



## Product Description

USB 8500 is the complete reference design for WiMAX mobile station in USB dongle form factor. USB 8500 is an ideal broadband wireless network access solution for notebook PC user. The design is compliant with Wave1 and Wave2 profiles of WiMAX 802.16e and is available in three RF-band configurations: 2.3 GHz, 2.5 GHz and 3.5 GHz. USB 8500 design leverages the advanced features of Wavesat's Odyssey 8500 Broadband Wireless Access (BWA) baseband processor to deliver exceptional radio performance in mobile environment. High level of system integration of Odyssey 8500 baseband, including the embedded on-chip system memory and the USB 2.0 high-speed controller reduces the design footprint and minimizes power consumption.

## Performance

USB 8500 supports advanced WiMAX Wave2 profile features including MIMO Matrix A and B and H-ARQ. It delivers superior performance in non-line of sight (NLOS) mobile environment. The design is able to support downlink rate of up to 46.1 Mbps and uplink rate of 11.7 Mbps.

## Low power consumption

USB 8500 extends the battery life of the PC host by minimizing the current draw from the USB. It takes advantage of the advanced power management features of the Odyssey 8500 such as dynamic voltage scaling and clock frequency tuning. The dynamic power management software also automatically switches between Active, Idle and Sleep modes based on the network activity.

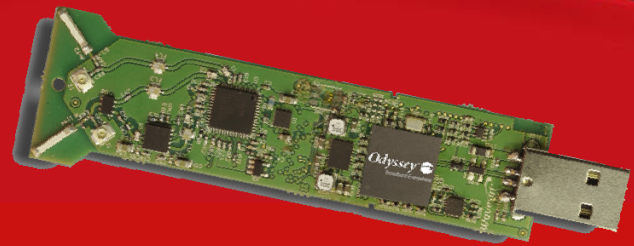
## Complete Turn-key solution

USB 8500 reference design is a part of a complete turn-key solution aimed to shorten the development cycle and reduce the risk and effort of WiMAX certification process. The reference design ships in production-ready quality and includes the following:

- Design schematic and layout files with assembly part list
- Baseband PHY and MAC software and Nucleus OS
- RF configuration drivers
- Manufacturing test program and RCT, PCT & IOT test reports
- Window XP and Vista USB Drivers
- Connection manager and diagnostic monitor
- Development platform including Odyssey 8500 development board
- A complete set of documentation including Odyssey 8500 manual, software user's guide, API reference manual and RF layout application note

## USB 8500

2.3/2.5/3.5 GHz WiMAX USB Dongle

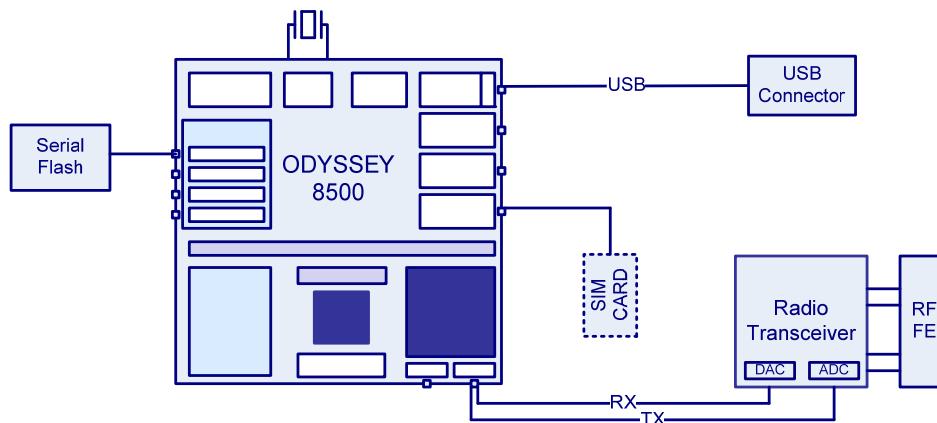


- WiMAX 802.16e-2005 Wave 2 compliant supporting MIMO Matrix A and B, beam-forming and H-ARQ
- 2.3, 2.5 and 3.5 GHz WiMAX
- Superior performance in fast changing mobile and Non Line of Sight (NLOS) environment for increased reach and throughput
- 46.1 Mbps DL and 11.7 Mbps UL data rate
- USB2.0 High Speed interface
- Remote over the air configuration and service via SNMP and diagnostic monitor
- Low power system with dynamic power management in Active, Idle and Sleep modes
- Enhanced Security Protocol
- QoS support for real time applications (VOIP and Multimedia)
- Easy "plug-and-play" self installation and use
- Status Indicator LEDs
- Windows XP/Vista support

### Detailed Specifications

Host Interface	USB 2.0 High Speed
Operating System Support	Windows XP and Windows Vista
LED indicators	Power indicator, Network Status indicator
Standard Compliance	IEEE 802.16e-2005 + IEEE P802.16-2004/Cor2/D3 WiMAX Wave 2
Frequency Band / Ch. Bandwidth	2.3 GHz, 2.5 GHz and 3.5 GHz @ 5, 7, 8.75 and 10 MHz/channel
Air Interface PHY	OFDMA, FFT 512 & 1024, QPSK, 16-QAM and 64-QAM (UL & DL), TDD (5ms/frame), MIMO Matrix A and B
Maximum Data Rate	DL: 46.1 Mbps (10 MHz, 64-QAM, MIMO Matrix-B), UL: 11.7 Mbps (10 MHz, 16-QAM)
Tx output power / Dynamic Range	+ 22 dBm @ (16QAM) / 40 dB
Rx Sensitivity	- 91.5 dBm @ (QPSK 1/2)
Antenna Configuration / Gain	1 Tx, 2 Rx / 0.5 dBi (average)
Quality-of-Service Classes	BE (Best Effort), UGS (Unsolicited Grant Service), RTPS (Real-time Polling Service), NRTPS (Non-real-time Polling Service), ERTPS (Extended Real-time Polling Service)
Device Authentication / Encryption	EAP-TLS, EAP TTLS, EAP-SIM, PKI digital certification (X.509) / AES (128-CCM)
Size (L x W x H)	35 mm x 23 mm x 3.6 mm
Operating Temperature / Humidity	0° – 45° C / 0 – 90% (Non-condensing)

### USB Dongle Block Diagram



### Ordering Information

OD-8500-DK	Development Kit
OD-8500-RD-USB-20	2.3 GHz USB Dongle Reference Design (WiMAX)
OD-8500-RD-USB-21	2.5 GHz USB Dongle Reference Design (WiMAX)
OD-8500-RD-USB-30	3.5 GHz USB Dongle Reference Design (WiMAX)
Odyssey family of products also includes reference design for turn-key solution in ExpressCard form factor. Consult separate product brief for detailed information	

Specifications are subject to change without notice

