



WiBE[®] - Wireless Broadband Enabler

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Evaluation Guide

Introduction

The WiBE is a 3G Router. It connects WiFi and Ethernet LAN devices to the Internet using a 3G cellular network. It extends 3G broadband coverage in rural areas and other areas of poor coverage.

This guide outlines the unique features of the WiBE and contains suggestions as to how best to compare its performance to that of other 3G devices.

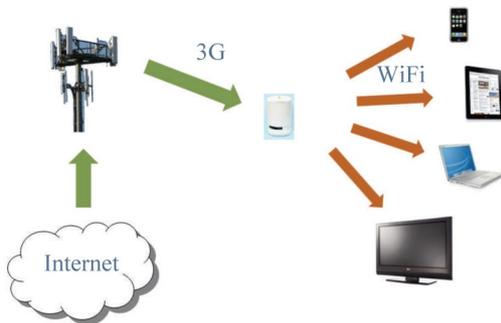


Figure 1. What the WiBE does

WiBE Key Features

The unique features of the WiBE are:

High gain antennas. These give the WiBE the ability to connect to a 3G network further away from a basestation than other 3G devices.

Directional antennas. These cut out interference from neighbouring basestations and prevent transmissions from the WiBE from interfering with these basestations.

Smart antenna selection. One of four antennas is selected to give the best data throughput, not necessarily the highest signal strength.

This key advantage of these features is that the WiBE can connect to the 3G network a lot further away from a basestation than other devices. Figure 3 shows how the WiBE compares to a 3G USB modem (dongle) and a best-in-class 3G router. In theory these measurements mean that a WiBE is capable of connecting:

Over three times further away from a basestation than the best-in-class router

Ten times further away than a USB dongle

In practice, with hills and other obstacles the improvement will not be as good as this, but improvements up to 5x have been seen in field measurements.

Test Methods

The results shown in Figure 3 can be measured in a lab with suitable equipment. Deltenna can provide details of our experiments on request. Most evaluators prefer to perform field measurements, comparing the WiBE's data throughput at different locations with other devices.



Figure 2. WiBE antennas

Expected Results

Very near to a basestation, where the 3G signal is strong, the WiBE will show similar data throughputs to any other device. Further away, it will start to show better data throughputs, ranging from 10% to 50%. Further still, other devices will not even connect and the WiBE will continue to provide good throughput.

Most devices will report signal strength, measured in dBm. With the WiBE, the signal strength on all antennas is reported on the Status screen, along with an indication of which antenna has been selected. Evaluators may notice the following:

The maximum signal strength seen by the WiBE will be greater (by the magnitudes shown in Figure 3) than other devices

The WiBE is capable of connecting to a networks at signal strengths as low as -107dBm

The WiBE connects to the base station giving the best throughput, which may be different from the highest signal strength

Remember that the WiBE's benefits will be seen in areas of poor or zero coverage for other devices.



Figure 3. How much better does the WiBE perform?