

Accelerated Radio Waves – An Evolution to Cellular Network

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Abstract-Radio waves are one of the electromagnetic waves (EM). These waves have wavelengths from one millimeter to hundred kilometers. Radio waves help in carrying out information from one point to another wirelessly. These waves enable the transmitting audio and television signals. Besides this, it makes feasible to communicate cell phones and space communication system each other. But if a vision is given to the other side of radio waves then we come to know that these waves fail to transmit a lot of data simultaneously because of low frequency. Other major concern of this wave is the health problem. On the continuous exposure of these waves many health issues like *leukemia* and *cancer* take place. In this paper we have proposed a better wave which is named as "speedy radio waves". This paper discusses the need and benefits of the speedy radio waves. These waves can become a well alternative to many other waves with greater benefits not only in communication system but also for the health sector.

Keywords:- *Sinusoidal, Electromagnetic waves EM waves, polarization, pulsars*

1. INTRODUCTION

Generally radio waves evolve from lightning and astronomical objects. Radio waves are also generated artificially. These artificial waves are used for fixed and mobile radio communication, broadcasting, radar and other navigation systems. These waves originate from radio transmitter and are accepted by radio receiver. Radio waves travel with different frequencies and different characteristics. These waves travel in the earth's atmosphere.

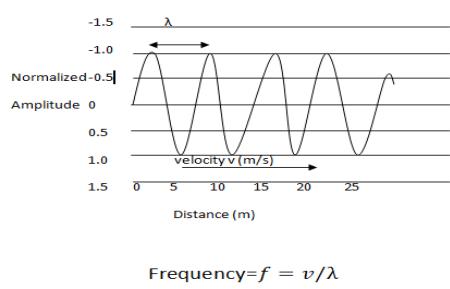


Figure 1: Radio Spectrum

2. INTERFERENCE OF RADIO WAVES

Interference of radio waves plays a crucial role in emission and communication of radio waves. Many complex antenna arrays have several emitters or dischargers. Then these radio waves interfere with other emitters (radio waves) on getting discharge from these antennas. The wave which is obtained after interference has different

amplitudes. This amplitude changes in different directions thus describes the pattern of direction that antenna perceives.

Interference of radio waves prominently is the result of there reflection by the earth's surface. This results in interference of two waves above the surface or earth. These waves are direct and reflected waves. In addition to this the pattern of directions to the receiver side antenna shows the presence of extra lobes. These lobes appear more and more with growing height of antenna and shortening of wavelength [1].

"Hertzian waves":- it is an electromagnetic waves with a frequency in range from about 3×10^{10} Hz to about 1.5×10^5 Hz

3. HISTORY

A Scottish mathematical physicist James Clark Maxwell [2] was the one who brought radio waves into lime light. Maxwell found its properties like that of light. He discovered that radio and light waves travel in space, undergo acceleration. Then in 1901, Marconi, a scientist succeeded in first communication between the UK and Canada. Many problems arose with the interference in radio frequency. Due to rapid increase in the use of radio waves in the field of communication and detection resulted in more and more congestion of these waves in the environment [3]. Congestion occurs due to world wide propagation of radio frequencies.

Earlier source of long distance transferring of data, where telegraphs and telephones. These sources worked using a large network consisting of wires to send data. After a long span of time the researchers made themselves busy in finding a different method by which can communicate by sending or receiving information but this time in the absence of wires. These wireless signals were developed by "Marconi" at that time he was working to enhance the safety of ships, through this technology.

This technology also helped in transferring the information includes different media example: sound, pictures through radio or televisions.

These waves can be sent in three ways, as follow:-

Ground waves-

- lengthy wavelength
- follows earth's curvature
- helps in time signals

Sky waves

- average wavelength

- waves are refracted by ionosphere
- waves are further reflected back and hence stick between earth and ionosphere
- Space waves
- small wavelength
- travel through both ionosphere and the space

The Obstacle in the transferring of radio waves is called diffraction. Diffraction basically means bending of waves around the corners of obstacles. Generally longer wavelength diffract by obstacle while this is not a case with waves having shorter wavelength.

It is difficult to accept small wavelength waves than the ones having longer wavelength [4].

3.1 History of Cell-Phone

Cellular phone came into wide use in the United States. From that period this usage rose anonymously consequently, many phone towers have been setup widely over the different areas, these towers also known as Base stations, and are equipped with electronics and transmitting antennas that accept and transfer signals generated by radio frequency.

3.1.1 Working of Cellular Phone Towers:-

These base stations of cell phone are like free stressed tower or landed on structure like huge buildings, water storage tanks tall trees. To cover sufficient area these antenna must be enough high. These stations ranges minimum 50 feet and maximum 200 feet long may vary according to the convenience.

Radio frequency waves are used to receive and transfer signals from closest cell tower. These waves are a type of energy which lies between spectrum of electromagnetic waves that ranges from frequency modulated waves and ends on microwaves.

When a cell phone is used to communicate with other one, a signal propagates from the cell phone's antenna to the closest antenna of base station. These base stations acknowledge this received signal by appointing it radio frequency which is available. These frequency waves send the sound information to the main station (base station). Then these sound signals are transferred to a switching center which further send these calls to the receiving point and thus during the call these sound/voice signals move back and forth

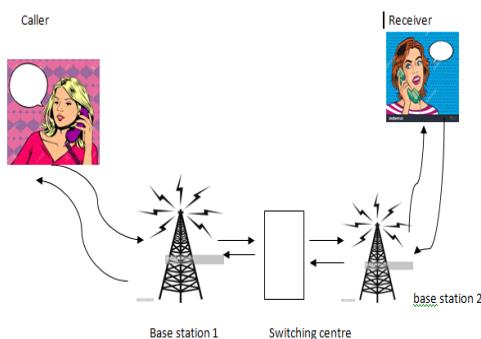


Figure 2: Communication System in cell phones

4. PROPOSED WORK

Einstein gave a theory which states light travels faster than everything. Scientists have been plagued by this theory. But the past few years have come up with a new concept that pause the theory given by Einstein. This new branch or concept was called super luminal electromagnetic field or wave propagation. This is a form which proves to be faster than light. Many experiments have been conducted by great and able scientist. These experiments resulted in elaborating the fact that light and radio sources travel at speed of light.

A few years ago, a physicist named John singleton worked for the implementation of this theory. Through this theory, the scientists believe that this could give a very helping hand to advance semiconductors.

The device invented by John singleton was called a polarization synchrotron. This device basically works on combining radio waves with speedy spinning magnetic field. This effect can be stated as, we can say, abusing (pressurizing) the radio waves so intensely that they begin to travel faster than light[5].



Figure 3: Polarization Synchrotron

Singleton says "If you take a laser and shine it on the moon and swing it rather gently, for example, the spot on the moon travels faster than the speed of light. If an effect can do that it makes you wonder if you can do things with to get the equivalent of sonic boom."

By applying this to semiconductors would result in faster cache, as entire data would now be transferred across the full width of CPU in one clock. This would also enable the exchange of data over different pieces of silicon at the same time. Then, Singleton also came to a major aspect which could describe the 'pulsars'. Pulsars basically emit high frequency along with the highly dense light that no one is able to explain till date. Singleton has seen a wider application of pulsars in the field of medical sciences, data transfer and space exploration.

To generate a sinusoid ally varying polarization pattern moving along the whole device, a sinusoidal voltage across electrode and displace the phase of voltage from one to another electrode process is carried out. This process need to be done accurately, when not considerably adjusted the frequency and the phase displacement of voltage the waves may travel faster than the speed of light. But according to old theory, says that no other wave can travel faster than the speed of light as the Einstein proved that light travels faster than any other waves.

Our proposed idea says that now with this speedy radio waves the need of tower would go less and the cellular cell's antenna would directly deal with the satellite or base

station, helping in faster transmission of data and improved communication. Space occupied by tower and the money use for their setup and maintenance would be saved for other useful advancements. Other than this, these speedy waves could help in advancing computing sector.

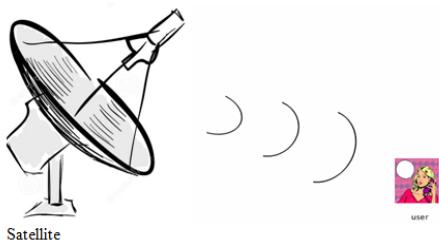


Figure 4: Proposed Communication method

5. CONCLUSION

Speedy radio waves are going to help mankind in extremely many ways, as mentioned above now with the help of this device cellular phones should be directly connected to the satellites rather than the towers as earlier,

this would help to utilize tower setup place or other useful works. In addition to this speedy radio waves can help a lot in medical sciences, these speedy radio waves can be used in highly focused chemotherapy. In this when a patient is given drugs the radio waves will hit the area affected by tumor accurately.

But negative point is it is not going to be that easy to manage such speedy waves and surely it is going to effect human being on longer exposure to such high frequency wave

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