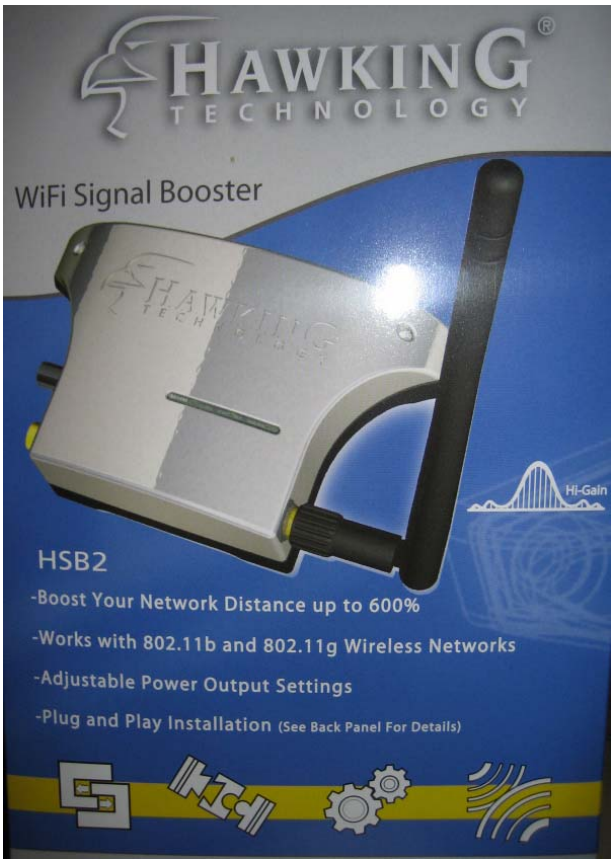
Langenbrettach/Germany, September 10th 2005
Matthias Bopp

Hello,

during my last trip to U.S. I bought a WiFi Signal Booster from Hawking Technologies. I got it at Fry's for 89.99 US$ and thought it might be a nice device to either extend the range of my Ham Radio ATV equipment on 2.4 GHz though its primary intended use is to extend the coverage of a 2.4 GHz WLAN router. This WiFi signal booster is specified to provide an output power of 500mW and a receive noise figure of 3.5 dB. The input power range is specified to be 8 to 18 dBm. Thus a significant improvement of the operating range versus the typical 17 dBm (i.e. 50mW) output power of my WLAN router can be expected. As 500mW output power is not allowed in Germany I intend to use this device with my ATV (amateur television) equipment.

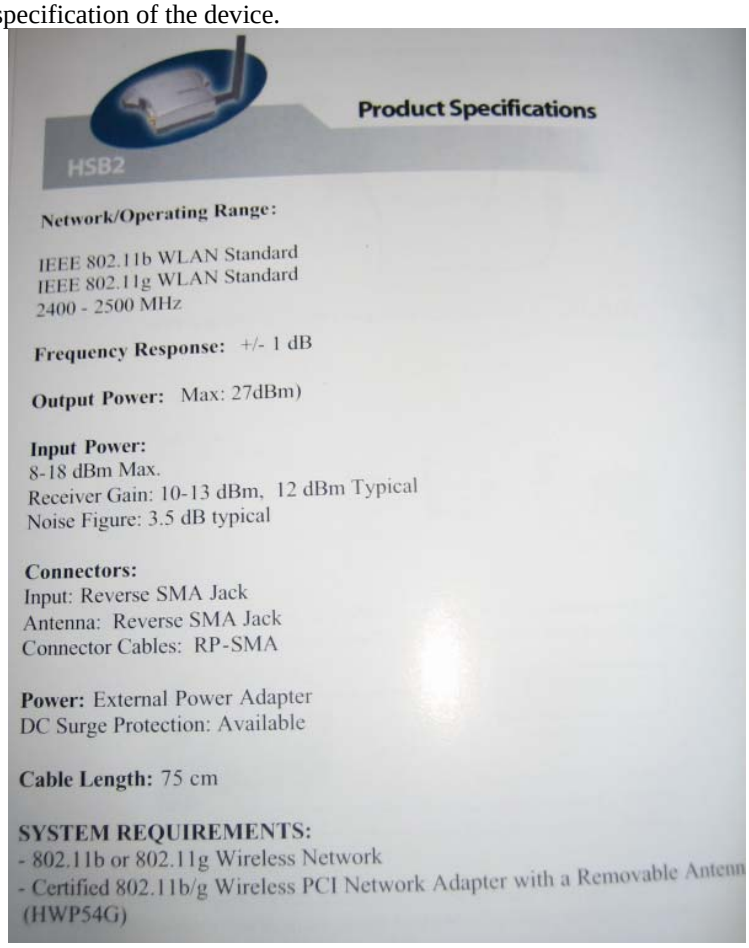
Below please find some information about the device an pictures of its PCBs.



The device is supplied with a AC-DC power supply. The power supply provides 12V 1.5A to the Booster. I measured an averaged current consumption of 80mA in receive/standby mode and 200 mA in active mode (during a file transfer in 802.11g mode). Please note that WLAN is a TDD/TDMA system which means it uses

timeslots for its transmissions. The peak current during transmissions will also be much higher than the measured 200mA. This is the reason for the high current capability of the enclosed AC-DC power supply.

Next please find the specification of the device.



HSB2

Product Specifications

Network/Operating Range:

IEEE 802.11b WLAN Standard
IEEE 802.11g WLAN Standard
2400 - 2500 MHz

Frequency Response: +/- 1 dB

Output Power: Max: 27dBm)

Input Power:
8-18 dBm Max.
Receiver Gain: 10-13 dBm, 12 dBm Typical
Noise Figure: 3.5 dB typical

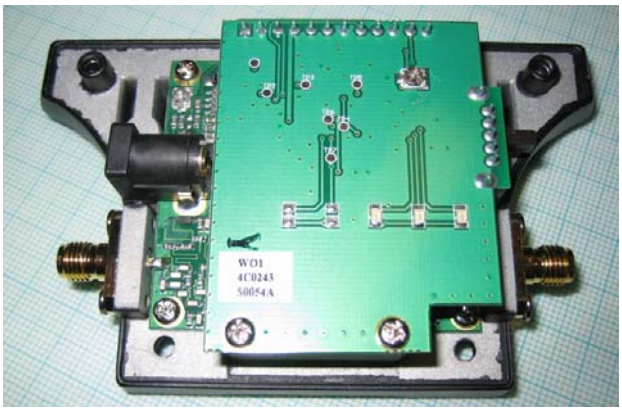
Connectors:
Input: Reverse SMA Jack
Antenna: Reverse SMA Jack
Connector Cables: RP-SMA

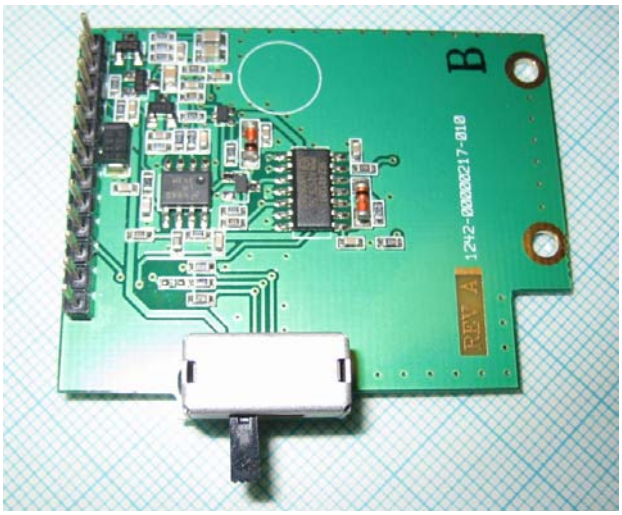
Power: External Power Adapter
DC Surge Protection: Available

Cable Length: 75 cm

SYSTEM REQUIREMENTS:
- 802.11b or 802.11g Wireless Network
- Certified 802.11b/g Wireless PCI Network Adapter with a Removable Antenn
(HWP54G)

Once the Booster is opened we find 3 PCB mounted in sandwich style. The bottom plate is solid and acts as a perfect ground plane as well as a heat sink.





The PCB on the left is a control board. It is normally plugged on to the main PCB (which can be seen below). With the switch seen at the lower end of the PCB the output power of the amplifier can be selected in 3 steps (100mW, 200mW, 500mW). On the back side of this PCB there is a potentiometer. I suppose it allows a fine adjustment either of the output power or the RF detector sensitivity of the “RF-VOX” to switch the device between receive (RX) and transmit (TX) mode. However I have not yet checked it in detail ...

The PCB below is the main PCB. If contains the RX/TX switches, the multi stage power amplifier, low noise amplifier as well as the power supply (voltage regulator). The reverse-SMA connector left is the port to be connected to the WLAN transceiver, the reverse-SMA connector at the right is the port to the antenna.

Kind regards

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