

Internal
Use Only

Power Control User Manual

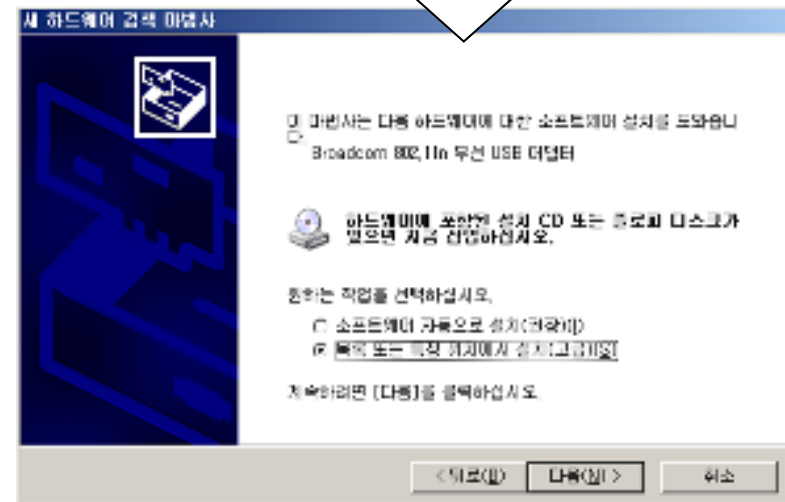
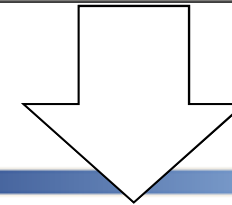
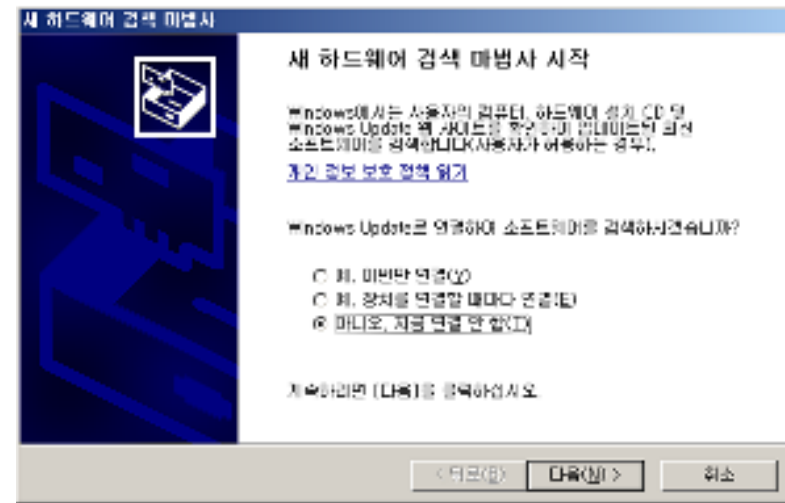
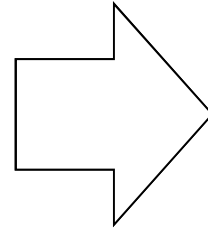
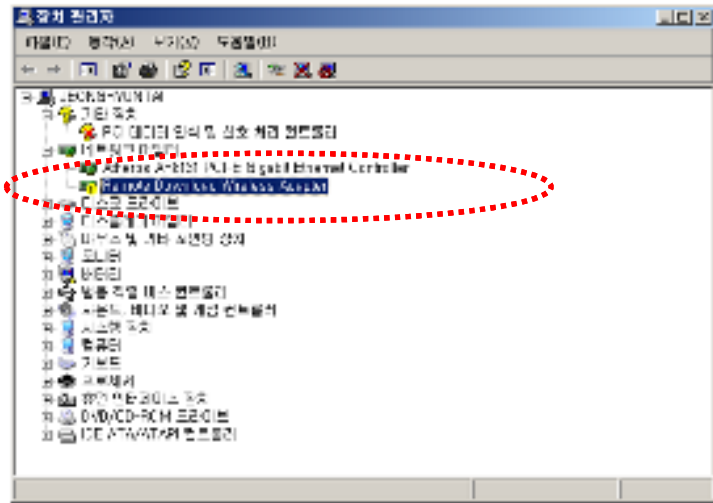
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2011. 10. 04



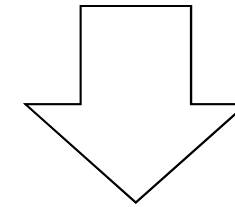
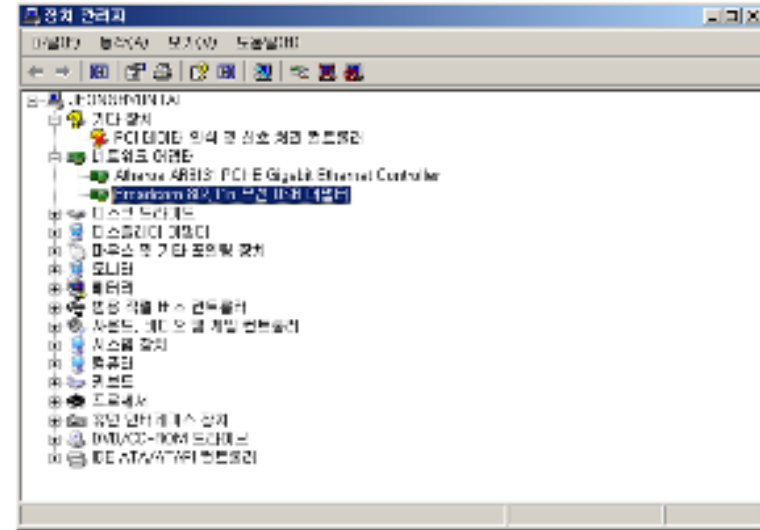
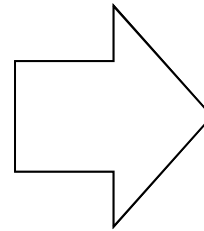
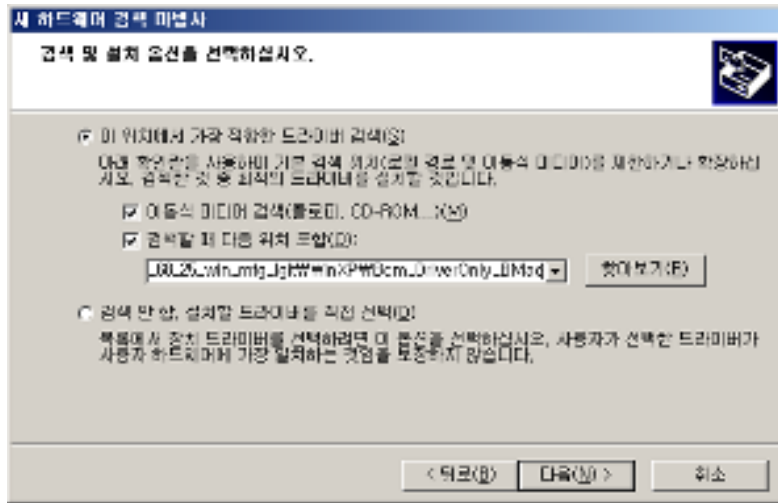
1. Driver Install



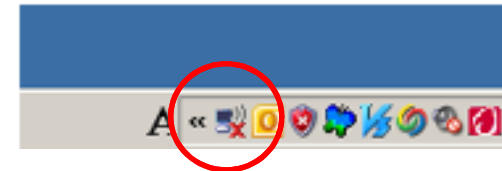
✓ Remote Download Wireless Adaptor

1. Driver Install

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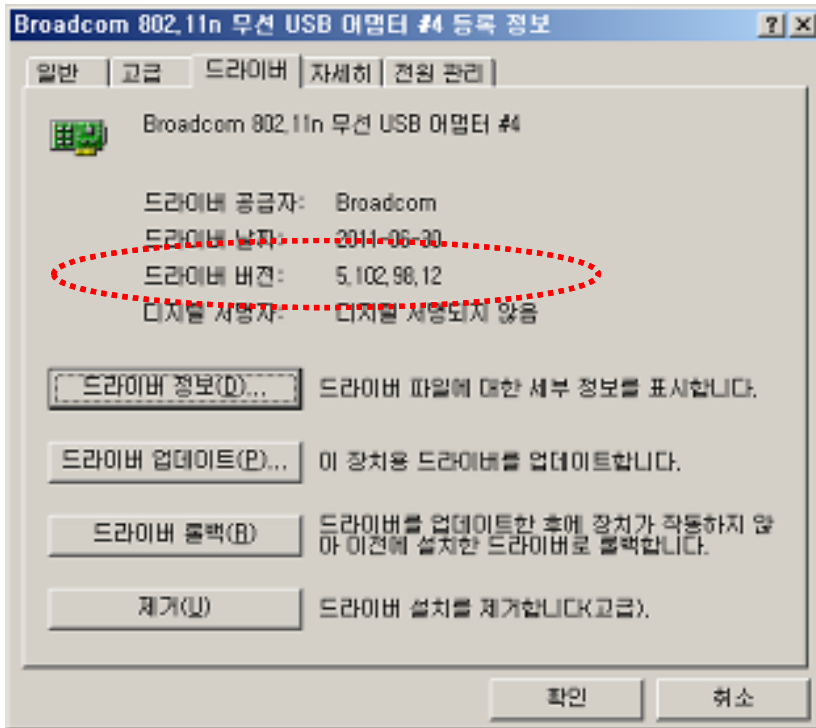


- ✓ To install driver
"Broadcom 802.11n Wireless USB Adaptor"
- ✓ Start – Run – "services.msc"
"Wireless Zero Configuration" function is stop.



1. Driver Install

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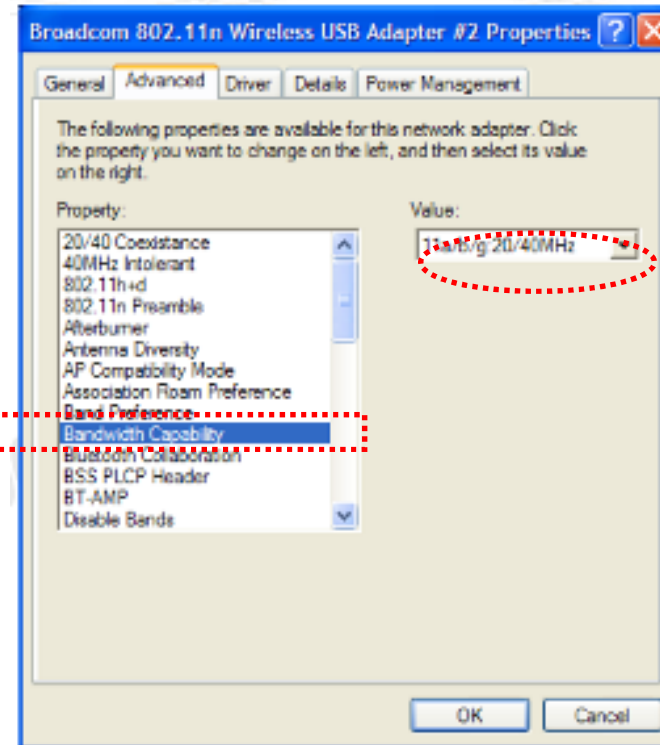
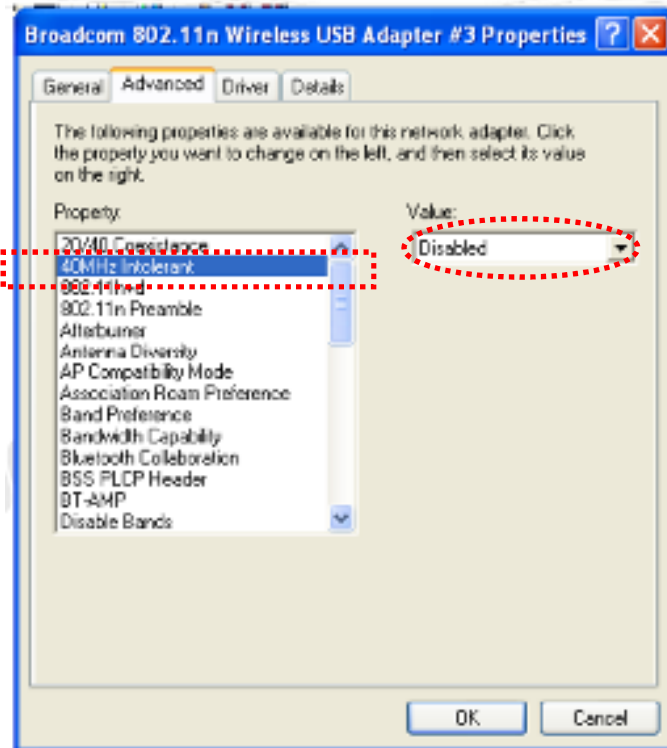
When the driver installed completely, please right-click the adaptor again and select "Properties" to setup following items;

- ✓ 40MHz Intolerant : Disabled
- ✓ Bandwidth Capability : 11a/b/g:20/40MHz
- ✓ Power Save mode : Disabled
- ✓ IBSS 54g(tm) Protection Mode : Disabled
- ✓ IBSS Link Indication : Legacy
- ✓ IBSS Mode : 802.11 a/b/g/n Auto
- ✓ IBSS Allowed : Enabled

- ✓ Driver Version : 5.102.98.12

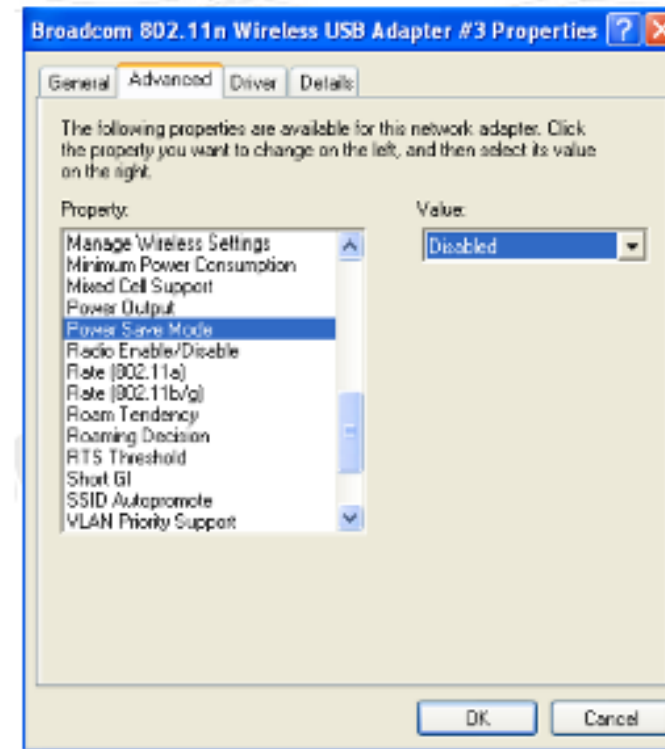
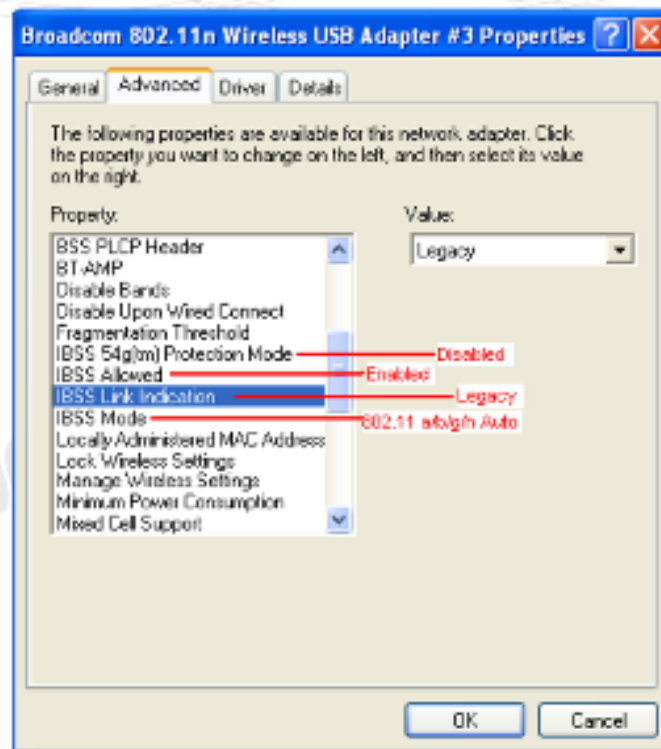
1. Driver Install

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1. Driver Install

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**Keep all the other settings as default.
Unplug and Plug module once to make sure the initialization is done properly.**

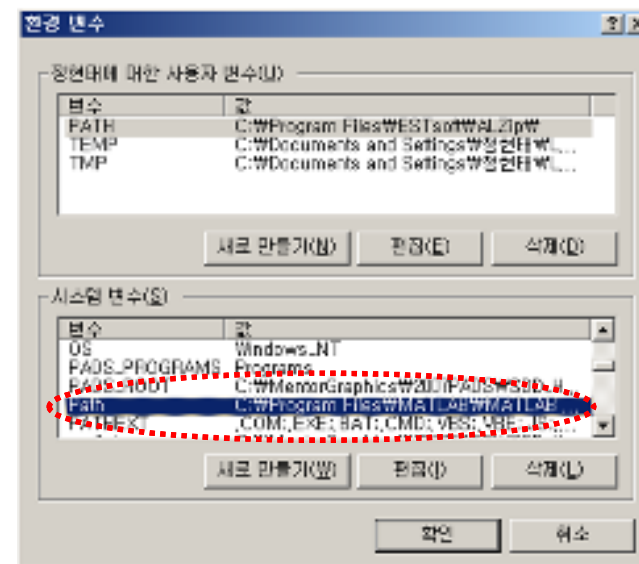
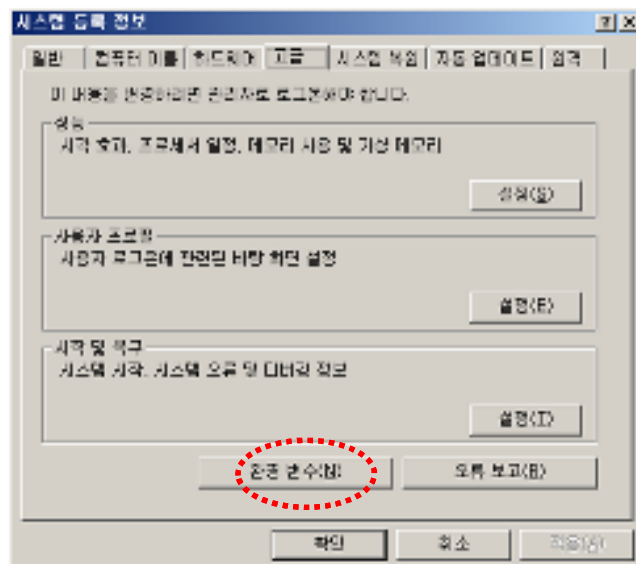
2. Install Program

- ✓ vcredist_x86.exe for VC++ run time library
- ✓ IQfact v1.1.exe for Matlab Runtime Library
- ✓ Start ->Control Panel -> System ->Advanced->Environment Variables

To select Path from System Variable and edit it (push Edit button) To add two directories for Matlab runtime library

C:\Program Files\MATLAB\MATLAB Component Runtime\v76\runtime\win32

C:\Program Files\MATLAB\MATLAB Component Runtime\v76\bin\win32



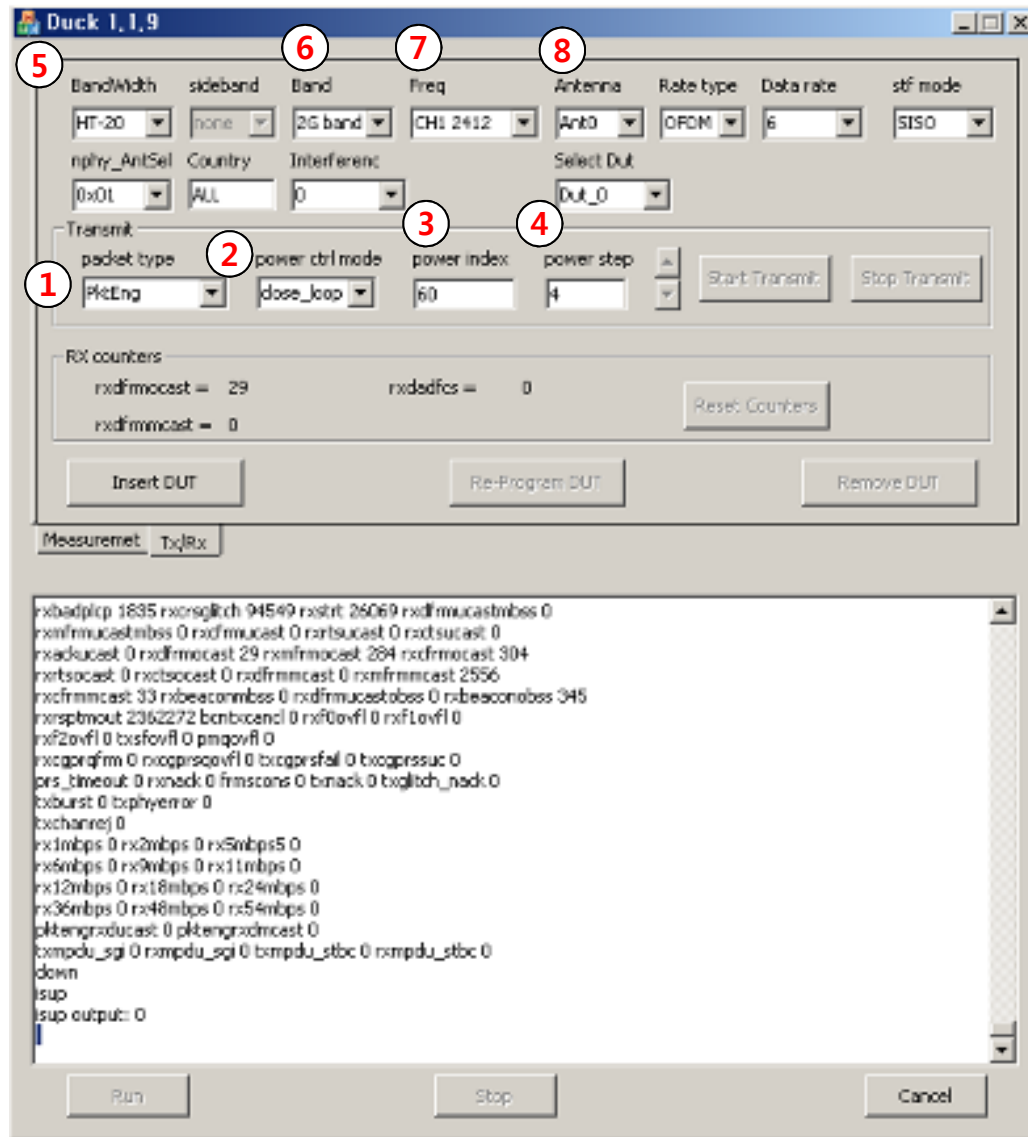
2. Install Program

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- ✓ Copy the Duck folder.
- ✓ Perform "Duck1.1.9.exe"



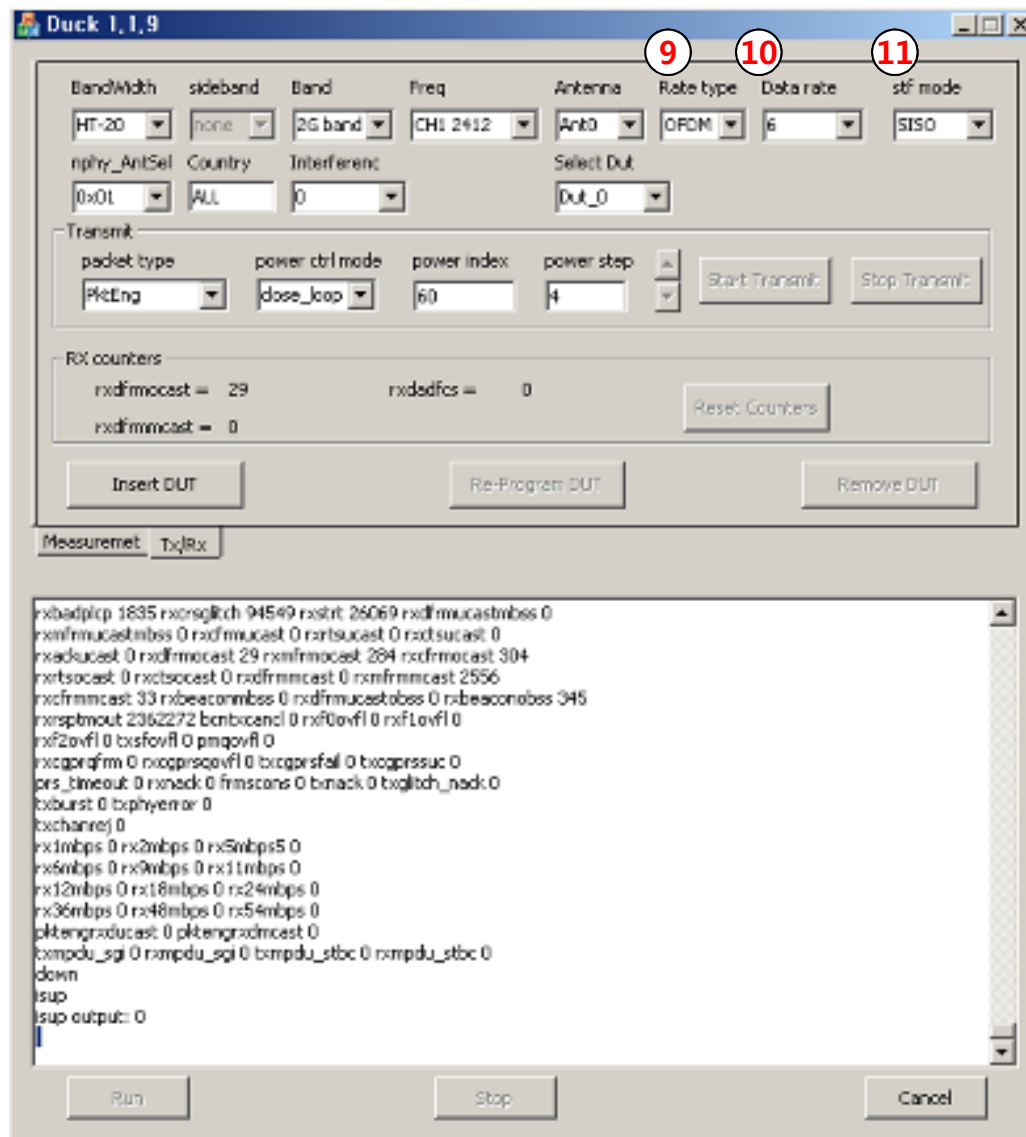
3. Duck Menu



1. Packet type : ttcp, PktEng
→ **PktEng**
2. Power ctrl mode : open_loop, close_loop
→ **close_loop**
3. Power index
→ 2 step =0.5dB, 4 step =1.0dB
ex) 60/4=15dB, 52/4=13dB
2 step (0.5dB)
4. Power step
→ 2 or 4 step
5. Bandwidth
→ HT20 : 802.11 a,b,g,n(HT20)
→ HT40 : 802.11n(HT40)
6. Band
→ 2G Band
→ 5G Band
7. Freq.
→ Test Frequency
8. Antenna
→ Ant0, Ant1

3. Duck Menu

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9. Rate type & 10. Datarate
(mode Datarate)

→ CCK : 11b (1, 2, 5.5, 11Mbps)

→ OFDM : 11g, 11a

(6, 9, 12, 18, 24, 36, 48, 54Mbps)

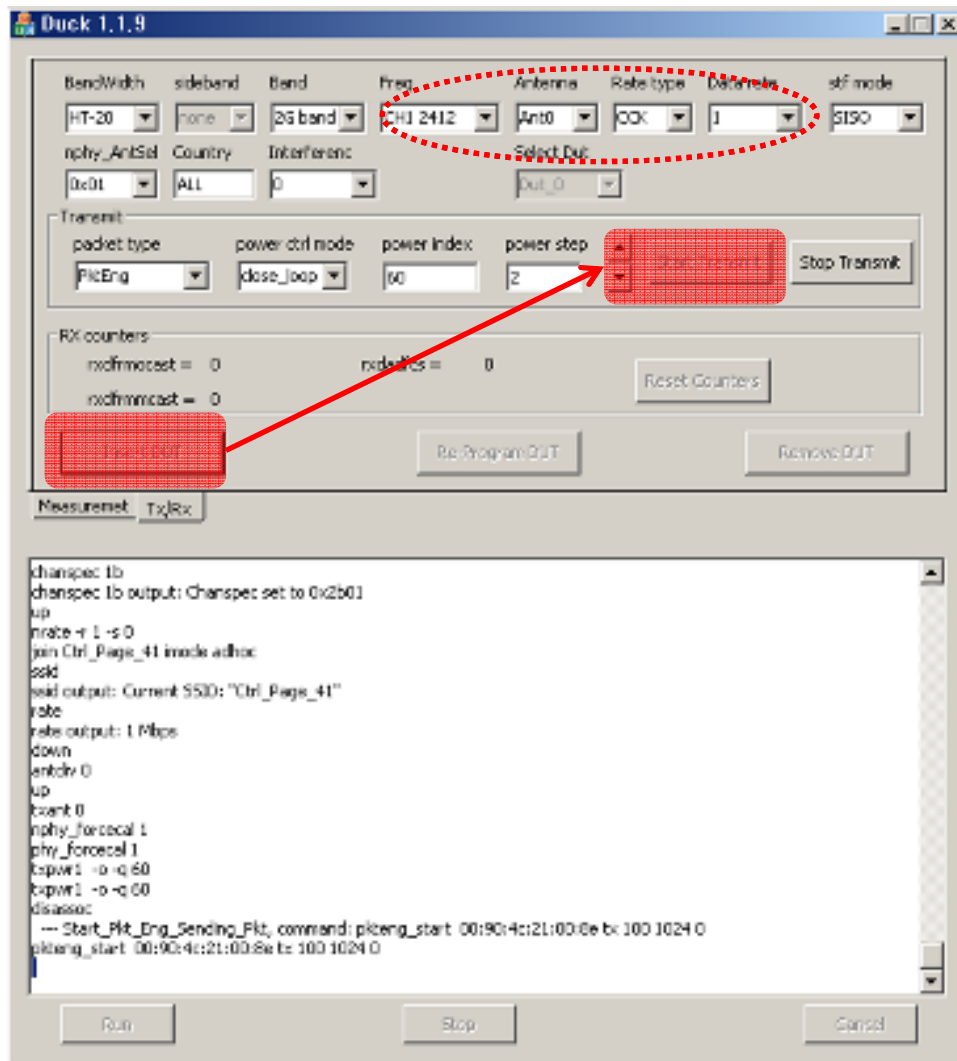
→ MCS : 11n (MCS0, 1, 2, 3, 4, 5, 6, 7)

Index	HT20	HT40
MCS0	6.5	13.5
MCS1	13	27
MCS2	19.5	40.5
MCS3	26	54
MCS4	39	81
MCS5	52	108
MCS6	58.5	121.5
MCS7	65	135

11. Stf mode : SISO, CDD

4. Example

11b, 2412MHz ,1Mbps ANT0 15dBm setting.



➤ TX Test

Insert WiFi module
WL Command "wl phy_watchdog 0"
Mode. ANT, Datarate

Insert DUT → Start Transmit

WL Command
wl channel
wl rate

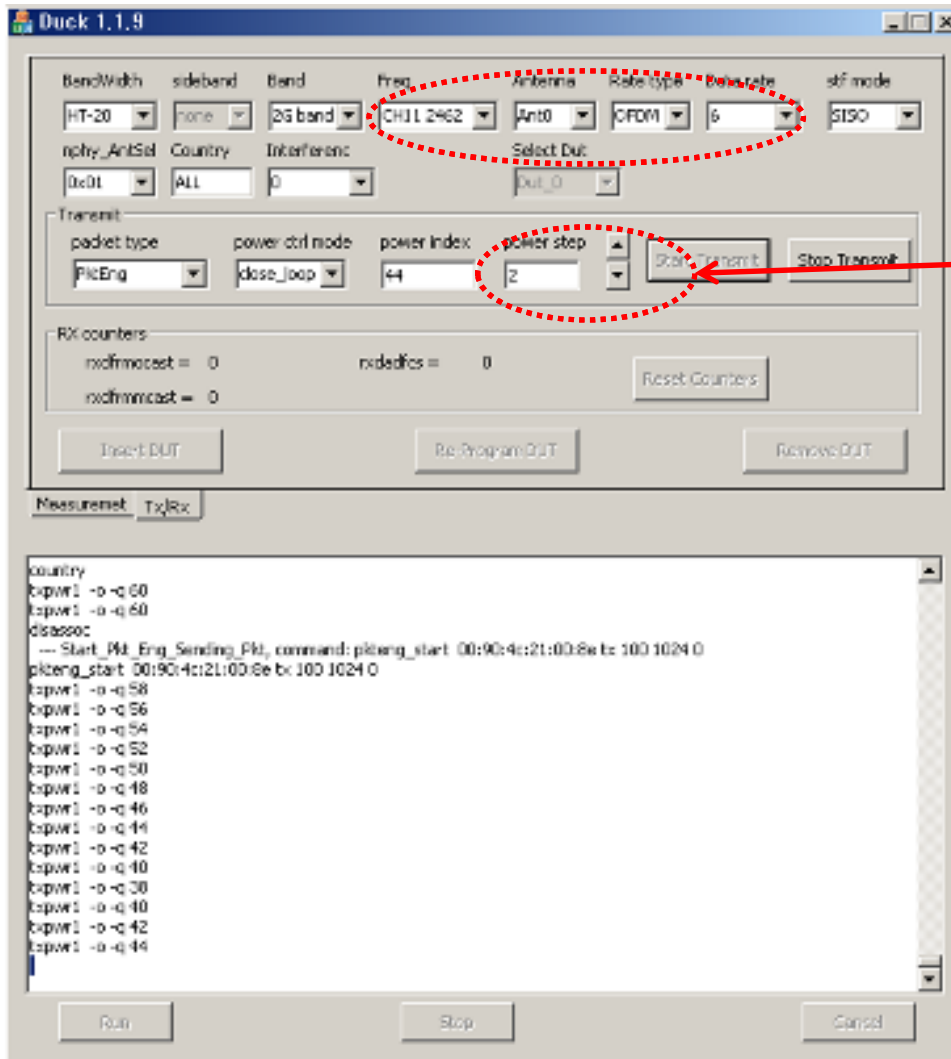
```
C:\#Duck_1_1_8_all>wl channel  
No scan in progress.  
current mac channel 1  
target channel 1  
  
C:\#Duck_1_1_8_all>wl rate  
1 Mbps  
C:\#Duck_1_1_8_all>
```

→ Check current Channel & Datarate

4. Example

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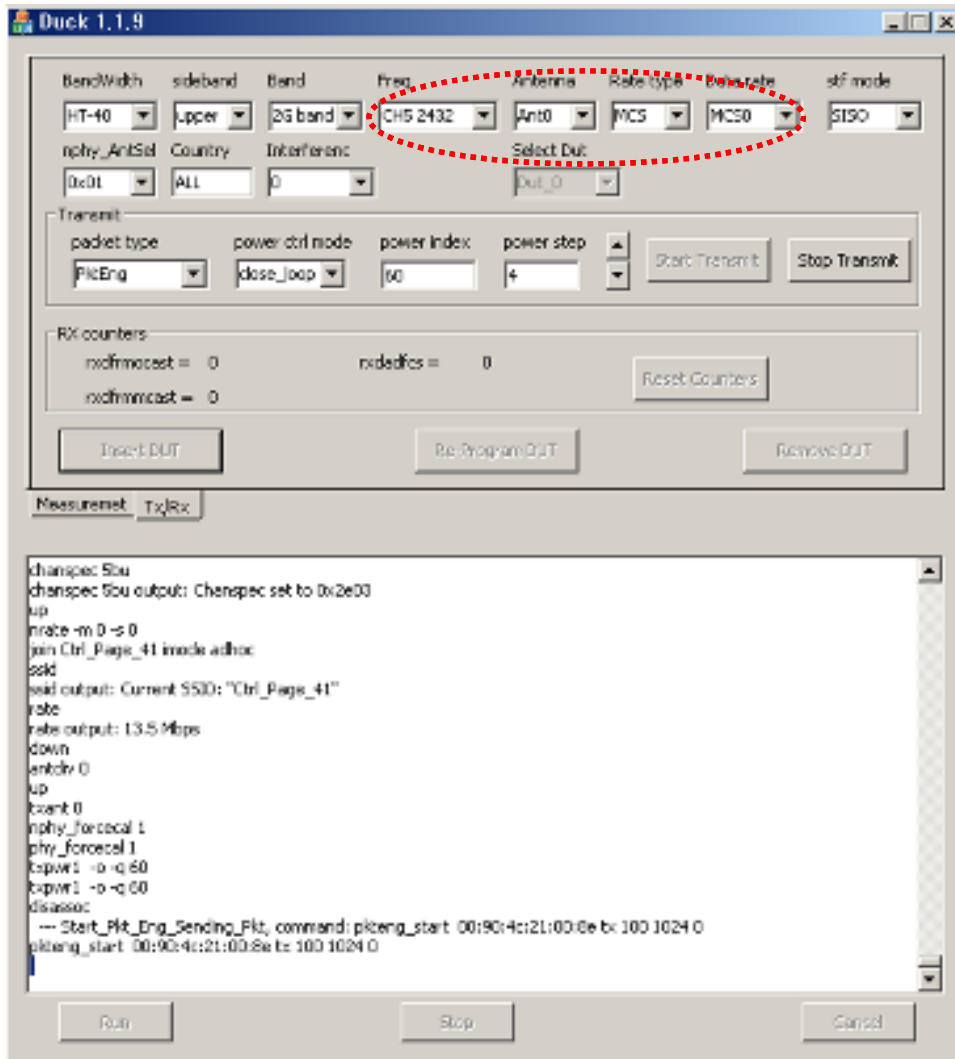
11g, 2462MHz ,6Mbps ANT0 11dBm



2 step (0.5dB)

4. Example

11n(2G), HT40, 2422MHz, MCS0 ANT0 15dBm



HT40 setting

Sideband : upper, CH5 2432MHz Minus 10MHz
2422MHz is center frequency.

```
C:\WDuck_1_1_8_all>ul channel
No scan in progress.
current mac channel 3
target channel 3

C:\WDuck_1_1_8_all>ul rate
13.5 Mbps
```

User Information

The satisfy FCC exterior labeling requirements, the following test must be placed on the exterior of the end product.
Contains Transmitter module FCC ID: **YZP-TWFMKB304D**

This device complies with FCC radiation exposure limits set forth for an uncontrolled environment. This device should be installed and operated with minimum distance 20cm between the radiating element of this device and the user. This device must not be co-located or operating in conjunction with any other antenna or transmitter.

This device is intended only for OEM integrators and following statements shall be included to host user manual

- 1) The antenna must be installed such that 20cm is maintained between the antenna and users.
- 2) This module may not be co-located with any other transmitters or antennas.

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 with this module installed. In the event that these conditions cannot be met, then the FCC authorizations are 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 this module and obtaining separate FCC authorizations.

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 technical for help.
- 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 technical for help.

This device complies with Part 15 of the FCC`s 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 undesirable operation.

LG Innotek declares that this TWFM-KB304D is compliance with the essential requirements and other relevant provisions of directive 1999/5/EC.



This equipment may generate or use radio frequency energy. Changes or modifications to this equipment may cause harmful interference unless the modifications are expressly approved in the instruction manual. The user could lose the authority to operate this equipment if an unauthorized change or modification is made.

Restrictions of use of TWFM-KB304D

This device must not be used outdoors in France.