



Wireless LAN PC Card User's Manual

Introduction	1
Knowing Your Wireless USB Network Adapter	3
Placing the Wireless USB Network Adapter	4
Connecting to Your Wireless Network	8
Uninstalling the Software and Drivers	9
Using the Belkin Wireless LAN Monitor Utility	10
The Status Tab	10
The Statistics Tab	14
The Site Survey Tab	15
The Encryption Tab	17
The Advanced Tab	21
Using Profile Manager Mode	22
Operating in Ad-Hoc Mode	24
Troubleshooting	26
Information	27

Thank you for purchasing the Belkin Wireless USB Network Adapter (the Adapter). Now you can take advantage of this great new technology and gain the freedom you need around the home or office without using cables. The Wireless USB Network Adapter works like a conventional network adapter, but without the wires. The easy installation and setup will have you networking wirelessly in minutes. Please be sure to read through this manual completely to be sure that you are getting the most out of your Wireless USB Network Adapter.

Features:

The Adapter complies with the IEEE 802.11b standard in order to communicate

with other 802.11b-compliant wireless devices.

- 2.4GHz ISM (Industrial, Science, and Medical) band operation
- Integrated, easy-to-use profile manager for storing multiple wireless network settings for work, school, home, or any other setup
- Wireless interface compliance with the IEEE 802.11b standard
- USB interface, for Plug-and-Play installation and convenience
- 64- or 128-bit Wireless (WEP) Encryption
- Wireless access to networked resources
- Support for both infrastructure and ad-hoc (peer-to-peer) networking modes
- Data rate of up to 11Mbps
- Supports 11, 5.5, 2 or 1Mbps rates (auto-rollback)
- Easy installation and use
- LED link indicator

Applications and Advantages

- **Wireless roaming with a laptop around the home or office**

Offers the freedom of networking—without cables.

- **Difficult-to-wire environments**

Enables networking in buildings with solid or finished walls, or open areas

where wiring is difficult to install.

- **Frequently changing environments**

Adapts easily in offices or environments that frequently rearrange or change locations.

2

- **Temporary LANs for special projects or peak time**

Sets up temporary networks such as at trade shows, exhibitions, and constructions sites, which need networks on a short-term basis; also companies who need additional workstations for a peak activity period.

- **SOHO (Small Office/Home Office) networking needs**

Provides the easy and quick small network installation SOHO users need.

Product Specifications

Host Interface: USB 1.1

Power Consumption: 300mA (max)

Certification: FCC Class B, CE Mark, C-Tick

Operating Temperature: 32–131° F (0–55° C)

Storage Temperature: -13–158° F (-25–70° C)

Typical Operating Range: Indoor: 160' (50m) @ 11Mbps, 260' (80m) @ 5.5Mbps or lower

Outdoor: 490' (150m) @ 11Mbps, up to 1800' (550m) @ 5.5Mbps or lower

System Requirements

- PC with one available USB port
- Windows® 98, 2000, Me, or XP

Package Contents

- Belkin Wireless USB Network Adapter
- Quick Installation Guide
- Installation Software CD
- User Manual

3

Status Light

Indicates network activity and power

Adjustable

Antenna

4

The best location for your adapter is on top of your computer's monitor.

Placing

the Adapter on your desktop is acceptable, however, avoid placing the Adapter

near metal objects such as a computer case or speakers. Any object that is metal

has the ability to block the radio signals from the Adapter.

Installing and Setting Up the Adapter

Installing your Adapter is done in three easy steps:

1. Install the software FIRST. If you connect your Adapter to your PC before

you install the software, it will not work until you install the software.

2. Connect the Adapter to your PC.

3. Let Windows finish installing the Adapter.

NOTE: INSTALL THE SOFTWARE FIRST BEFORE YOU CONNECT THE ADAPTER TO YOUR COMPUTER

Software and Driver Installation

1. Insert the CD into your CD-ROM drive.
2. The Belkin Wireless USB Network Adapter Setup Utility screen will automatically appear. If it does not appear within 15–20 seconds, then select your CD-ROM drive and double-click on the folder named “Files”.

Next

double-click on the icon named “USB_UTILITY.exe”.

3. In the menu window,
drag your mouse over
the “Install” button
then select “Click here”
to start the software
installation program.

5

4. The installer will start. Click on or select “Easy” to continue to the next step.

If you are using Windows XP, it is recommended that you use the Belkin Wireless USB Network Adapter Utility to manage the Adapter’s wireless settings. If you want to

use Windows XP to manage
the Adapter, check “Use
the Windows XP Wireless
Network Connection

Utility”. Instructions on

how to use the Windows
XP Connection Utility are
available from Microsoft.

Click “Next” to continue.

5. After the software installation is finished, the message “You can plug in your WLAN adapter now” will appear. Plug the Adapter to an available USB port on your PC or USB hub.

6. After connecting your Adapter, Windows will detect that new hardware has been installed. Depending on your version of Windows, a window similar to the one pictured here will appear. Select the option “Install the software automatically (Recommended)”.

6

7. If you are using Windows 2000 or Windows XP, you may see a screen similar to this one. This does not mean there is a problem. Select “Continue Anyway”.

8. If you are using Windows 98 or Me, you will be asked to restart your computer. Select “Restart”. If you are using Windows 2000 or XP, you will see a window similar to this one. Click “Finish”.

7

9. When the installation is complete, the Belkin WLAN Monitor icon will be on

your desktop. To open the Monitor Utility, double-click on this icon.

10. A small icon in your system tray (bottom right corner of most screens) will

appear. This is your shortcut to the Belkin WLAN Monitor. It also indicates

the status of your connection:

Red: No connection to a wireless network

Blue: Connected to a wireless network.

If you already have a wireless router or an access point in your home or office, the Adapter will automatically attempt to connect to your wireless network. In most cases, the Adapter will be able to connect to your network

automatically. If you are using encryption, you will have to set the encryption settings on your wireless router or access point before the Adapter can successfully connect to your wireless network. For information

about configuring your Adapter, see the next section in this manual.

8

If you already have a wireless router or an access point in your home or office, the Adapter will automatically attempt to connect to your wireless network. In most cases, the Adapter will be able to connect to your network automatically. If your wireless network is using encryption, you will need to set the encryption settings of your Adapter to match that of your wireless network. For information about configuring your Adapter, see the next section in this manual.

9

If you need to remove the software and drivers for any reason, you can easily accomplish this in one of two ways. You can insert the software CD and click on the “Uninstall” option in the menu, or you can go to the Windows Control Panel and select the “Add/Remove Programs” option. The Belkin wizard will walk you through the removal process. When you launch the Wireless LAN Monitor Utility (the Utility), you will be presented with the screen below. The following small icon will also be present in your system tray.

The Utility can be set to always be on top of everything else on your desktop when it is open. This setting can be changed if you right-click on the icon in your system tray. Place a check mark next to “Always on top” to keep the utility on top all of the time. Remove the check mark to set the window to move to the back when you select another window. You can close the Utility screen without shutting the Utility down by clicking Exit (I). Double-clicking on the icon in the system tray will open the window.

The Status Tab

10

11

(a) Profile Name

The first thing you will notice is the “Profile Name”. Initially this will say “default” and be grayed out until you have set up a profile. Also, the Profile

Manager Mode (k) will be “OFF”. Using Profiles allows you to save configurations for different wireless networks. For instance, if you use your Adapter at your place of work and also at your home, your wireless network settings may be

different for each location. Profiles let you store settings for each location and name them for easy identification. The “default” profile will contain the initial

configuration setting when you install the Adapter. To learn how to use Profiles,

see the section of this manual called “Using Profile Manager Mode”.

(b) Operating Mode

Shows the current wireless mode the Adapter is operating in. There are two

operating modes: “Infrastructure” and “802.11 Ad-Hoc”. Infrastructure is the

most common mode to operate in and is the factory default setting. Use Infrastructure mode when connecting your PC to a wireless access point or to a

wireless router. Ad-Hoc mode is used to connect two or more computers together

without the use of an access point or wireless router. To change the mode, click

the down-facing arrow next to the Operating Mode field. Select the mode you

wish to use, then click “Apply”.

(c) Channel

Shows the current channel the Adapter is operating on. When operating in Infrastructure mode, the channel is set automatically by the access point or wireless router that the Adapter is connected to. You cannot change the channels in Infrastructure mode. In Ad-Hoc mode, the channel can be set manually. For more information about operating in Ad-Hoc mode, see “Operating in Ad-Hoc Mode”.

(d) SSID

The SSID is the wireless network name. This field shows the current SSID with which the Adapter is associated. The default (factory) setting is “ANY”, which will cause the Adapter to automatically look for any wireless network in the area. To connect to a specific wireless network, you can manually enter the SSID of the known wireless network. Note that the SSID is case-sensitive, so, capital letters do make a difference. To change the SSID, click in the SSID field, type the SSID you want, then click “Apply”.

12

(e) Tx Rate

Displays the current rate of data transmission. There are five Tx rates possible:

Fixed 11Mbps—Always transmit and receive at 11Mbps data rate regardless of signal quality.

Fixed 5.5Mbps—Always transmit and receive at 5.5Mbps data rate regardless of signal quality.

Fixed 2Mbps—Always transmit and receive at 2Mbps data rate regardless of

signal quality.

Fixed 1Mbps—Always transmit and receive at 1Mbps data rate regardless of signal quality.

Auto—Adjust speed according to signal strength. This mode is the recommended setting. It will decrease the amount of transmit and receive errors by reducing the speed of transmission in favor of receiving error-free data. Note that data being sent at Fixed 1Mbps with low signal quality will not necessarily get the data to the computer faster. This is because when errors occur, the data must be resent. When the signal quality is low, the chances for errors to occur at high speeds are greatly increased. Sending the data at lower speeds when the signal quality is poor will reduce the chances of errors, and thus data will get to the computer in the shortest possible time.

(f) MAC Address

Shows the MAC address of the Wireless USB Network Adapter.

(g) Status

Displays the BSSID (in hexadecimal) of the access point with which the Adapter is associated. If you are connected to a network, the word “Associated” followed by a series of numbers (the MAC address of the access point) will be displayed. If the Adapter is scanning for a network, you will see the word “Scanning”.

(h) Signal Strength

Displays the strength of the wireless signal from 0 to 100%. The closer to 100%, the better the signal strength is. The closer you are to a wireless router or access point, the stronger the signal should be.

13

(i) Link Quality

Displays the quality of the wireless signal from 0 to 100%. The closer to 100%, the better the link quality is. Link quality differs from signal strength by measuring the actual quality of the signal. It is possible to have low signal strength and high link quality.

(j) Activate Profile Manager Mode

See the section called “Using Profile Manager Mode”.

(l) Exit Button

Click “Exit” to close the Wireless LAN Monitor Utility. To access the utility again, double-click on the “ “ icon in the bottom right corner of your screen.

14

The Statistics Tab

The “Statistics” tab shows you how much data has been sent and received and if any errors occurred. Click “Reset” (a) to start at zero. This screen is mostly for diagnostics. Note that the number of unsuccessful data and management frames is recorded. A large number of unsuccessful frames may indicate that there is a problem or interference in your area.

15

The Site Survey Tab

Clicking on the “Site Survey” tab will display a list of all available access points in your area. The following information about each is displayed:

(a) BSSID

The MAC address of the access point.

(b) SSID

The Service Set Identifier (wireless network name) of the access point.

16

(c) Signal

The signal strength of the related access point. This is a “snapshot” of the signal strength at the time of the site survey. Pressing the “Re-Scan” (g) button may get a different result.

(d) Channel

The current operating channel of the access point.

(e) Encryption

Will display “No” when encryption is disabled, “64-bit” when 64-bit encryption is enabled, and “128-bit” when 128-bit encryption is enabled.

(f) BSS

Displays the mode that the access point is operating in: Infrastructure or AD-Hoc.

TIP: Double-clicking on the BSSID of an access point will make the Adapter join that particular network. To check the area for more access points, click “Re-Scan”.

17

The Encryption Tab

The “Encryption” tab is used to set up the wireless encryption settings. There are two ways to set up the encryption settings of your Adapter:

“Create with Passphrase” or “Manual Entry”. Select “64-bit” from the drop-down menu.

You will notice when using 64-bit encryption that there are four keys labeled

“Key 1” through “Key 4”. Only one key can be used at a time. For ease of use, the software can generate keys using a passphrase that you enter. This passphrase can be easily distributed to other wireless-equipped computer users in your network. For instance, creating a key using the passphrase “Passphrase” generates four keys in 64-bit encryption mode and one key in 128-bit encryption mode. In this scenario, a user of a laptop needs only to enter the passphrase and the key number into the computer’s wireless management software to be able to communicate while using encryption. All computers on the network must use the same encryption rate, passphrase, and key. The passphrase can be changed as often as desired.

18

Setting 64-Bit or 128-Bit Encryption Using a Passphrase (Easiest)

1. Select “64-bit” or “128-bit” from the drop-down menu (a).
2. Select “Create with Passphrase” (b).
3. Enter a passphrase and click “Generate” (c). Clicking “Generate” will generate four keys (d) if you choose “64-bit” or one key if you choose “128-bit”. The keys are obscured for security reasons so they cannot be read by another person.
4. You can now select which 64-bit key you want to use from the “Default Key ID” drop-down menu. Leave this set to “1” unless you have a specific reason to use another key. Click “Apply” for the changes to be saved. Encryption is now enabled. Each wireless-equipped computer (client)

that needs
to communicate on the wireless network must be set to the same
encryption
settings (rate, passphrase, and key).

19

Setting 64-Bit or 128-Bit Manually Using an Alphanumeric Keyword (Advanced)

1. Select “64-bit” or “128-bit” encryption from the drop-down menu.
2. Select “Manual Entry” then
“Alphanumeric: 5 characters” if
using 64-bit or “Alphanumeric: 12
characters” if using 128-bit. Enter
up to four keys.
3. Select the key that you want to use.
4. Click “Apply”.

Encryption is now enabled. Each wireless-equipped computer (client)
that needs
to communicate on the wireless network must be set to the same
encryption
settings (rate, passphrase, and key).

Setting 64-Bit or 128-Bit Manually Using a Hexadecimal Key (Advanced)

1. Select “64-bit” or “128-bit” from the drop-down menu.
2. Select “Manual Entry” then
“Hexadecimal: 10 characters (0-9,A-F)”
if using 64-bit or “Hexadecimal: 26
characters (0-9,A-F)” if using 128-bit.
Enter up to four keys.
3. Select the key that you want to use.

4. Click “Apply”.

Encryption is now enabled. Each wireless-equipped computer (client) that needs to communicate on the wireless network must be set to the same encryption settings (rate, passphrase, and key).

20

21

The Advanced Tab

The settings on the “Advanced” tab should be left as is unless there is a specific reason to change them.

(a) Preamble Type

The preamble is a signal used to synchronize the timing between the Adapter

and the access point. Some older wireless equipment may not be able to work if

this setting is too short. Leaving this setting to “Auto” is the most effective way

to ensure the Adapter will connect to any wireless network available.

(b) Fragmentation Threshold and RTS/CTS Threshold

These settings should be left at their default settings. If you are experiencing

many data errors, you can change these settings, however, network performance

will likely decrease.

(c) Power Save

Enabling “Power Save” will help reduce battery consumption on a laptop by

turning the Adapter OFF after each data set is sent or received to or from the

network. Enabling this mode will decrease performance of the Adapter, but may

greatly enhance your battery life. Use this feature only if necessary.

22

Using Profile Manager Mode

Using Profiles allows you to save configurations for different wireless networks. For instance, if you use your Adapter at your place of work and also at your home, your wireless network settings may be different for each location. Profiles let you store settings for each location and name them for easy identification. You can quickly change from one profile to another profile without having to remember the particular settings of a certain network. After you first install the Adapter, the Profile Manager mode will be turned OFF. If you want to use the Profile Manager, you will need to turn it on and set up a profile.

23

Creating a Profile

Before you can use the Profile Manager, you need to create a profile. Follow these steps to create a profile.

1. If not already, turn ON the Profile Manager mode by pressing the “Activate Profile Manager Mode” button (c).
2. The “Profile Name” field (a) will become active. Click inside of the Profile Name field and type in the name you want to call the profile, such as “Home” (e).
3. At this point, you now need to set the rest of the parameters for the

network that you will be connecting to. Set the Operating Mode, Encryption settings, Network Type, SSID, etc. When you have finished making these settings, click “Apply” (b).

A profile with the name you chose now exists in the Profile Manager. You can

select this profile quickly and easily any time you need to use it

Choosing a Profile

You can quickly and easily choose a profile any time you need it. There are two methods to do so.

Quick Pick

1. Right-click the Utility icon in the task bar.
2. Place your cursor over “Profile”. A list of the profiles you have created will appear. Move the cursor over the profile that you want to use and left-click on the name. The profile you just selected will become active.

Choosing from the Utility

1. Make sure Profile Manager mode is on.
2. Click the down-facing arrow next to “Profile Name”. A list of all of the profiles you have created will appear. Click on the name of the profile you want to use.
3. Click “Apply”. The profile you just selected will become active.

24

Operating in Ad-Hoc Mode

Ad-Hoc mode is a peer-to-peer mode (computer-to-computer). To set two or more computers to communicate directly with each other, follow these steps.

1. Select “Ad-Hoc” from the Operating Mode box (a).
2. Enter the channel you want to use in the “Channel” box (b). You can choose any one of the available channels you wish.
3. In the SSID field (c), type in the name you want to use to identify the Ad-Hoc network. You can name this anything you want.

25

4. Click "Apply" to save the changes. When the Adapter is in Ad-Hoc mode, the "Status" box (d) will say "Ready".

Note: The Signal Strength and Link Quality indicators do not work in Ad-Hoc mode.

5. Using these same settings, set the rest of the computers on your Ad-Hoc network to the same settings. When you have completed setup of the Ad-Hoc network, computers will network together normally as if wired together through a hub or switch.

26

You can find technical support information at **networking.belkin.com** or

www.belkin.com through the tech support area. If you want to contact technical support by phone, please call **800-223-5546**. Technical support is

available 24 hours a day, 7 days a week.

27

Belkin Corporation Limited Lifetime Product Warranty

Belkin Corporation warrants this product against defects in materials and workmanship for its lifetime. If a defect is discovered, Belkin will, at its option, repair or replace the product at no charge provided it is returned during the warranty period, with transportation charges prepaid, to

the authorized Belkin dealer from whom you purchased the product. Proof of purchase may be required.

This warranty does not apply if the product has been damaged by accident, abuse, misuse, or

misapplication; if the product has been modified without the written permission of Belkin; or if any Belkin serial number has been removed or defaced.

THE WARRANTY AND REMEDIES SET FORTH ABOVE ARE EXCLUSIVE IN LIEU OF ALL OTHERS,

WHETHER ORAL OR WRITTEN, EXPRESSED OR IMPLIED. BELKIN SPECIFICALLY DISCLAIMS ANY AND

ALL IMPLIED WARRANTIES, INCLUDING, WITHOUT LIMITATION, WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

No Belkin dealer, agent, or employee is authorized to make any modification, extension, or addition to this warranty.

BELKIN IS NOT RESPONSIBLE FOR SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES RESULTING FROM ANY BREACH OF WARRANTY, OR UNDER ANY OTHER LEGAL THEORY, INCLUDING BUT NOT LIMITED TO, LOST PROFITS, DOWNTIME, GOODWILL, DAMAGE TO OR REPROGRAMMING, OR REPRODUCING ANY PROGRAM OR DATA STORED IN, OR USED WITH, BELKIN PRODUCTS.

Some states do not allow the exclusion or limitation of incidental or consequential damages or

exclusions of implied warranties, so the above limitations of exclusions may not apply to you. This warranty gives you specific legal rights, and you may also have other rights that vary from

state to state.

28

FCC Statement

DECLARATION OF CONFORMITY WITH FCC RULES FOR ELECTROMAGNETIC COMPATIBILITY

We, Belkin Corporation, of 501 West Walnut Street, Compton, CA 90220, declare under our sole

responsibility that the product, F5D6050

to which this declaration relates,

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.

Caution: Exposure to Radio Frequency Radiation.

The radiated output power of this device is far below the FCC radio frequency exposure limits.

Nevertheless, the device shall be used in such manner that the potential for human contact normal operation is minimized.

This device complies with FCC RF radiation exposure limits set forth for an uncontrolled □ environment. □

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

Federal Communications Commission Notice

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. If not installed and used

in accordance with the instructions, it may 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 and correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the distance between the equipment and the receiver.
- Connect the equipment to 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.

Modifications

The FCC requires the user to be notified that any changes or modifications to this device that are not expressly approved by Belkin Components may void the users authority to operate the equipment.

29

Canada- Industry Canada (IC)

The wireless radio of this device complies with RSS 139 & RSS 210 Industry Canada. This Class B

digital complies with Canadian ICES-003.

Cet appareil numérique de la classe B conforme à la norme NMB-003 du Canada.

Europe-European Union Notice

Radio products with the CE 0560 or CE alert marking comply with the R&TTE Directive (1995/5/EC) issued by the Commission of the European Community.

Compliance with this directive implies conformity to the following European Norms (in brackets

are the equivalent international standards).

- EN 60950 (IEC60950) – Product Safety
- EN 300 328 Technical requirement for radio equipment
- ETS 300 826 General EMC requirements for radio equipment.

To determine the type of transmitter, check the identification label on your Belkin product.

Products with the CE marking comply with the EMC Directive (89/336/EEC) and the Low Voltage

Directive (72/23/EEC) issued by the Commission of the European Community. Compliance with

these directives implies

conformity to the following European Norms (in brackets are the equivalent international standards).

- EN 55022 (CISPR 22) – Electromagnetic Interference
- EN 55024 (IEC61000-4-2,3,4,5,6,8,11)- Electromagnetic Immunity
- EN 61000-3-2 (IEC610000-3-2) - Power Line Harmonics
- EN 61000-3-3 (IEC610000) – Power Line Flicker
- EN 60950 (IEC60950) – Product Safety

Products that contain the radio transmitter are labeled with CE 0560 or CE alert marking and may

also carry the CE logo.



百一電子股份有限公司
Prime Electronics & Satellitics Inc.

產品規格書

編號：WU221BF00000 SP01

版次：A 版

適用機種：WU221B

WLAN CARD WU221B Specifications

1. General specification
2. Standard test condition
3. Electrical specification
4. Frequency channel plan

核准：劉家維

審查：李佳霖

製表：莊總瑄

修訂日期：

年 月 日

制定日期：

2002 年 11 月 08 日

No.	Item	Specification				Test Method/Condition
		Condition	Min.	Typ.	Max.	
1.	General specification					
1-1.	Standard	IEEE 802.11b				
1-2.	Frequency Band(MHz)		2400		2483.5	
1-3.	No. of Selectable Channels	11 Channels (US, Canada) 13 Channels (Europe) 14 Channels (Japan)				
1-4.	Channel Spacing (MHz)			5		
1-5.	Modulation Technique	DSSS (CCK, DQPSK, DBPSK)				
1-6.	Spreading	11-chip Barker Sequence				
1-7.	Media Access Protocol	CSMA/CA(collision Avoidance) with ACK				
1-8.	Interface	USB V 1.1				
1-9.	Dimensions	102 x 77 x 30 mm				
1-10.	LED Indicators	Power/Link Status				
1-11.	Antenna	One External Dipole antenna				
2.	Standard Test Condition					
2-1.	Supply voltage(V)			5.0		
3.	Electrical Specification					Temperature Range : 0 ~ 55℃ Humidity : 95 % (Non-condensing)
3-1.	Power Consumption (mA)	@+5V			260	Receiver Mode
					540	Transmit Mode
3-2	Receive Sensitivity (dBm)[FER < 8%]		-80	-81		@ 11 Msps
			-84			@ 5.5 Msps
			-86			@ 2 Msps
			-89			@ 1 Msps
3-3.	Range(Meters)	Indoor	35			@ 11 Msps
			100	180		@ 1 Msps
		Outdoor	150			@ 11 Msps
			300			@ 1 Msps
3-4.	Average Output Power (dBm)	CH1~CH13 CH14	15 15	17.5 16	21 19	@29.5dB difference between the signal level at center frequency and higher first side lobe
3-5	Frequency Accuracy(ppm)		- 25		+ 25	

4.	Frequency channel plan
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		Regulation Domains					
Channel_ID	Frequency (Mhz)	FCC (X '10')	IC (X '20')	ETSI (X '30')	Spain (X '31')	France (X '32')	MKK (X '40')
1	2412	X	X	X			
2	2417	X	X	X			
3	2422	X	X	X			
4	2427	X	X	X			
5	2432	X	X	X			
6	2437	X	X	X			
7	2442	X	X	X			
8	2447	X	X	X			
9	2452	X	X	X			
10	2457	X	X	X	X	X	
11	2462	X	X	X	X	X	
12	2467			X		X	
13	2472			X		X	
14	2484						X