضافية الملحقة بدليل التشغيل (المدمج) وباللغة التي تتحدث بها وذلك عن طريق شبكة الإنترنت:
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http://support.automation.siemens.com/WW/view/**nl/**21379908

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Lütfen internette sizin dilinizde sunulan işletme kılavuzundaki (yoğunlaştırılmış) uyarı bilgilerine ve ek bilgilere dikkat ediniz:
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Inhalt

1 Sicherheitshinweise

1.1 Klassifizierung der Sicherheitshinweise

Warnung

bedeutet, dass Tod, schwere Körperverletzung eintreten kann, wenn die entsprechenden Vorsichtsmaßnahmen nicht getroffen werden.

Vorsicht

mit Warndreieck bedeutet, dass eine leichte Körperverletzung eintreten kann, wenn die entsprechenden Vorsichtsmaßnahmen nicht getroffen werden.

Vorsicht

ohne Warndreieck bedeutet, dass ein Sachschaden eintreten kann, wenn die entsprechenden Vorsichtsmaßnahmen nicht getroffen werden.

Achtung

bedeutet, dass ein unerwünschtes Ergebnis oder Zustand eintreten kann, wenn der entsprechende Hinweis nicht beachtet wird.

Hinweis

ist eine wichtige Information über das Produkt, die Handhabung des Produktes oder den jeweiligen Teil der Dokumentation, auf den besonders aufmerksam gemacht werden soll und deren Beachtung wegen eines möglichen Nutzens empfohlen wird.

1.2 Allgemeine Sicherheitshinweise für den IWLAN/PB Link PN IO

Warnung

Vor der Inbetriebnahme sind die Hinweise in der Betriebsanleitung (kompakt) IWLAN/PB LINK PN IO zu beachten.

Warnung

Antennen im Außenbereich müssen sich im Fangbereich eines Blitzableiters befinden. Stellen Sie sicher, dass für alle von außen eingeführten leitfähigen Systeme die Möglichkeit eines Blitzschutz-Potentialausgleichs gegeben ist.

Beachten Sie bei der Umsetzung Ihres Blitzschutzkonzepts unbedingt die Anforderungen der Normen VDE 0182 bzw. IEC 62305.

Warnung

Das Gerät ist für den Betrieb mit einer direkt anschließbaren Sicherheitskleinspannung (Safety Extra-Low Voltage, SELV) durch eine Spannungsversorgung mit begrenzter Leistung (Limited Power Source, LPS) ausgelegt.

Deshalb dürfen nur Sicherheitskleinspannungen (SELV) mit begrenzter Leistung (LPS) nach IEC 60950-1 / EN 60950-1 / VDE 0805-1 mit den Versorgungsanschlüssen verbunden werden oder das Netzteil für die Versorgung des Geräts muss NEC Class 2 gemäß National Electrical Code (r) (ANSI / NFPA 70) entsprechen.

Wenn das Gerät an eine redundante Spannungsversorgung angeschlossen wird (zwei getrennte Spannungsversorgungen), müssen beide die genannten Anforderungen erfüllen.

Treffen Sie Maßnahmen, um transiente Überspannungen von mehr als 40% der Nennspannung zu verhindern. Das ist gewährleistet, wenn Sie die Geräte ausschließlich mit SELV (Sicherheitskleinspannung) betreiben

Vorsicht

Zwischen folgenden Teilen darf kein Potentialunterschied bestehen, da sonst die Gefahr besteht, dass das Gerät zerstört wird:

- Potential Erde der Stromversorgung und dem Erdpotential der Antennenerde.
- Potential Erde der Stromversorgung und einem geerdeten Gehäuse.
- Potential Erde der Stromversorgung und dem Erdpotential des am PROFIBUS angeschlossenen Gerätes (z.B. PC, AS-300, AS-400, ET 200S usw.)

Legen Sie beide Erdungen auf den gleichen Fundamenterder oder verwenden Sie eine Potentialausgleichsleitung.

Hinweis

Die richtige Ländereinstellung ist für einen zulassungskonformen Betrieb unbedingt notwendig. Die Auswahl eines vom Anwenderland abweichenden Landes kann strafrechtlich geahndet werden!

Warnhinweise zum Betrieb in explosionsgefährdeten Bereichen (Zone 2)

Warnung

Bei Einsatz in explosionsgefährdeter Umgebung entsprechend Class I, Division2 oder Class I, Zone 2 muss das Gerät in einen Schaltschrank oder in ein Gehäuse eingebaut werden.

Um die EU-Richtlinie 94/9 (ATEX 95) zu erfüllen, muss das Gehäuse mindestens die Anforderungen von IP 54 nach EN 60529 erfüllen.

Warnung

EXPLOSIONSGEFAHR

IN EINER LEICHT ENTZÜNDLICHEN ODER BRENNBAREN UMGEBUNG DÜRFEN KEINE LEITUNGEN AN DAS GERÄT ANGESCHLOSSEN ODER VOM GERÄT GETRENNT WERDEN.

Warnung

EXPLOSIONSGEFAHR

DER AUTAUSCH VON KOMPONENTEN KANN DIE EIGNUNG FÜR CLASS I, DIVISION 2 OR ZONE 2 BEEINTRÄCHTIGEN.

Warnung

EXPLOSIONSGEFAHR

ÖFFNEN SIE DAS GERÄT NICHT BEI EINGESCHALTETER VERSORGUNGSSPANNUNG.

2 Einleitung

Informationen zur Betriebsanleitung (kompakt) IWLAN/PB Link PN IO

Die vorliegende Betriebsanleitung (kompakt) behandelt das folgende Produkt:

IWLAN/PB LINK PN IO Hardware-Ausgabestand 04

Bestellnummer 6GK1 417-5AB00
6GK1 417-5AB01 (US-Variante)

Die Betriebsanleitung (kompakt) gilt für folgende Software-Version:

IWLAN/PB LINK Firmware ab Version 1.3

Hinweis

Die genaue Produktbezeichnung und Bestellnummer entnehmen Sie bitte dem Aufdruck auf der Verpackung oder auf dem Gerät.

Achtung

Beachten Sie unbedingt die Erläuterungen und Hinweise in der Datei LIESMICH.TXT.

3 Beschreibung

Lieferumfang

Folgende Teile gehören zum Lieferumfang eines IWLAN/PB LINK PN IO:

- IWLAN/PB LINK PN IO
- 1 Stecker für Spannungsversorgung (4-polig)
- 1 Blindstopfen für die R-SMA-Buchse
- 1 SIMATIC NET Industrial Wireless LAN CD
- Die vorliegende Betriebsanleitung für den IWLAN/PB LINK PN IO

Überprüfen Sie die Vollständigkeit der Lieferung. Setzen Sie sich bei unvollständiger Lieferung mit Ihrem Lieferanten oder der örtlichen Siemens-Geschäftsstelle in Verbindung.

4 Technische Daten

Datenübertragung

Übertragungsrate Funk	1 ... 54 Mbit/s
Unterstützte Standards Funk	802.11a 802.11b 802.11g 802.11h 802.11i
Übertragungsrate PROFIBUS	9,6 kbit/s 19,2 kbit/s 45,45 kbit/s 93,75 kbit/s 187,5 kbit/s 500 kbit/s 1,5 Mbit/s 3 Mbit/s 6 Mbit/s 12 Mbit/s

Segmentlänge

Maximale Segmentlänge für PROFIBUS	20 m
Hinweis: Bei Überschreitung der angegebenen Länge ist ein Repeater erforderlich.	

Schnittstellen

Industrial Wireless LAN	R-SMA-Antennenbuchse
PROFIBUS	9-polige Sub-D-Buchse

Elektrische Daten

Versorgungsspannung	2 Einspeisungen für DC +20,4 V bis 28,8 V Die Versorgungsspannung ist galvanisch getrennt; es besteht hochohmige Verbindung (>700kOhm) mit der Kontaktfeder zur Montage des Gehäuses auf der Hutschiene).

Stromaufnahme aus DC 24 V extern	ca. 0,3 A (typisch bei 24 V)
Maximale Stromaufnahme an der PROFIBUS-Schnittstelle beim Anschluss von Netzkomponenten (beispielsweise optische Netz-komponenten)	100 mA bei 5V
Verlustleistung	6,5 W

Konstruktiver Aufbau

Baugruppenformat	Kompaktbaugruppe
Abmessungen (B x H x T) in mm	90 x 132 x 75
Gewicht	ca. 300 g

Zulässige Umgebungsbedingungen

Betriebstemperatur	0° C bis +60° C
Transport-/Lagertemperatur	-40° C bis +70° C
Relative Feuchte	max. 95% bei +25° C
Betriebshöhe	bis 2000 m über NN

5 Zulassungen

5.1 Zulassungen IWLAN/PB LINK PN IO

Hinweis

Die angegebenen Zulassungen gelten erst dann als erteilt, wenn auf dem Produkt eine entsprechende Kennzeichnung angebracht ist. Welche der nachfolgenden Zulassungen für Ihr Produkt erteilt wurde, erkennen Sie an den Kennzeichnungen auf dem Typenschild.

CE-Konformität

Das Produkt IWLAN/PB LINK PN IO stimmt in der von Siemens I IA in Verkehr gebrachten Ausführung mit den Vorschriften der folgenden europäischen Richtlinie überein:

99/5/EG

Richtlinie des europäischen Parlaments und des Rates zur Angleichung der Rechtsvorschriften der Mitgliedstaaten über Funkanlagen und Telekommunikationsendeinrichtungen und die gegenseitige Anerkennung ihrer Konformität.

Die Konformität mit den grundlegenden Anforderungen der Richtlinie wird nachgewiesen durch die Einhaltung folgender Normen:

EN 60950-1
Sicherheit von Einrichtungen der Informationstechnik - Sicherheit - Teil 1: Allgemeine Anforderungen

EN 301489-1 V1.6.1
Elektromagnetische Verträglichkeit und Funkspektrumangelegenheiten (ERM) - Elektromagnetische Verträglichkeit für Funkeinrichtungen und -dienste - Teil 1: Gemeinsame technische Anforderungen (V1.6.1).

EN 301489-17 V1.2.1
Elektromagnetische Verträglichkeit und Funkspektrumangelegenheiten (ERM) - Elektromagnetische Verträglichkeit für Funkeinrichtungen und -dienste - Teil 17: Spezifische Bedingungen für Breitbandübertragungssysteme im 2,4 GHz Band und Einrichtungen in lokalen Hochleistungs-Funknetzen (RLAN) im 5GHz Band.

EN 300328 V1.6.1
Elektromagnetische Verträglichkeit und Funkspektrumangelegenheiten (ERM) — Breitband-Übertragungssysteme — Datenübertragungseinrichtungen für den Einsatz im 2,4-GHz-ISM-Band mit Spreizspektrummodulation — Harmonisierte Europäische Norm (EN) mit wesentlichen Anforderungen nach Artikel 3.2 der R&TTE-Richtlinie.

EN 301893 V1.4.1
Breitband-Funkzugangsnetze (BRAN) - 5-GHz-Hochleistungs-RLAN - Harmonisierte EN, die wesentliche Anforderungen nach Artikel 3.2 der R&TTE-Richtlinie enthält.

EN 50385
Produktnorm zur Konformitätsüberprüfung von Mobilfunk-Basisstationen und stationären Teilnehmergeräten für schnurlose Telekommunikationsanlagen im Hinblick auf die Basisgrenz- und Referenzwerte bezüglich der Exposition von Personen gegenüber elektromagnetischen Feldern (110 MHz bis 40 GHz) - Allgemeinbevölkerung

1999/519/EC
Empfehlung des Rates zur Begrenzung der Exposition der Bevölkerung gegenüber elektromagnetischen Feldern (0 Hz — 300 GHz)

An das System angeschlossene Geräte müssen die relevanten Sicherheitsbestimmungen erfüllen.

Die EG-Konformitätserklärung wird gemäß den obengenannten EG- Richtlinien für die zuständigen Behörden zur Verfügung gehalten bei:

Siemens AG
Industry Sector
Postfach 4848
D-90026 Nürnberg

Diese Erklärung bescheinigt die Übereinstimmung mit den genannten Richtlinien, ist jedoch keine Zusicherung von Eigenschaften.

ATEX-, cULus- und FM-Zulassungen

Das Produkt

SIMATIC NET IWLAN/PB LINK PN IO

verfügt über die Zulassungen

- EN 60079-15:2005
  EN 60079-0:2006
  II 3 G Ex nA II T..
  KEMA 03 ATEX 1229X
- c-UL-us:
  UL 60950-1 CSA C22.2 No. 60950-1
- c-UL-us for hazardous location*:
  ISA 12.12.01-2000, CSA C22.2 No. 213-M1987
  CL. 1, Div. 2 GP. A.B.C.D T..
  CL. 1, Zone 2, GP, IIC, T..
  CL. 1, Zone 2, AEx nC IIC T..
- FM 3611 Hazardous (Classified) Location Electrical Equipment:
  Non Incendive / Class I / Division 2 / Groups A,B,C,D / T*
  and
  Non Incendive / Class I / Zone 2 / Group IIC / T*

(T.. / T* = Konkrete Angaben zur Temperaturklasse finden Sie auf dem Typenschild)

Hinweis

Beachten Sie die Informationen im Dokument "Use of subassemblies/modules in a Zone 2 Hazardous Area" (Dokument-Nr. C79000-G8999-C245).

Hinweis

Die angegebenen Zulassungen gelten erst dann als erteilt, wenn auf dem Produkt eine entsprechende Kennzeichnung angebracht ist.

SIEMENS

Declaration of Conformity

Manufacturer / responsible person	Alfred Hümmer
Address:	Siemens AG
	I IA SC IC
	Gleiwitzer Str. 555
	90475 Nuremberg
	Germany

Declares that the product:

type:	Industrial WLAN Client
model:	**IWLAN/PB Link PN IO**
Intended use	Wireless Communication

Complies with the essential requirements of Article 3 of the R&TTE 1999/5/EC Directive, if used for its intended use and that the following standards has been applied:

1. Safety (Article 3.1.a of the R&TTE Directive)

Applied standard(s)	issue
EN 60950-1 (miniPCI Card)	**2006**

2. Electromagnetic compatibility (Article 3.1.b of the R&TTE Directive)

Applied standard(s)	issue
EN 301489-1 V1.6.1	**2005-09**
EN 301489-17 V1.2.1	**2002-08**

3. efficient use of the radio frequency spectrum (Article 3.2 of the R&TTE Directive)

Applied standard(s)	issue
EN 300 328 V1.6.1	**2004-11**
EN 301 893 V1.4.1	**2007-07**

4. Health (Article 3.1a of the R&TTE Directive)

Applied standard(s)	issue
EN 50385	**2002**
1999/519/EC	

Siemens Aktiengesellschaft

Nuremberg, 01. April 2009 (Place and Date)

i.V. Thomas Gröschel

i.V. Alfred Hümmer

FCC-Zulassung

This device complies with Part 15 of the FCC Rules and with RSS-210 of Industry Canada.

Operation is subject to the following two conditions:

(1) this device my not cause harmful interference, and

(2) this device must accept any interference received, including interference that may cause undesired operation.

Notice

Changes or modifications made to this equipment not expressly approved by SIEMENS may void the FCC authorization to operate this equipment.

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.

Notice

FCC 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 and your body.

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

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

Professional Installation Notice:

To comply with FCC part 15 rules in the United States, 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 use of the system in any other combination (such as co-located antennas transmitting the same information) is expressly forbidden.

RSS-210 of Industry Canada

"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."

"This device has been designed to operate with the antennas listed below*, and having a maximum gain of 18 dBi. Antennas not included in this list or having a gain greater than 18 dBi are strictly prohibited for use with this device. The required antenna impedance is 50 ohms."

"To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the

equivalent isotropically radiated power (e.i.r.p.) is not more than that permitted for successful communication."

"That the device for the band 5150-5250 MHz is only for indoor usage to reduce potential for harmful interference to co-channel mobile satellite systems."

"Users should also be cautioned to take note that high power radars are allocated as primary users (meaning they have priority) of 5250-5350 MHz and 5650-5850 MHz and these radars could cause interference and/or damage to LE-LAN devices."

* For more detailed information on the approved antennas, refer to the section "Technical specifications".

Hinweise für die Zulassung in Mexiko

Zertifizierungs-ID	Zertifizierungsnummer
IWLAN/PB-Link PN IO	RCPSIIW08-0711

Hinweise für die Zulassung in Argentinien

Zertifizierungs-ID	Zertifizierungsnummer
IWLAN/PB-Link PN IO	CNC:C-6886

Hinweis für die Zulassung in Brasilien

Este equipamento opera em caráter secundário, isto é, não tem direito a proteção contra interferência prejudicial, mesmo de estações do mesmo tipo, e não causar interferência a sistema operando em caráter primário.

5.2 Länderzulassungen

Die folgende Tabelle enthält die Länder, in denen das Produkt IWLAN/PB LINK PN IO zugelassen ist. Mit dem Rautesymbol (♦) sind alle Länder gekennzeichnet, für die zum Zeitpunkt der Erstellung dieser Betriebsanleitung noch keine Zulassung vorlag.

Der aktuelle Stand der Zulassungen ist im Internet unter folgender Adresse abrufbar:

`http://www.siemens.com/simatic-net/ik-info`

Land	Modus	CH	MHz	PWR (EIRP)	Verwendung
Argentinien	11b 11g	1 - 13	2412 - 2472	1000 mW	Indoor + Outdoor
	11a TPC	52 - 64	5260 - 5320	250 mW	Indoor + Outdoor
		149 - 161	5745 - 5805	1000 mW	Indoor + Outdoor

Land	Modus	CH	MHz	PWR (EIRP)	Verwen-dung
Australien 	11b 11g	1 - 13	2412 - 2472	100 mW	Indoor + Outdoor
	11g Turbo	6	2437	100 mW	Indoor + Outdoor
	11a TPC	36 - 64	5180 - 5320	200 mW	Indoor only
		149 - 165	5745 - 5825	1000 mW	Indoor + Outdoor
	11a Turbo TPC	42	5210	50 mW	Indoor only
		50 58	5250 5290	200 mW	Indoor only
		152 160	5760 5800	1000 mW	Indoor + Outdoor

Land	Modus	CH	MHz	PWR (EIRP)	Verwen-dung
Brasilien	11b 11g	1 - 13	2412 - 2472	400 mW	Indoor + Outdoor
	11g Turbo	6	2437	400 mW	Indoor + Outdoor
	11a TPC	36 - 48	5180 - 5240	200 mW	Indoor only
		149 - 165	5745 - 5825	1000 mW	Indoor + Outdoor

Land	Modus	CH	MHz	PWR (EIRP)	Verwen-dung
Chile	11b	1 - 13	2412 - 2472	100 mW	Indoor only
	11h DFS + TPC	36 - 48	5180 - 5240	100 mW	Indoor only
		52 - 64	5260 - 5320	100 mW	Indoor only
		149 - 165	5745 - 5825	100 mW	Indoor only
	11h Turbo DFS + TPC	42	5210	100 mW	Indoor only
		50 58	5250 5290	100 mW	Indoor only
		152 160	5760 5800	100 mW	Indoor only

Land	Modus	CH	MHz	PWR (EIRP)	Verwen-dung
China	11b 11g	1 - 13	2412 - 2472	100 mW	Indoor + Outdoor
	11g Turbo	6	2437	100 mW	Indoor + Outdoor
	11a TPC	149 - 165	5745 - 5825	1000 mW	Indoor + Outdoor

Land	Modus	CH	MHz	PWR (EIRP)	Verwendung
Belgien Bulgarien Dänemark Deutschland Finnland Griechenland Großbritannien Irland Island Italien Liechtenstein Luxemburg Niederlande Norwegen Österreich Polen Portugal Rumänien Schweden Schweiz Slovakei Slovenien Spanien Tschechische Republik Ungarn	11b 11g	1 - 13	2412 - 2472	100 mW	Indoor + Outdoor
	11g Turbo	6	2437	100 mW	Indoor + Outdoor
	11a TPC	36 - 48	5180 - 5240	200 mW	Indoor only
	11h DFS + TPC	36 - 64	5180 - 5320	200 mW	Indoor only
		100 - 140	5500 - 5700	1000 mW	Indoor + Outdoor
	CE				

Land	Modus	CH	MHz	PWR (EIRP)	Verwen-dung
Frankreich CE	11b 11g	1 - 7	2412 - 2442	100 mW	Indoor + Outdoor
	11g Turbo	6	2437	100 mW	Indoor + Outdoor
	11b 11g	8 - 13	2447 - 2472	100 mW	Indoor only
	11a TPC	36 - 48	5180 - 5240	200 mW	Indoor only
	11h DFS + TPC	36 - 64	5180 - 5320	200 mW	Indoor only
		100 - 140	5500 - 5700	1000 mW	Indoor + Outdoor

Land	Modus	CH	MHz	PWR (EIRP)	Verwen-dung
Hong Kong OFTA 電訊管理局	11b 11g	1 - 13	2412 - 2472	100 mW	Indoor + Outdoor
	11g Turbo	6	2437	100 mW	Indoor + Outdoor
	11a TPC	36 - 48	5180 - 5240	200 mW	Indoor only
	11h DFS + TPC	36 - 64	5180 - 5320	200 mW	Indoor only
		100 - 140	5500 - 5700	1000 mW	Indoor + Outdoor
Indien	11b 11g	1 - 13	2412 - 2472	100 mW	Indoor + Outdoor
	11a TPC	36 - 64	5180 - 5320	200 mW	Indoor only
		149 - 165	5745 - 5825	200 mW	Indoor only

Land	Modus	CH	MHz	PWR (EIRP)	Verwen-dung
Japan 	11b	1 - 14	2412 - 2484	100 mW	Indoor + Outdoor
	11g	1 - 13	2412 - 2472	100 mW	Indoor + Outdoor
	11a TPC	184 - 196	4920 - 4980	200 mW	Indoor + Outdoor
		8 12 16	5040 5060 5080	200 mW	Indoor + Outdoor
		36 - 48	5180 - 5240	200 mW	Indoor only
	11h DFS + TPC	100 - 140	5500 - 5700	200 mW	Indoor + Outdoor

Land	Modus	CH	MHz	PWR (EIRP)	Verwen-dung
Kanada	11b 11g	1	2412	200 mW	Indoor + Outdoor
		2 - 10	2417 - 2457	1000 mW	Indoor + Outdoor
		11	2462	200 mW	Indoor + Outdoor
	11a TPC	36 - 48	5180 - 5240	200 mW	Indoor only
		149 - 165	5745 - 5825	1000 mW	Indoor + Outdoor
	11a Turbo TPC	42	5210	200 mW	Indoor only
		152 160	5760 5800	1000 mW	Indoor + Outdoor

Land	Modus	CH	MHz	PWR (EIRP)	Verwen-dung
Kolumbien	11b 11g	1	2412	200 mW	Indoor + Outdoor
		2 - 10	2417 - 2457	1000 mW	Indoor + Outdoor
		11	2462	200 mW	Indoor + Outdoor
	11a TPC	36 - 48	5180 - 5240	200 mW	Indoor only
		149 - 165	5745 - 5825	1000 mW	Indoor + Outdoor
	11a Turbo TPC	152 160	5760 5800	1000 mW	Indoor + Outdoor
Kuwait	11b 11g	1 - 13	2412 - 2472	100 mW	Indoor + Outdoor
	11g Turbo	6	2437	100 mW	Indoor + Outdoor

Land	Modus	CH	MHz	PWR (EIRP)	Verwen-dung
Malaysia	11b 11g	1 - 13	2412 - 2472	100 mW	Indoor + Outdoor
	11a TPC	56 60 64	5280 5300 5320	200 mW	Indoor only
		149 - 165	5745 - 5825	1000 mW	Indoor + Outdoor
Mexiko	11b 11g	1 - 11	2412 - 2462	500 mW	Indoor + Outdoor
	11g Turbo	6	2437	500 mW	Indoor + Outdoor
	11a TPC	36 - 48	5180 - 5240	50 mW	Indoor only
		149 - 165	5745 - 5825	1000 mW	Indoor + Outdoor
	11a Turbo TPC	152 160	5760 5800	1000 mW	Indoor + Outdoor

Land	Modus	CH	MHz	PWR (EIRP)	Verwen-dung
Russland	11b 11g	1 - 13	2412 - 2472	100 mW	Indoor + Outdoor
	11a TPC	36 - 48	5180 - 5240	50 mW	Indoor + Outdoor
		52 - 64	5260 - 5320	250 mW	Indoor + Outdoor
		100 - 140	5550 - 5700	1000 mW	Indoor + Outdoor
		149 - 165	5745 - 5825	1000 mW	Indoor + Outdoor
Saudi-Arabien	11b 11g	1 - 13	2412 - 2472	100 mW	Indoor + Outdoor
	11g Turbo	6	2437	100 mW	Indoor + Outdoor

Land	Modus	CH	MHz	PWR (EIRP)	Verwen-dung
Singapur	11b 11g	1 - 13	2412 - 2472	100 mW	Indoor + Outdoor
	11g Turbo	6	2437	100 mW	Indoor + Outdoor
	11a TPC	36 - 48	5180 - 5240	200 mW	Indoor + Outdoor
		149 - 165	5745 - 5825	1000 mW	Indoor + Outdoor
	11h DFS + TPC	52 - 64	5260 - 5320	200 mW	Indoor + Outdoor
	11h Turbo DFS + TPC	42 50 58	5210 5250 5290	100 mW	Indoor + Outdoor
		152 160	5760 5800	100 mW	Indoor + Outdoor

Land	Modus	CH	MHz	PWR (EIRP)	Verwen-dung
Südafrika 	11b 11g	1 - 13	2412 - 2472	100 mW	Indoor + Outdoor
	11g Turbo	6	2437	100 mW	Indoor + Outdoor
	11a TPC	36 - 48	5180 - 5240	60 mW	Indoor only
	11h DFS + TPC	36 - 64	5180 - 5320	200 mW	Indoor only
		100 - 140	5500 - 5700	1000 mW	Indoor + Outdoor
Südkorea 	11b 11g	1 - 13	2412 - 2472	40 mW (RHS-Power = 10 mW/MHz)	Indoor + Outdoor
	11a TPC	149 - 161	5745 - 5805	200 mW (RHS-Power = 10 mW/MHz)	Indoor + Outdoor

Land	Modus	CH	MHz	PWR (EIRP)	Verwen-dung
Türkei	11b 11g	1 - 13	2412 - 2472	100 mW	Indoor + Outdoor
	11g Turbo	6	2437	100 mW	Indoor + Outdoor
	11a TPC	36 - 48	5180 - 5240	60 mW	Indoor only
	11h DFS + TPC	36 - 64	5180 - 5320	200 mW	Indoor only

Land	Modus	CH	MHz	PWR (EIRP)	Verwendung
Vereinigte Arabische Emirate	11b 11g	1 - 13	2412 - 2472	100 mW	Indoor + Outdoor
	11g Turbo	6	2437	100 mW	Indoor + Outdoor
Vereinigte Staaten von Amerika	11b 11g	1	2412	200 mW	Indoor + Outdoor
		2 - 10	2417 - 2457	1000 mW	Indoor + Outdoor
		11	2462	200 mW	Indoor + Outdoor
	11a TPC	36 - 48	5180 - 5240	200 mW	Indoor only
		149 - 165	5745 - 5825	1000 mW	Indoor + Outdoor
	11a Turbo TPC	152 160	5760 5800	1000 mW	Indoor + Outdoor

Contents

1 Safety instructions

1.1 Classification of safety-related notices

Warning

indicates that death or severe personal injury can result if proper precautions are not taken.

Caution

with a warning triangle indicates that minor personal injury can result if proper precautions are not taken.

Caution

without a warning triangle indicates that damage to property can result if proper precautions are not taken.

Notice

indicates that an undesirable result or status can occur if the relevant notice is ignored.

Note

highlights important information on the product, using the product, or part of the documentation that is of particular importance and that will be of benefit to the user.

1.2 General safety instructions for the IWLAN/PB Link PN IO

Warning

Before installation and startup, read the information in the Operating Instructions (compact) IWLAN/PB LINK PN IO.

Warning

Antennas installed outdoors must be within the area covered by a lightning protection system. Make sure that all conducting systems entering from outdoors can be protected by a lightning protection potential equalization system.

When implementing your lightning protection concept, make sure you adhere to the VDE 0182 or IEC 62305 standard.

Warning

The equipment is designed for operation with Safety Extra-Low Voltage (SELV) by a Limited Power Source (LPS).

This means that only SELV / LPS complying with IEC 60950-1 / EN 60950-1 / VDE 0805-1 must be connected to the power supply terminals. The power supply unit for the equipment power supply must comply with NEC Class 2, as described by the National Electrical Code (r) (ANSI / NFPA 70).

If the equipment is connected to a redundant power supply (two separate power supplies), both must meet these requirements.

Provisions shall be made to prevent the rated voltage from being exceeded by transient voltage surges of more than 40%. This criteria is fulfilled, if supplies are derived from SELV (Safety Extra-Low Voltage), only.

Caution

There must be no potential difference between the following parts otherwise there is a risk that the device will be destroyed:

- Ground potential of the power supply and ground potential of the antenna ground.
- Ground potential of the power supply and a grounded housing.
- Ground potential of the power supply and the ground potential of the device connected to PROFIBUS (for example PC, AS-300, AS-400; ET 200S etc.)

Connect both grounds to the same foundation earth or use an equipotential bonding cable.

Note

The correct country setting is mandatory for operation complying with the approvals. Selecting a country different from the country of use can lead to legal prosecution!

Warnings relating to operation in hazardous areas (zone 2)

Warning

When used in hazardous environments corresponding to Class I, Division 2 or Class I, Zone 2, the device must be installed in a cabinet or a suitable enclosure.

To comply with EU-Directive 94/9 (ATEX95), this enclosure must meet the requirements of at least IP54 in compliance with EN 60529.

Warning

EXPLOSION HAZARD

DO NOT CONNECT OR DISCONNECT EQUIPMENT WHEN A FLAMMABLE OR COMBUSTIBLE ATMOSPHERE IS PRESENT.

Warning

EXPLOSION HAZARD

SUBSTITUTION OF COMPONENTS MAY IMPAIR SUITABILITY FOR CLASS I, DIVISION 2 OR ZONE 2.

Warning

EXPLOSION HAZARD

DO NOT OPEN WHEN ENERGIZED.

2 Introduction

Information on the operating instructions (compact) IWLAN/PB Link PN IO

These Operating Instructions (compact) cover the following product:

IWLAN/PB LINK PN IO hardware version 04

Order number 6GK1 417-5AB00
6GK1 417-5AB01 (US variant)

These Operating Instructions (compact) apply to the following software version:

IWLAN/PB LINK firmware as of version 1.3

Note

For the precise product name and order number, please refer to the printed label on the packaging or on the device.

Notice

Make sure that you read the explanations and instructions in the README.TXT file.

3 Description

Components of the product

The following parts ship with an IWLAN/PB LINK PN IO:

- IWLAN/PB LINK PN IO
- 1 connector for power supply (4-pin)
- 1 sealing plug for the R-SMA socket
- 1 SIMATIC NET Industrial Wireless LAN CD
- These operating instructions for the IWLAN/PB LINK PN IO

Please check that the consignment you have received is complete. If it is not complete, please contact your supplier or your local Siemens office.

4 Technical specifications

Data transfer

Wireless transmission rate	1 ... 54 Mbps
Wireless standards supported	802.11a 802.11b 802.11g 802.11h 802.11i
PROFIBUS transmission rate	9.6 Kbps 19.2 Kbps 45.45 Kbps 93.75 Kbps 187.5 Kbps 500 Kbps 1.5 Mbps 3 Mbps 6 Mbps 12 Mbps

Segment length

Maximum segment length for PROFIBUS	20 m
Note: if the specified length is exceeded, a repeater is required.	

Interfaces

Industrial Wireless LAN	R-SMA antenna socket
PROFIBUS	9-pin D-sub socket

Electrical data

Power supply	2 power supplies for +20.4 V to 28.8 V DC The power supply is electrically isolated; there is a high-resistance connection (>700 kilohms) with the contact spring for installation of the housing on a DIN rail).

Current consumption from external 24 V DC	approx. 0.3 A (typical at 24 V)
Maximum current consumption on the PROFIBUS interface when network components are connected (for example optical network components)	100 mA at 5 V
Power loss	6.5 W

Construction

Module format	Compact module
Dimensions (W x H x D) in mm	90 x 132 x 75
Weight	approx. 300 g

Permitted ambient conditions

Operating temperature	0° C to +60° C
Transport/storage temperature	-40° C to +70° C
Relative humidity	max. 95% at +25° C
Operating altitude	up to 2000 m above sea level

5 Approvals

5.1 Approvals for the IWLAN/PB LINK PN IO

Note

The specified approvals apply only when the corresponding mark is printed on the product. You can check which of the following approvals have been granted for your product by the markings on the type plate.

CE conformity

The IWLAN/PB LINK PN IO product in the version put into circulation by Siemens I IA conforms to the regulations of the following European directive:

99/5/EC
Directive of the European Parliament and of the Council on radio equipment and telecommunications terminal equipment and the mutual recognition of their conformity.
Conformity with the basic requirement of the directive is attested by adherence to the following standards:

EN 60950-1
Information technology equipment - Safety - Part 1: General requirements

EN 301489-1 V1.6.1
Electromagnetic compatibility and radio spectrum matters (ERM) - Electromagnetic compatibility for radio equipment and services - Part 1 : Common technical requirements (V1.6.1)

EN 301489-17 V1.2.1
Electromagnetic compatibility and radio spectrum matters (ERM) - Electromagnetic compatibility for radio equipment and services - Part 17: Specific conditions for 2.4 GHz broadband transmission systems and 5 GHz high performance RLAN equipment

EN 300328 V1.6.1
Electromagnetic Compatibility and Radio Spectrum Matters (ERM); — Broadband 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 301893 V1.4.1
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 50385
Product Standard to Demonstrate the Compliance of Radio Base Stations and Fixed Terminal Stations for Wireless Telecommunication Systems with the Basic Restrictions or the Reference Levels Related to Human Exposure to Radio-Frequency Electromagnetic Fields (110 MHz–40 GHz)—General Public

1999/519/EC
Council recommendation on the limitation of exposure of the general public to electromagnetic fields (0 Hz to 300 GHz)

Devices connected to the system must meet the relevant safety regulations.

The EC Declaration of Conformity is available for the responsible authorities according to the above-mentioned EC Directive at the following address:

Siemens AG
Industry Sector
Postfach 4848
D-90026 Nuremberg

This declaration certifies compliance with the directives named above, but does not guarantee any specific properties.

ATEX, cULus and FM approvals

The product

SIMATIC NET IWLAN/PB LINK PN IO

has the following approvals

- EN 60079-15:2005
  EN 60079-0:2006
  II 3 G Ex nA II T..
  KEMA 03 ATEX 1229X
- c-UL-us:
  UL 60950-1 CSA C22.2 No. 60950-1
- c-UL-us for hazardous location*:
  ISA 12.12.01-2000, CSA C22.2 No. 213-M1987
  CL. 1, Div. 2 GP. A.B.C.D T..
  CL. 1, Zone 2, GP, IIC, T..
  CL. 1, Zone 2, AEx nC IIC T..
- FM 3611 Hazardous (Classified) Location Electrical Equipment:
  Non Incendive / Class I / Division 2 / Groups A,B,C,D / T*
  and
  Non Incendive / Class I / Zone 2 / Group IIC / T*

  (T.. / T* = For detailed information on the temperature class, refer to the type plate)

Note

Note the information in the document "Use of subassemblies/modules in a Zone 2 Hazardous Area" (Document ID C79000-G8999-C254).

Note

The specified approvals apply only when the corresponding mark is printed on the product.

SIEMENS

Declaration of Conformity

Manufacturer / responsible person	Alfred Hümmer
Address:	Siemens AG
	I IA SC IC
	Gleiwitzer Str. 555
	90475 Nuremberg
	Germany

Declares that the product:

type:	Industrial WLAN Client
model:	**IWLAN/PB Link PN IO**
Intended use	Wireless Communication

Complies with the essential requirements of Article 3 of the R&TTE 1999/5/EC Directive, if used for its intended use and that the following standards has been applied:

1. Safety (Article 3.1.a of the R&TTE Directive)

Applied standard(s)	issue
EN 60950-1 (miniPCI Card)	**2006**

2. Electromagnetic compatibility (Article 3.1.b of the R&TTE Directive)

Applied standard(s)	issue
EN 301489-1 V1.6.1	**2005-09**
EN 301489-17 V1.2.1	**2002-08**

3. efficient use of the radio frequency spectrum (Article 3.2 of the R&TTE Directive)

Applied standard(s)	issue
EN 300 328 V1.6.1	**2004-11**
EN 301 893 V1.4.1	**2007-07**

4. Health (Article 3.1a of the R&TTE Directive)

Applied standard(s)	issue
EN 50385	**2002**
1999/519/EC	

Siemens Aktiengesellschaft

Nuremberg, 01. April 2009 (Place and Date)

i.V. Thomas Großschel

i.V. Alfred Hümmer

FCC approval

This device complies with Part 15 of the FCC Rules and with RSS-210 of Industry Canada.

Operation is subject to the following two conditions:

(1) this device my not cause harmful interference, and

(2) this device must accept any interference received, including interference that may cause undesired operation.

Notice

Changes or modifications made to this equipment not expressly approved by SIEMENS may void the FCC authorization to operate this equipment.

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.

Notice

FCC 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 20 cm between the radiator and your body.

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

Professional Installation Notice:

To comply with FCC part 15 rules in the United States, 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 use of the system in any other combination (such as co-located antennas transmitting the same information) is expressly forbidden.

RSS-210 of Industry Canada

"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."

"This device has been designed to operate with the antennas listed below*, and having a maximum gain of 18 dBi. Antennas not included in this list or having a gain greater than 18 dBi are strictly prohibited for use with this device. The required antenna impedance is 50 ohms."

"To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the

equivalent isotropically radiated power (e.i.r.p.) is not more than that permitted for successful communication."

"That the device for the band 5150-5250 MHz is only for indoor usage to reduce potential for harmful interference to co-channel mobile satellite systems."

"Users should also be cautioned to take note that high power radars are allocated as primary users (meaning they have priority) of 5250-5350 MHz and 5650-5850 MHz and these radars could cause interference and/or damage to LE-LAN devices."

* For more detailed information on the approved antennas, refer to the section "Technical specifications".

Notes on approval in Mexico

Certification ID	Certification number
IWLAN/PB-Link PN IO	RCPSIIW08-0711

Notes on approval in Argentina

Certification ID	Certification number
IWLAN/PB-Link PN IO	CNC:C-6886

Note on approval in Brazil

Este equipamento opera em caráter secundário, isto é, não tem direito a proteção contra interferência prejudicial, mesmo de estações do mesmo tipo, e não causar interferência a sistema operando em caráter primário.

5.2 National approvals

The following table lists the countries in which the IWLAN/PB LINK PN IO is approved. The diamond symbol (♦) identifies all countries for which there was no approval at the time these operating instructions were written.

The current status of the approvals can be found on the Internet at the following address:

`http://www.siemens.com/simatic-net/ik-info`

Country	Mode	CH	MHz	PWR (EIRP)	Use
Argentina	11b 11g	1 - 13	2412 - 2472	100 mW	Indoor + Outdoor
	11a TPC	52 - 64	5260 - 5320	250 mW	Indoor + Outdoor
		149 - 161	5745 - 5805	1000 mW	Indoor + Outdoor

Country	Mode	CH	MHz	PWR (EIRP)	Use
Australia 	11b 11g g-Turbo	1 - 13	2412 - 2472	100 mW	Indoor + Outdoor
	11g Turbo	6	2437	100 mW	Indoor + Outdoor
	11a TPC	36 - 64	5180 - 5320	200 mW	Indoor only
		149 - 165	5745 - 5825	1000 mW	Indoor + Outdoor
	11a Turbo TPC	42	5210	50 mW	Indoor only
		50 58	5250 5290	200 mW	Indoor only
		152 160	5760 5800	1000 mW	Indoor + Outdoor

Country	Mode	CH	MHz	PWR (EIRP)	Use
Brazil	11b 11g	1 - 13	2412 - 2472	400 mW	Indoor + Outdoor
	11g Turbo	6	2437	400 mW	Indoor + Outdoor
	11a TPC	36 - 48	5180 - 5240	200 mW	Indoor only
		149 - 165	5745 - 5825	1000 mW	Indoor + Outdoor

Country	Mode	CH	MHz	PWR (EIRP)	Use
Chile	11b	1 - 13	2412 - 2472	100 mW	Indoor only
	11h DFS + TPC	36 - 48	5180 - 5240	100 mW	Indoor only
		52 - 64	5260 - 5320	100 mW	Indoor only
		149 - 165	5745 - 5825	100 mW	Indoor only
	11h Turbo DFS + TPC	42	5210	100 mW	Indoor only
		50 58	5250 5290	100 mW	Indoor only
		152 160	5760 5800	100 mW	Indoor only

Country	Mode	CH	MHz	PWR (EIRP)	Use
China	11b 11g	1 - 13	2412 - 2472	100 mW	Indoor + Outdoor
	11g-Turbo	6	2437	100 mW	Indoor + Outdoor
	11a TPC	149 - 165	5745 - 5825	1000 mW	Indoor + Outdoor

Country	Mode	CH	MHz	PWR (EIRP)	Use
Belgium Bulgaria Czech Republic Denmark Germany Finland Greece United Kingdom Ireland Iceland Italy Liechtenstein Luxembourg The Netherlands Norway Austria Poland Portugal Rumania Sweden Switzerland Slovakia Slovenia Spain Hungary	11b 11g	1 - 13	2412 - 2472	100 mW	Indoor + Outdoor
	11g Turbo	6	2437	100 mW	Indoor + Outdoor
	11a TPC	36 - 48	5180 - 5240	200 mW	Indoor only
	11h DFS + TPC	36 - 64	5180 - 5320	200 mW	Indoor only
		100 - 140	5500 - 5700	1000 mW	Indoor + Outdoor
	CE				

Country	Mode	CH	MHz	PWR (EIRP)	Use
France CE	11b 11g	1 - 7	2412 - 2442	100 mW	Indoor + Outdoor
	11g Turbo	6	2437	100 mW	Indoor + Outdoor
	11b 11g	8 - 13	2447 - 2472	100 mW	Indoor only
	11a TPC	36 - 48	5180 - 5240	200 mW	Indoor only
	11h DFS + TPC	36 - 64	5180 - 5320	200 mW	Indoor only
		100 - 140	5500 - 5700	1000 mW	Indoor + Outdoor

Country	Mode	CH	MHz	PWR (EIRP)	Use
Hong Kong OFTA 電訊管理局	11b 11g	1 - 13	2412 - 2472	100 mW	Indoor + Outdoor
	11g Turbo	6	2437	100 mW	Indoor + Outdoor
	11a TPC	36 - 48	5180 - 5240	200 mW	Indoor only
	11h DFS + TPC	36 - 64	5180 - 5320	200 mW	Indoor only
		100 - 140	5500 - 5700	1000 mW	Indoor + Outdoor
India	11b 11g	1 - 13	2412 - 2472	100 mW	Indoor + Outdoor
	11a TPC	36 - 64	5180 - 5320	200 mW	Indoor only
		149 - 165	5745 - 5825	200 mW	Indoor only

Country	Mode	CH	MHz	PWR (EIRP)	Use
Japan 	11b	1 - 14	2412 - 2484	100 mW	Indoor + Outdoor
	11g	1 - 13	2412 - 2472	100 mW	Indoor + Outdoor
	11a TPC	184 - 196	4920 - 4980	200 mW	Indoor + Outdoor
		8 12 16	5040 5060 5080	200 mW	Indoor + Outdoor
		36 - 48	5180 - 5240	200 mW	Indoor only
	11h DFS + TPC	100 - 140	5500 - 5700	200 mW	Indoor + Outdoor

Country	Mode	CH	MHz	PWR (EIRP)	Use
Canada	11b 11g	1	2412	200 mW	Indoor + Outdoor
		2 - 10	2417 - 2457	1000 mW	Indoor + Outdoor
		11	2462	200 mW	Indoor + Outdoor
	11a TPC	36 - 48	5180 - 5240	200 mW	Indoor only
		149 - 165	5745 - 5825	1000 mW	Indoor + Outdoor
	11a Turbo TPC	42	5210	200 mW	Indoor only
		152 160	5760 5800	1000 mW	Indoor + Outdoor

Country	Mode	CH	MHz	PWR (EIRP)	Use
Columbia	11b 11g	1	2412	200 mW	Indoor + Outdoor
		2 - 10	2417 - 2457	1000 mW	Indoor + Outdoor
		11	2462	200 mW	Indoor + Outdoor
	11a TPC	36 - 48	5180 - 5240	200 mW	Indoor only
		149 - 165	5745 - 5825	1000 mW	Indoor + Outdoor
	11a Turbo TPC	152 160	5760 5800	1000 mW	Indoor + Outdoor
Kuwait	11b 11g	1 - 13	2412 - 2472	100 mW	Indoor + Outdoor
	11g Turbo	6	2437	100 mW	Indoor + Outdoor

Country	Mode	CH	MHz	PWR (EIRP)	Use
Malaysia	11b 11g	1 - 13	2412 - 2472	100 mW	Indoor + Outdoor
	11a TPC	56 60 64	5280 5300 5320	200 mW	Indoor only
		149 - 165	5745 - 5825	1000 mW	Indoor + Outdoor
Mexico	11b 11g	1 - 11	2412 - 2462	500 mW	Indoor + Outdoor
	11g Turbo	6	2437	500 mW	Indoor + Outdoor
	11a TPC	36 - 48	5180 - 5240	50 mW	Indoor only
		149 - 165	5745 - 5825	1000 mW	Indoor + Outdoor
	11a Turbo TPC	152 160	5760 5800	1000 mW	Indoor + Outdoor

Country	Mode	CH	MHz	PWR (EIRP)	Use
Russia	11b 11g	1 - 13	2412 - 2472	100 mW	Indoor + Outdoor
	11a TPC	36 - 48	5180 - 5240	50 mW	Indoor + Outdoor
		52 - 64	5260 - 5320	250 mW	Indoor + Outdoor
		100 - 140	5500 - 5700	1000 mW	Indoor + Outdoor
		149 - 165	5745 - 5825	1000 mW	Indoor + Outdoor
Saudi Arabia	11b 11g	1 - 13	2412 - 2472	100 mW	Indoor + Outdoor
	11g Turbo	6	2437	100 mW	Indoor + Outdoor

Country	Mode	CH	MHz	PWR (EIRP)	Use
Singapore	11b 11g	1 - 13	2412 - 2472	100 mW	Indoor + Outdoor
	11g Turbo	6	2437	100 mW	Indoor + Outdoor
	11a TPC	36 - 64	5180 - 5320	200 mW	Indoor + Outdoor
		149 - 165	5745 - 5825	1000 mW	Indoor + Outdoor
	11h DFS + TPC	52 - 64	5260 - 5320	200 mW	Indoor + Outdoor
	11h Turbo DFS + TPC	42 50 58	5210 5250 5290	100 mW	Indoor + Outdoor
		152 160	5760 5800	100 mW	Indoor + Outdoor

Country	Mode	CH	MHz	PWR (EIRP)	Use
South Africa 	11b 11g	1 - 13	2412 - 2472	100 mW	Indoor + Outdoor
	11g Turbo	6	2437	100 mW	Indoor + Outdoor
	11a TPC	36 - 48	5180 - 5240	60 mW	Indoor only
	11h DFS+TPC	36 - 64	5180 - 5320	200 mW	Indoor only
		100 - 140	5500 - 5700	1000 mW	Indoor + Outdoor
South Korea 	11b 11g	1 - 13	2412 - 2472	40 mW (RHS-Power = 10 mW/MHz	Indoor + Outdoor
	11a TPC	149 - 161	5745 - 5805	200 mW (RHS-Power = 10 mW/MHz	Indoor + Outdoor

Country	Mode	CH	MHz	PWR (EIRP)	Use
Turkey	11b 11g	1 - 13	2412 - 2472	100 mW	Indoor + Outdoor
	11g Turbo	6	2437	100 mW	Indoor + Outdoor
	11a TPC	36 - 48	5180 - 5240	60 mW	Indoor only
	11h DFS + TPC	36 - 64	5180 - 5320	200 mW	Indoor only
United Arab Emirates	11b 11g	1 - 13	2412 - 2472	100 mW	Indoor + Outdoor
	11g Turbo	6	2437	100 mW	Indoor + Outdoor

Country	Mode	CH	MHz	PWR (EIRP)	Use
United States of America 	11b 11g	1	2412	200 mW	Indoor + Outdoor
		2 - 10	2417 - 2457	1000 mW	Indoor + Outdoor
		11	2462	200 mW	Indoor + Outdoor
	11a TPC	36 - 48	5180 - 5240	200 mW	Indoor only
		149 - 165	5745 - 5825	1000 mW	Indoor + Outdoor
	11a Turbo TPC	152 160	5760 5800	1000 mW	Indoor + Outdoor