



E.T. Industries, Antenna Systems:

E.T. Industries has designed antenna systems which are both unique and revolutionary in the wireless industry. These antenna systems address the fundamental limitations of current wireless deployments offering unparalleled capacity, throughput and spectral efficiency.

Limitations of Traditional Systems – The Problem

Many factors contribute to the limitations of wireless systems of which the most important arguably are frequency bandwidth and frequency efficiency. Though efficiency may be increased by higher modulation rates, more sensitive receivers, and more accurate bit error detection/correction methods, wireless telecommunications systems are built around the frequency bandwidth limitations that are set by governing authorities. Consequently, once bandwidth is used up in an area, no other system utilizing the same frequency bands can coexist and hence data speeds are limited.

Due to this fact, the current technologies of wireless systems have limited data and user capacity. A typical GSM cell site has three sectors in 360° and uses three frequency channels. Within a sparsely populated area this may be acceptable, however networks covering dense urban areas often require hundreds of such cell sites. Such a large number of cell sites incur high costs associated with the cell equipment, site management and site rental. In addition, with every new site, RF planning becomes more complex.

Overcoming Limitations

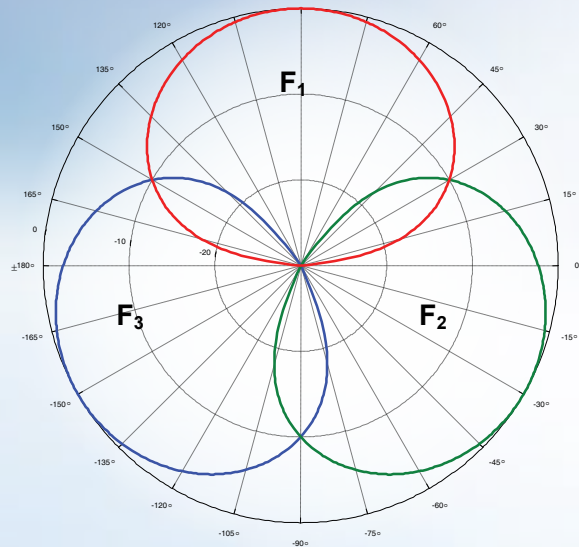
The Solution

ET Industries' antenna systems solve these problems by increasing the available bandwidth for an area. To achieve this, our systems have been designed to produce up to 48 sectors around a single cell site while using only four physical antennas. Additional sectors yield more data and user capacity. We can offer up to 16 times the user capacity and data rate of a typical 3-sectored wireless system.

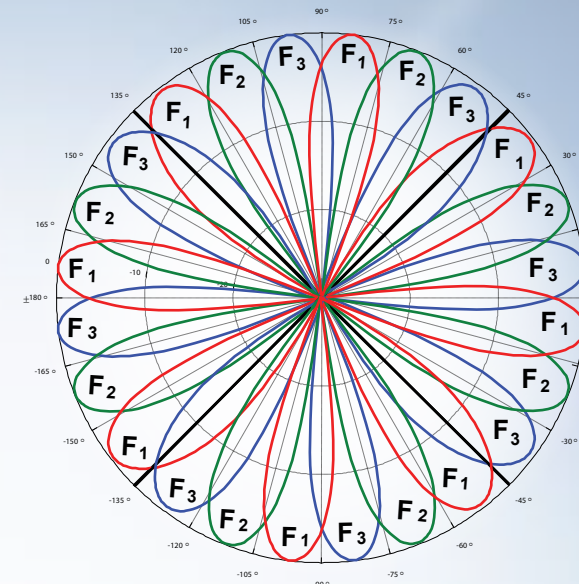
In addition, whereas all sectors around a single base station in traditional systems use different frequencies, our multibeam antennas are able to reuse the same frequencies around the base station by spatially optimizing frequency usage. By using interference rejection technology, site interference between sectors is kept to a minimum. The ability to reuse frequency bands in the same area facilitates a substantial increase in throughput.

In brief, our systems offer:

- Substantially higher data throughput
- Substantially higher customer capacity
- Increased spectral efficiency
- Far reduced number of cell sites



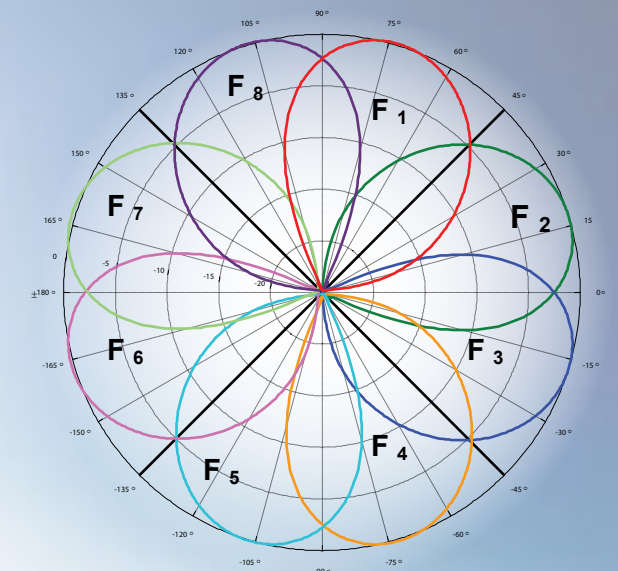
Typical Cell Site using three separate frequency channels, F1, F2, F3



Beam Array diagram of four of E.T. Industries' 2-beam antennas using four frequency channels, F1, F2, F3, F4. Frequency reuse ratio of 4:1.



Beam Array diagram of an E.T. Industries' 6-beam antenna using four frequency channels, F1, F2, F3, F4. Frequency reuse ratio of 4:1.



How It Works – Smart Antenna, Beam-forming, Beam-shaping Basics

E.T. Industries' systems achieve a high number of sectors by employing a smart antenna multiple times. A single 90° sectored smart antenna system can produce up to 12 individual beams in multiple directions within that area. Each beam is accurately spatially aligned by a beam-forming network (BFN) while a beam-shaping network (BSN) shapes the radiation pattern envelope (RPE) of each lobe. Essentially the BFN focuses each beam in a specified direction and the BSN minimizes any possibility of interference between beams using the same frequency band. The result produced is many exclusive high gain lobes radiating from one antenna in a 90° sectored area.

Because of the narrow focusing of the BFN, the accurate shaping of the BSN, and the resulting individual beam spatial isolation, our wireless systems are able to reuse frequency bands multiple times within the 90° area.

What We Offer – Smart Antennas unrestricted by frequency or standard

E.T. Industries have designed antenna systems incorporating only passive components insuring that our antennas can integrate into the network infrastructure of any vendor. We offer a simple solution to scaling up throughput and capacity while insuring the flexibility to work with other vendors and to operate on any standard. Our systems are being optimized to work at multiple frequency bands including GSM 850, 900, 1800, 1900 MHz and the WiMAX bands, 2.4, 3.5, 5.4, 5.8 and 10.5 GHz.

Electromagnetic Technologies Industries, inc

50 Intervale Road, Boonton, NJ 07005 USA Tele: +1 973 394 1719 Fax: +1 973 394 1710

email: sales@etiworld.com website: www.etiworld.com

Electromagnetic Technologies Industries, inc

50 Intervale Road, Boonton, NJ 07005 USA Tele: +1 973 394 1719 Fax: +1 973 394 1710

email: sales@etiworld.com website: www.etiworld.com