



Engineering Services

TURBOWAVE

TurboWave's engineering services offer both remote and on-site assistance in designing and deploying your wireless network.

TurboWave's services and products are designed to successfully execute the build-out of a wireless wide area network. Our technology utilizes the ISM 2.4 GHz band and is compliant with the IEEE 802.11 standard. However, our technology and related techniques extend the capabilities of the IEEE 802.11 standard by providing a level of performance virtually unattainable by other systems.

TurboWave offers three breakthrough technology solutions: patented smart antennas, which suppress multi-path interference and reduces the need for line-of-sight; patent pending Multi-Point Relay (MPR) protocol that enables mesh network implementation which extend the range of the communication link and expand Wi-Fi network coverage, propagation methodology and operational management techniques, which make the deployment of wireless networks quick, affordable and scalable.

For the end user customer, our technology extends range and throughput – creating faster data speeds and stable access. For network and communications providers, TurboWave's engineering services and products provide two key benefits: reduction of build-out costs and acceleration in the speed of deployment.

TurboWave's services and products are provided to our Infrastructure Operators, Authorized Resellers, Distributors and Channel Partners.

Engineering Study

Services within this area focus on surveying and analyzing a specific region so network configuration diagrams can be completed. First, we evaluate the standard network constraints, including radio wave propagation, radio hardware, and noise and interference. Next, we look at the desired access point locations. Calculations that predict coverage are then produced from the topographical data, as well as other constraints and variables. If the figures indicate that the design goals are not being met, changes can be made and the process is repeated until a viable network configuration is achieved.

Turn-Key Build Out

TurboWave has the expertise and resources to offer a total turn-key build out solution once an engineering study has been completed by our team. A implementation timetable is completed to assure proper execution of the following items: wired bandwidth coordination, site optimization, site acquisitions, contractual agreements for real estate site leasing, acquisition of build out products, parts and supplies, and training of Infrastructure Operator personnel.

Infrastructure Optimization

Once a network has been build out, a TurboWave crew can be sent to optimize its performance. Specifically, the following tasks will be completed: antenna alignment, data throughput optimization, channel optimization and overall system calibration.

Training

TurboWave conducts both in house and on site training. Both types of training cover system design, link analysis, quality control, installation procedures, antenna optimization, as well as equipment set-up and programming. The in-house training is conducted over three days at a TurboWave facility. The on site training lasts one week and is held at a build out location.



Pricing

Engineering Study

Rates: \$1200 per day for all on-site engineering work, \$160 per hour for all off-site work

- a) Topographical Physical Survey – This service includes a compilation of pictures, maps, channel usage, and noise levels. There is no analysis of the data just the collection and reporting of the available information.
- b) Network Design document - Services within this area focus on surveying and analyzing a specific region so network configuration diagrams can be completed. Specifically, the following items are conducted or executed:
 - Topographical report
 - Physical survey report
 - Radio frequency mapping of desired area
 - Network configuration diagrams
 - Definitive cost of buildout within 10%
 - Bill of materials

Turn-Key Build Out

Rates: \$900 per day

Pre-requisite: Engineering Study parts a and b

Within this service offering TurboWave provides a total turn-key solution for the build out of a region. Specifically, the following items are included:

- Site acquisitions
- Wired bandwidth coordination
- Logistics associated with timely deployment
- Training of personnel

Infrastructure Optimization

Rates: \$1200 per day

This service focuses on optimizing the performance of an infrastructure build out. Specifically, TurboWave will perform the following:

- Antenna alignment
- Data throughput optimization
- Channel optimization
- Overall system calibration

Training

Rates: \$1,000 per day – training for a maximum of four (4) people, \$600 per participant per day for training classes at TurboWave facility

- a) In House Training (At TurboWave Facility) - At this 3-day event, TurboWave provides intensive training at our facility. During this training the following topics are covered:
 - System design
 - Installation procedures
 - Quality control
 - Link analysis
 - Antenna optimization
 - Equipment setup and programming
- b) On Site Training (At Build Out Location) - During this one-week event, TurboWave provides intensive on site, real world training at the build out location. At this time, participants will learn and develop skills critical to the successful build out a wide area network, including:
 - System design
 - Link analysis
 - Quality control
 - Installation procedures
 - Antenna /site optimization
 - Equipment setup and programming