U-MEDIA Communications, Inc.

PUCK Specification

802.11 b/g/n Access Point with embedded WiMax (4G) modem

Revision 1.2

Revision History

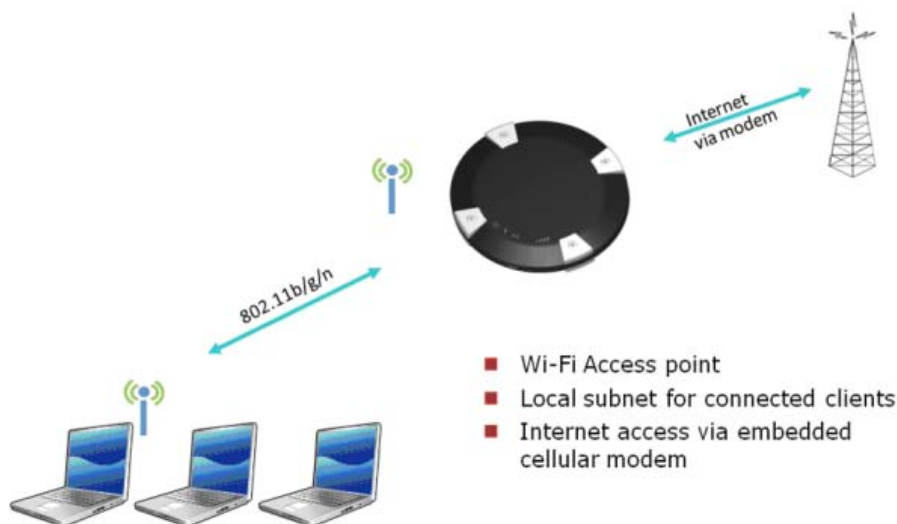| Date	Version	Author	Remark
5/27/2010	1.0	Daphne Tseng	Preliminary
7/30/2010	1.1	Daphne Tseng	Modified
8/11/2010	1.2	Daphne Tseng	Modified

Product concept

Overview

Puck is a battery-operated portable hot spot with an embedded 4G WiMAX modem. Puck is custom designed-for and is exlusive-to Clearwire. There is no CradlePoint branded SKU of Puck. Puck is based on CradlePoint's new netBSD architecture. The Web user interface (UI) is similar to Tablerock/Spot II, with a focus on simplicity.

User Requirements

- Excellent Wi-MAX performance: >5Mbps download; >1.2Mbps upload
- Highly portable with compelling industrial design
- Battery operation for over 3 hours (up to 4 hours is the official goal)
- Simple to setup and use; no software to install
- Clear indication of status and error conditions
- Durable and reliable in the face of less than careful handling
- Wi-Fi and 4G antennas effective in vertical and horizontal product orientation

Personal Hot Spot

- Wi-Fi Access point
- Local subnet for connected clients
- Internet access via embedded cellular modem

Router Wi-Fi Features

802.11b/g/n 2.4GHz single band

Puck has an embedded 802.11n 1x1 radio compatible with 802.11b/g/n devices. Best performance will be achieved when all devices in the Wi-Fi domain are operating in 802.11n mode. Additionally, Puck has receive diversity to improve Wi-Fi performance beyond other 1x1 systems.

Multiple WLAN segments (Multiple SSID)

Puck supports two SSIDs to allow the Wi-Fi to be divided into private and public LAN segments, each with their own QoS priorities and security settings. The public SSID is enabled through the web UI.

This feature requires two MAC addresses: one per SSID because of Ralink's implementation. Manufacturing will assign two MAC addresses per product to support this feature.

RF Specifications

802.11 Radio circuitry

Wi-Fi Compliant with IEEE 802.11b/g/n Standards

802.11b/g/n main and diversity internal antennas

Support OFDM and CCK modulation

WLAN Standard	IEEE 802.11b/g/n Industry standards
Media Access Protocol	IEEE 802.11
Operating Frequency	2.412 - 2.462 GHz (FCC, North America)
	2.412 - 2.472 GHz (TELEC, Japan)
	2.412 - 2.472 GHz (ETSI, EURO)
Operating Channels	11 for FCC, North America
	13 for JTAC, Japan
	13 for ETSI, Europe
Data Rate Shifting	1, 2, 5.5, 6, 9, 11, 12, 18, 24, 36, 48, 54, 130 Mbps
Output Power	

Maximum (Peak power)

11n Mode (20MHz) 16.7dBm

(40MHz) 16.3dBm

11g Mode 17.4dBm

11b Mode   14.3dBm

Receive Sensitivity

11n Mode   -65dBm typical @ HT40

-68dBmtypical @ HT20

11g Mode   -72 dBm typical @ 54Mbps

11b Mode   -84 dBm typical @ 11Mbps

WiMAX Compliant with IEEE 802.16x Standards

RADIO TECHNOLOGY	OFDMA			
Modulation / Coding Rate	Up-Link：QPSK 1/2 , QPSK 3/4, 16QAM 1/2, 16QAM-3/4			
	Down-Link： QPSK 1/2 , QPSK 3/4, 16QAM 1/2, 16QAM-3/4, 64QAM 1/2, 64QAM 2/3, 64QAM 3/4, 64QAM 5/6			
Operating Frequency Range	FCC	2496	MHz to	2690
Channels for Test		L (MHz)	M (MHz)	H (MHz)
	5MHz	2498.5	2587	2687.5
	10 MHz	2501	2593	2685
Channel BANDWIDTH	5MHz, 10MHz			
Channel Step	250KHz			

RF Output Power

MAX. EIRP POWER	5MHz: 27.2dBm 10MHZ : 27.5dBm
MAX.CONDUCTED POWER	5MHz: 23.7dBm 10MHZ : 24.1dBm

Product ID

D=108.0

15.0mm

Environmental Requirements

Temperature

Operating   0°C to 40°C

Storage   -20°C to 70°C

Humidity

Operating   10% to 85% Non-Condensing

Storage   5% to 90% Non-Condensing