

[Introduction to the Mesh](#) The Montgomery Amateur Radio Club, March 5, 2014

If you want a presentation on the MESH at your local group, send me an email and I or someone else will get back to you. mesh@KB3TCB.com

If you have worked with a Mesh and a presentation you would like to give, please let me know, I have requests for presentation in a wide area!

Mother of all sites

[Broadband-Hamnet](#)

Broadband-Hamnet™ is a high speed, self discovering, self configuring, fault tolerant, wireless computer network. Its primary focus is on emergency communications.

Getting Started

[Wireless Networking in the Developing World](#) NEW

[HSMM HSMM-MESH - Seminar Session 1 \[Kipton Moravec AE5IB\] \(PDF\) - February 6, 2010](#)

[HSMM-MESH - High Speed Multimedia MESH Network \[Montgomery ARC\] - 2012/04/11](#)

[HSMM-MESH™ - BVARC Meeting \[Andy W5ACM\] - Sep 2010](#)

Use Cases

- [A Broadband Ham Network Crosses the Finish Line](#)

Disasters and Emergencies

- [Minneapolis network aids rescuers-bridge collapse](#)
- [2013 After Action Report - City of Berkeley](#)
- [Comm Center Deployment - Amazon S3](#)
- [The Mesh](#) NEW
- [Wind - Greece](#) (click UK flag for English) NEW
- [Wireless To Enhance Mass Casualty Treatment](#) NEW
- [CalMesh: Mesh Supports Emergency-Response](#) NEW
- [Wildfire Exercise in Maine](#) NEW

Slide Presentations

[Public Networks for Public Safety Briefing Document](#)

[COTS Wireless.pdf - Oahuraces.org](#)

[Broadband-Hamnet™ Update 2010](#) Glenn Currie, KD5MFW, (Summerfest 2010)

[Broadband-Hamnet™ Update 2013](#) Glenn Currie, KD5MFW, (August 2013)

[HSMM-Mesh™](#) K7GJT (2012) ● [HSMM-Mesh™](#) WN8U (2013)

[High Speed Multi Media – Mesh Networking Using Commercial Off](#)

[Introduction to Mesh Networking](#) Doug Kingston, KG2IQ (2013-01-17)

[MSMM-Mesh Presentation - HLARC](#) Rik Chapman, K5RIK (March 29, 2013)

[Rebuilding Net-44 - Rethinking Amateur Radio Networking \[K7VE\] - 2012](#)

[High Speed Data for HAM Operators](#) Larry Pesc

[WELCOME To HSMM-MESH](#) K4VRC

[Presentation - SurvivalNerds](#) KB1TNF, KB1WUL
[Broadband Ham Network Presentation](#) Bill Wallace, W0WHW (September 27, 2013)
[Quick Overview of HSMM-MESH](#) By: KF5JIM
[Wireless Data Networks](#) Nick Massey VA7NRM (07-Dec-2006)
[The ARES Meeting](#) Bill Wallace KC0TGY
[I'm MESHing , Now What? - SEA-PAC](#)
[HSMM -MESH - The Dean Family](#)
[Introduction to Mesh Networks](#) Tim Howard, KE6TIM (Feb 24,2014) NEW

PDFs

- [802.11ah: WiFi Standard for 900MHz](#) NEW
- [Neighborhood-centric congestion control for multi-hop wireless mesh networks](#) Sumit Rangwala, NEW
- [Management Issues on Wireless Mesh Networks](#) Jairo L. Duarte NEW
- [Mesh Network Performance Measurements](#) Diego Passos NEW
- [Simple Yet Efficient, Transparent Airtime Allocation for TCP in Wireless Mesh Networks](#) Ki-Young Jang NEW
- [A Reliable Wireless Mesh Infrastructure Deployment at Crisis Site](#) Raheleh B. Dilmaghani NEW
- [A Brief Look at Internet Networking Over Amateur Radio](#) Brian Kantor, W B6CYT (July 2011)
- [Mesh Network Performance Measurements](#) Diego Passos
- [Applications and Accessories for the Mesh](#) Rusty Haddock, AE5AE (2012)
- [HSMM-MESH Design Philosophy](#) David Rivenburg, AD5OO (22 February 2010)
- [High Speed Multi-Media \(HSMM-MESH \): The Next Big Thing in](#)
- [HSMM-MESH networks](#)
- [Public safety and Disaster recovery Applications](#) NEW

A strong dependence on point-to-point communication links and a limited degree of redundancy give these systems an insufficient level of resilience and robustness in disaster scenarios.

- [HSMM : Hierarchical Synchronized Multimedia Multicast for](#)
- [HF Radio Mesh Networks](#) Eric Johnson
- [CalMesh: ISCRAM 06](#) NEW
- [Delay Tolerant Disaster Communication, Child XO Laptop](#) NEW
- [A Wireless Mesh Infrastructure Deployment](#) NEW
- [HSMM-Mesh.org](#)
- [Enhancing Robustness of First Responder](#) NEW
- [City Mesh – Resilient First Responder](#) NEW
- [HSMM Wiki Spaces](#)
- [Radio Based TCP/IP](#) N8UR NEW

LinkSys Equipment

Model	Version
WRT54G	1.0 - 4.0
WRT54G	5.0 and up
WRT54GS	1.0 - 4.0

Ubiquiti Equipment

Rocket M2
 Bullet M2 HP
 AirGrid M2 HP
 NanoStation Loco M2 (NSL-M2)
 NanoStation M2 (NS-M2)

WRT54GS 5.0 and up

WRT54GL 1.0 - 1.1

[Broadband Hamnet™ Router Shopping Guide](#)

This list is from the Broadband Hamnet™ site, please contact them for possible changes. I have tested WRT54G and WRT54GS units and they work as indicated. I have tested some Ubiquiti units.

Existing Systems

Maryland

- [5 GHz and Directional Antennas](#) Baltimore Radio Amateur Television Society B.R.A.T.S. **NEW**
- [Emergency Cloud system](#) Jesse Alexander,(January 24, 2014)
- [Raspberry wifi HSMM-MESH node Emergency Cloud Server](#) Jesse Alexander, WB2IFS **NEW**
- [Raspberry Emergency Cloud Server](#) Jesse Alexander **NEW**

Clubs

- [York Region ARC \(YRARC\)](#)
- [Integrating HSMM-MESH into an existing net](#) Ohio Packet
- [WSU Amateur Radio Club WAN \(W7YH\)](#) **NEW**
- [W8QQQ ~ SARA Field Day HSMM Setup](#) Shiawassee Amateur Radio Association
- [Presentation from LETARC Meeting](#) 01/2014
- [grapevinehamradio](#)
- [Clearfield County ARC](#)
- [Orange County Radio Amateur Civil Emergency Service](#) August 2013
- [Introduction to Broadband-Hamnet \(HSMM-MESH\)](#) Brown County ARES/RACES
- [Sunset Empire ARC](#) Aug
- [Hurst ARC – W5HRC](#) February 2013
- [Gadsden ARC, LLC](#) April 22, 2013
- [Garland ARC, The Arclite](#) August 09
- [Temple ARC](#) Dec 2011
- [Rockwell Collins Amateur Radio](#) May 2011
- [Newsletter - Manatee-arc.org](#)
- [Austin ARC](#) February 2013
- [Rockwell Collins ARC](#) May 2011
- [Orange County Radio Amateurs](#) August 2010
- [Carrier - Mount Diablo ARC](#) May 2012
- [Newsletter, Tri-County ARC Inc.](#)
- [AARO Newsletter Alamo Area Radio Organization](#) February 2013
- [Cedar Valley ARC](#) August 2012
- [Mike And Key ARC](#) October
- [San Angelo ARC, Inc.](#) June
- [OARC e-Magazine - Ogden ARC](#)
- [Mid-Atlantic ARC](#) March 2013
- [Grayson County ARC News](#)

- [Palomar ARC Feb](#)
- [Newsletter - Manatee-arc.org](#)
- [BLT-26 and HSMM MESH -- Flight Results - BVARC](#)
- [The Exciter - Denton County Amateur Radio Association](#)
- [Editorial Sum09-Cq-Vhf.com](#)
- [MARC Newsletter - The Mississauga Amateur](#) 2012 November
- [Membership Meeting Minutes - Grand Rapids Amateur](#) March 2012
- [Newsletter - W2JSN.com](#) February 2013
- [meeting \(Approved\)-Enid ARC](#) Minutes of July 2010
- [Minutes of PREVIOUS MEETING 2013 \(DRAFT\)-Enid ARC](#)
- [W9UVI](#) September 2013
- [Hamnet \(Mesh\) at HOTARC](#)
- [Highland Lakes Amateur Radio Club](#) HLARC
- [2013 October Meeting Slides - Amateur Radio Association of](#)
- [W5ES](#) Sep. 12
- [Aug - Seaside Tsunami Amateur Radio Society](#)
- [4x4 Ham Forum - HSMM Mesh Node - 2.4GHz & Part 97 \(Part 4 - Calculating Mesh Link Performance\)](#)
- [Digital Communications - Cascade Amateur Radio Society](#)
- [eaars](#) August
- [eaars](#) September
- [newsletter - N4brf.org](#) december 2012
- [Newsletter - Wa6bgs.us](#) August 17, 2013
- [Zero Bias](#)
- [Lake County Ham Radio Journal](#) April/May 2010
- [Palacios TX rally review - RV Radio Network](#)

California

- [Santa Clara County OES](#) NEW

Florida

- [Martin County Amateur Radio Association](#) NEW • [Martin County ARES](#) NEW
- [Operation RADAR II Exercise](#) Putnam County NEW

New Jersey

- [Fair Lawn Radio Emergency Service](#) NEW • [Bergen Amateur Radio Association's](#) NEW

Pennsylvania

- [Western PA ARES begins Tech Initiative](#) NEW

Texas

- [Montgomery County ARES](#) NEW

Montgomery County Amateur Radio Emergency Service

- [Montgomery County Ham Radio](#) NEW

Information about the clubs, hams, activities, and repeaters relating to ham radio in Montgomery County, TX. Plus ...

How To

[How to Enable a Guest Access Point on Your Wireless Network](#) **NEW**

[Freshnel Zone Calculator](#) **NEW**

[Common RF Coax Connectors](#)

[hsmmmesh-step-by-step](#)

[HSMM -MESH - Northwest Amateur Radio Society](#)

[W5MAE Rootenna HSMM-MESH Node](#)

[drop-boxes](#)

[How to enable GRE tunneling between HSMM nodes](#)

[Sector Antenna for 2.4 and 5.8 GHz YU1AW](#) **NEW**

[Installing an IRC Server AE5AE](#) **NEW**

[Here's the how-to for WRT54RG](#) Steve, VA3SRV

[W5ADC HSMM-MESH](#)

[Configuring D-RATS to run over the HSMM MESH](#)

[Web Servers on the HSMM-Mesh](#)

[Build a Patch Antenna](#) for 2.4 GHz (~8 dbi)

[Build a Cantenna](#) for 2.4 GHz (~10 dbi)

[Build a Bi-Quad Antenna](#) or [To feed a dish](#)

[FlashUbiquiti](#)

[Planning a wisp solar powered tower](#) **NEW**

[Pidgin is a chat program.](#) **NEW**

[WRT54G\(S\) Frequenzänderung](#) **NEW**

[Enabling ham radio channels in wireless](#) **NEW**

Raspberry

- [Setting up Asterisk on a Raspberry Pi](#)
- [HSMM Pi Tabletop Demo](#) (YouTube)
- [HSMM Mesh - Raspberry Pi](#)
- [Raspberry wifi Emergency Cloud Server 2](#)
- [Setting up Asterisk on a Raspberry Pi](#)
- [HSMM Pi Tour](#) (YouTube)
- [Raspberry wifi Emergency Cloud Server 1](#)
- [HSMM MESH in Big bend 2013](#)

HSMM-Pi Blog

The HSMM-Pi project provides an easy way to transform a Raspberry Pi equipped with a USB wifi adapter into a wireless mesh node. HSMM-mesh nodes are different from other mesh nodes in that they can be operated at much higher power and with larger antenna structures.

[Watts to dBm Converter](#) • [Perl Scripts / Interactive Design / Software](#)

[Microwave Radio Path Analysis](#) • [Wireless Network Link Analysis](#)

[Downtilt Coverage Radius](#) • [Calculating your 802.11 power output.](#)

[RF Link Budget Calculator](#) • [Proxim Link Budget Calculators](#)

Broadband sites

HamWAN

[Italian Cisar Radio Amateur WiFi Network Overview: CisarNet](#) **NEW**

[What is the DRG and What is the AMPRnet](#) **NEW**

[Managing the AMPRNet™ — TCP/IP Networking for Amateur Radio](#) **NEW**

Internet network 44 (44.0.0.0/8), known as the AMPRNet™, has been used by amateur radio operators to conduct scientific research and to experiment with digital communications.

[Puget Sound Data Ring](#) Bart Kus, AE7SJ NEW
[Northwest MESH Amateur Radio Networking](#) Bart Kus, AE7SJ NEW
[HamWAN: Modern IP Networking on Ham Bands](#) Ryan Turner, K0RET NEW
[British Columbia Wireless Amateur Radio Network](#) NEW
[DB0KV HAMNET-Userzugang aktiviert](#) NEW
[AMPRNet IP Koordination](#) NEW

Misc.

[KF7BWS Amateur Radio](#)
[Mesh Amateur Radio](#) NEW
[Visionary of the Valley](#) WU2S NEW
[FCC report and order WT Docket No. 97-12](#) (regulatory aspects of 802.11 use) NEW
[Wireless Security Products](#) NEW
[Netstumbler](#) NEW
[Putting High Speed Multimedia to Work in Italy](#) NEW
[San Diego wireless net installs 72-mile, 2.4-GHz link](#) November 12, 2002 NEW
[AirSnare](#) NEW
[yahoo HSMM-MESH SIG](#)
[EL PASO, TX](#) Doug AE5HE, (Apr 8, 2012)
[Mesh Network Field Test – NP2X \(Great Pond, St. Croix\), Jun 27, 2012](#)
[Welcome to the Stateline Repeater System](#)
[MMARS and GAIA Dot Org - FinalDraft - marspapers.org](#)
[Roadmap Doc Version 3 - Cupertino Amateur Radio Emergency](#)
[Starting to use HSMM-MESH™](#)
[New High-Speed Multi-Media Radio Mesh Networking - Transistori.net](#)
[HSMM Radio Equipment - QSL.net](#)
[Design and implementation of a Wireless Link in a HSMM - MESH](#)
[Ham-Com](#)
Point-to-Point vs. MESH
[Mesh vs. point-to-multipoint topology](#)
[Point to Multipoint \(PtMP\) vs. MESH](#)
[To Mesh or Not To Mesh for Wireless Security and Surveillance](#)
[An Infrastructure for Long-Term](#)
[What wireless microwave to use and when](#) July 7, 2013
[Wireless Battle Mesh](#)
[Wireless Mesh Routing and Wireless Bridging Architecture](#)
[MobiMESH vs Others](#)

Government

- [2011 DCC - Digital Modes for EmComm - FCC](#)
- [Stark County Amateur Radio Emergency Service Website](#)
- [ARES-RACES WebEOC Input - Michigan Section ARES](#)

YouTube

[Point to Point Microwave Paths for HSMM](#)

[Introduction to HSMM-MESH or Broadband-Hamnet](#)

[Overview: Mesh Networks](#)

[Phoenix HSMM-Mesh Node Antenna Height Calculator](#)

[HSMM flexibility with the D-Star ID-1](#)

[HSMM-MESH Node for Amateur Radio](#)

[Ham Radio HSMM Using Ubiquiti Equipment \(Part 1\)](#)

[HSMM-MESH Test approximately 5mi point to point near Otisville, NY. Part 1](#)

[HSMM-MESH](#)

[Big Bend 50 Ultra Marathon HSMM-Mesh\(TM\) networking](#)

[Setting up a MESH Node for Amateur Radio - WRT54G firmware install. HSMM-MESH](#)

[WIFI Internet tower. UBNT](#)

[High Speed Multimedia in Albuquerque](#)

[Mesh Experimentation for Emergency Communications](#)

[HSMM-MESH V 1.0](#)

[420 MHz Broadband Mesh Network for Emergency Communications Part Two](#)

[Mesh Upgrade](#)

[HSMM MESH](#)

[Ham Radio HSMM Using Ubiquiti Equipment \(Part 3\)](#)

[Test 5mi point-to-point Otisville, NY. Part 2](#)

[Update Firmware on a Remote Node - Testing Using Mesh Nodes to set up Pharmacy Digital Signs](#)

[The Mesh Network: Powering Tomorrow](#)

[3 PirateBoxes in a B.A.T.M.A.N. Mesh network](#)

[Get to know Open-Mesh](#)

[Introduction to HSMM-Mesh](#)

[HSMM-Pi - Location and Service Forwarding Demo iCruze display on a Broadband-Hamnet \(HSMM-Mesh\) node](#)

[Linksys Router to HSMM-MESH node AE5IB Dayton 2012.mp4](#)

[Setting up a MESH Node for Amateur Radio - WRT54G firmware install. HSMM-MESH](#)

[How To Configure Your HSMM-Mesh Nodes for N3FJP and N1MM Contest Loggers](#)

[2-6-2010 HSMM-MESH Webinar](#)

[DCARC December 2012 Homebrew - Gerald Hasty](#)

[York Region Amateur Radio Club - Emergency Preparedness Fair](#)

[WISPER for first responders on KITV4 News](#)

[HSMM MESH in Big bend 2013](#)

[Recording with HD Camera on Mesh Networking](#)

[Enabling ham radio channels in wireless 802.11 devices \(updated\)](#)

[Test a Cisco CP7971G-GE SIP K5KTF and WA5VBP](#)

[HSMM MESH in Big bend 2013](#)

[WiFi Stand Prototype for HSMM](#)

[Test 5mi point-to-point Otisville, NY. Part 3](#)

[KD5MFW 2012 HamComm HSMM-Mesh Project Update](#)

[How To Flash a Cloudtrax Enabled WiFi Router with Open Mesh NG Firmware for WiFi Network Tutorial](#)

[Open-Mesh- WiFi Install Using Open-Mesh and CloudTrax](#)

[Getting started with the Mesh Network project](#)

[Open-Mesh Indoor Wall Plug Enclosure](#)

[Mesh Network Radio is Plug and Play Right Away!](#)

[Mesh Networks / New Antenna Technologies - Wireless LAN Weekly EP 25](#)

[High speed mobility test @ 802.11n based MESH Mobility system](#)

[SAT: A Security Architecture Achieving Anonymity and Traceability in Wireless Mesh Networks](#)

[Mesh Node](#) Ron Ziernicki, VA3RRZ NEW

[Hamradio Pacificon event at the ARRL Forum](#) Chris Imlay ,October 16th 2011

[WISPER Demo - Outdoor. Disposable wireless mesh communication nodes](#)

[Adding an Analog Telephone](#) NEW

[HSMM Range Test](#)

[Net 44 - Amprnet update](#) John, K7VE ,Jan 30, 2013

HAMNET

NEW

[hamnet radio amateurisme](#) DB0KWE [HAMNET DiaShow](#)

[Hamnet Migration](#) DB0KWE

[Modifikation des HamNet](#) DB0KWE

[Hamnet](#)

Non-Amateur Networks

- [Village Telco, Mesh Potato](#)
- [Byzantium](#) - wireless mesh networking for the Zombie apocalypse
- [Mesh Projects](#)
- [Hyperboria Sites](#) - see the list of available services.
- Meshnet - using [CJDNS](#) - [Seattle](#) or [Santa Cruz](#)
- [Seattle Wireless](#) - previous community wireless project. Still lots of good data in the wiki.
- [Manly Warringah Radio Society March - Mesh Potato's and Wifi Networking](#) (YouTube) 2013 NEW
- [Introduction to Mesh Networking](#) 2011 NEW

Community Networks

- [Community Wireless Approach in Mount Pleasant, DC](#) NEW
- [Comotion Wireless](#) - an open-source communication tool that uses mobile phones, computers, and other wireless devices to create decentralized mesh networks.
- [Serval Mesh](#) - Emergency Preparedness MESH project
- [SPAN](#) - Smart Phone Ad-hoc Network
- [Serval Mesh Extender](#) - <http://igg.me/at/speakfreely>
- [Serval Mesh 0.90 Demo](#)

Companies - Products

(These are not endorsements, just item that have come to our attention.)

- [900 MHz wireless Ethernet bridge](#)
- [l-com](#)

- [Radiolabs](#)
- [Communications Technology Group W2TTT](#) NEW
- [TP-LINK TL-ANT2424B 2.4GHz 24dBi Grid Parabolic Antenna](#)
- [Instant Mesh Radio](#)
- [Parabolic dish antenna \(24 dbi\)](#) (Hint: consider "used")
- [Fleeman, Anderson, & Bird](#) (cables, antennas, POE, etc.)
- [ISP Supplies](#) (wi-fi antennas, etc. in College Station, TX)
- [NanoStation M900 Loco](#) (900MHz) NEW

Unclassified

1. [Constrained Channel Assignment...Mesh Networks](#) NEW
2. [W1GHZ Microwave Antenna Book](#) (LOTS of technical info!)
3. [HeyWhatsThat Signal Profiler](#) (terrain calculator)
4. [Adding a secure shell login \(SSH\)](#) (by AE5CA)
5. [HSMM-Mesh for public safety?](#)

Articles to Read

1. [QST July 2013 pg 68-69](#) (HSMM in a special event)
2. [Redolving HSMM interference, CQ VHF KB0CL](#) , (2003)
3. [Intro to HSMM \(2004\)](#) (by John Beadles N5OOM)
4. [WiFi RF Spectrum](#) by W5VWP
5. [Using Part 15 Wireless Ethernet Devices For Amateur Radio](#)
6. [Multipath and Diversity Mode](#) (Cisco article)
7. [Antenna Basics](#) (easy and informative read)
8. [Parabolic Dish Antenna Theory](#) (by Paul Wade N1BWT)
9. [Offset Dish Antenna Theory](#)
10. [Patch Antenna Design](#) (how-to)
11. [Rootenna Design](#) (how to)
12. [Horizontally Polarized Omni Antenna](#) (how to)
13. [Linking HSMM-Mesh into Your Home Network](#) (how to by Ohio Packet; use *local.mesh* now.)
14. [Peek into a Ubiquiti Nanostation](#) (photos under the hood)
15. [Part 1 – The Technology](#) Gary J Takis–K7GJT, Don Peter–ND7P

dBm to Watt Conversion Table

dBm	Watts	dBm	Watts	dBm	Watts
0	1.0 mW	16	40 mW	32	1.6 W
1	1.3 mW	17	50 mW	33	2.0 W
2	1.6 mW	18	63 mW	34	2.5 W
3	2.0 mW	19	79 mW	35	3.2 W
4	2.5 mW	20	100 mW	36	4.0 W
5	3.2 mW	21	126 mW	37	5.0 W
6	4 mW	22	158 mW	38	6.3 W
7	5 mW	23	200 mW	39	8.0 W
8	6 mW	24	250 mW	40	10 W

9	8 mW	25	316 mW	41	13 W
10	10 mW	26	398 mW	42	16 W
11	13 mW	27	500 mW	43	20 W
12	16 mW	28	630 mW	44	25 W
13	20 mW	29	800 mW	45	32 W
14	25 mW	30	1.0 W	46	40 W
15	32 mW	31	1.3 W	47	50 W

Tools

[Wireless Network Link Analysis](#)

Calculates approximate received power levels and fade margins for wireless links

[Wireless Network Link Analysis - Super Edition](#)

Same as above, but generates a PDF file containing Fresnel zone and radio path graphs
[latlong.net](#)

Latlong.net is a geographic tool that lookup lat and long of a place and get coordinates on map.

[Microwave Radio Path Analysis](#)

Generates a terrain profile graph and obstruction reports for a microwave radio link between two points

[Line-of-Sight Path Analysis](#)

Generates a JPEG image showing the line-of-sight path for a given transmitter location

[Longley-Rice Path Loss Analysis](#)

Generates a JPEG image showing the estimated Longley-Rice path loss for a given transmitter location.

[Tower Coverage](#)

Allows you to create Tower Coverage Maps for any geographical area in the entire world. Our maps are based on region and topography, taking into account for hills, mountains and trees.

[Parabolic Reflector Gain & Focal Point Calculator](#)

Calculates the gain, focal point, and radiation distances for parabolic dishes

[Fresnel Zone Calculator](#)

Calculates the required Fresnel zone clearances for a point-to-point link.

[Urban Area Path Loss](#)

Calculates the approximate path loss through an urban area

[Antenna Up/Down Tilt Calculator](#)

Calculates the required antenna tilt to compensate for Earth curvature

[Alphimax PtP Estimator](#) NEW

The Point-To-Point Estimator is a free web based tool that will enable you to compare manufacturers, simply and accurately, while taking into account the terrain of your area, products' performance and more.

[Distance & Bearing Calculator](#)

Calculates the distance and bearing between two geographic points

[Omnidirectional Antenna Beamwidth Analysis](#)

Estimates the coverage of a vertical antenna pattern

[Knife Edge Diffraction Loss Calculator](#)

Calculates knife edge obstruction attenuation

[Decibel Conversion Calculator](#)

Converts various values referenced to/from decibels

[Scattering Parameters Are Fun!](#)

Calculates gamma in/out from S-parameters, experimental

[United States Ground Elevation Retriever](#)

Get the ground elevation to any point in the continental United States, experimental (dynamic IP)

[TCS Online Conversion Page!](#) Everyone likes to steal their Javascript

[Wireless tools for Linux](#)

[Radio Mobile Deluxe](#) A free RF path plotting tool from VE2DBE.

[Terraform](#)

[Wireless Network Link Analysis](#) NEW

Interactive Wireless / RF Design Utilities < dd>

[Times Microwave attenuation calculator](#)

[Distance and azimuth calculations at the FCC](#)

[Antenna Height Above Average Terrain \(HAAT\) Calculator](#)

[Google Earth](#)

Explore the elevations of a particular path through the Elevation Profile. To start, either draw a path or open an existing one. Once you've chosen a path from the Places panel, there are two ways to see its Elevation profile. Either go to Edit > Show Elevation Profile, or right-click on your path from the Places panel and select Show Elevation Profile. An Elevation Profile will appear in the the lower half of the 3D Viewer

[Earth tools](#)

Find Elevation/Height Above Sea Level, Find Local Times and Time Zone. Contour Maps...

[HeyWhatsThat Path Profiler](#) NEW

You hike to the top of a mountain or pull off at a scenic overlook. You see mountains in the distance. Which mountains are they? HeyWhatsThat will tell you, providing a 360° panoramic sketch labeled with the names of the peaks you're looking at. From almost anywhere in the world. dd>

[Radio Mobile](#)

It uses digital terrain elevation data for automatic extraction of path profile between an emitter and a receiver.

[Online Performance Calculator](#)

There are several online websites which contain tools necessary to do path analysis. The Radiolabs site has one of the better implementations.

[Fresnel Zone Calculator](#)

While you may find several Fresnel calculators online (including at the RadioWorks site above), this link will take you to a calculator which allows for differing RX/TX antenna heights, which allows you to calculate Fresnel zone obstacle clearance during your path analysis.

● [Video](#) ● [Calculator](#) NEW

Ubiquiti online tool to help you calculate the probable performance due to the environment, height, terrain and other factors.

[Wireless LAN Calculator](#) NEW

The TP-LINK wireless calculator will provide you with answers to questions like maximum separation, transmission power, and link quality.

[D-Link Wireless LAN Calculator](#) NEW

The D-Link has several sections, Calculate Distance & Fresnel Zone, Calculate Fade Margin and Select Antenna.

[Low Cost Wireless Network How-To](#)



Hamnet



HamWAN



German Hamnet



BCWARN

Collected by Keith KB3TCB

If you have a link that you feel should be added, email the title and URL to mesh@KB3TCB.com