GLOSSARY

- Antena : is a tool for sending and receiving electromagnetic waves, depending on the usage and frequency of use, the antenna may manifest various forms, ranging from a wire, dipole, or yagi, etc.
- Bandwidth : is a value calculated consumption data transfer in bits / sec or commonly called by bits per second (bps), between the server and client in a certain time. Or definition that is broad or wide bandwidth frequency range used by the signal within the transmission medium.
- Base Station : abbreviated BTS is a telecommunications infrastructure that facilitates wireless communication between communication devices and network operators.
- Broadcast : The process of sending signals to different locations simultaneously either through satellite, radio, television and other media
- Coastal radar : radar used as coastal surveillance
- Coupler : Is a passive device in the micro wave and is bidirectional which could used as a power combiner and power divider
- CST : is Computer simulation technology, is the culmination of many years of research and development into the most accurate and efficient computational solutions for electromagnetic designs. It comprises CST's tools for the design and optimization of devices operating in a wide range of frequencies - static to optical.
- Ground plane In electrical engineering, a ground plane is an electrically conductive surface, usually connected to electrical ground. The term has two different meanings in separate areas of electrical engineering.
- Guide Missile : military rocket weapons that can be controlled or an automatic control system to find the target or adjust the direction.
- Coupling factor the ratio of couple port (P3) with power input (P1)
- Carrier frequency is a waveform (usually sinusoidal) that is modulated (modified) with an input signal for the purpose of conveying information.[1] This carrier wave is usually a much higher frequency than the input signal. The purpose of the carrier is usually either to transmit the information through space as an electromagnetic wave (as in radio communication), or to allow several carriers at different frequencies to share a common physical transmission medium by frequency division multiplexing(as, for example, a cable television system). The term is also used for an unmodulated emission in the absence of any modulating signal.
- Decibel : is a unit for measuring the intensity of the sound.
- Directivity : is the ability of an antenna to focus energy in a particular direction when transmitting, or to receive energy from a particular direction when receiving.

- Directional coupler are four-port circuits where one port is isolated from the input port. Directional couplers are passive reciprocal network All four ports are (ideally) matched, and the circuit is (ideally) lossless.

- Duplexer is an electronic device that allows bi-directional (duplex) communication over a single path. In radar and radio communications systems, it isolates the receiver from the transmitter while permitting them to share a common antenna. Most radio repeater systems include a duplexer. Duplexers can be based on frequency (often a waveguide filter), polarization (such as an orthomode transducer), or timing (as is typical in radar
- Dielectric constant is also commonly known as relative permittivity, The relative permittivity of a material is its (absolute) permittivity expressed as a ratio relative to the permittivity of vacuum
- Frequency Division Duplexing a method for establishing a full-duplex communications link that uses two different radio frequencies for transmitter and receiver operation. The transmit direction and receive direction frequencies are separated by a defined frequency offset.
- Full Duplex data transmission means that data can be transmitted in both directions on a signal carrier at the same time. For example, on a local area network with a technology that has full-duplex transmission, one workstation can be sending data on the line while another workstation is receiving dat
- Envelope Detectoris an electronic circuit that takes a high-frequency signal as input and provides an output which is the envelope of the original signal. The capacitor in the circuit stores up charge on the rising edge, and releases it slowly through the resistor when the signal falls. The diode in series rectifies the incoming signal, allowing current flow only when the positive input terminal is at a higher potential than the negative input terminal.
- Fr-4 (Epoxy) is a grade designation assigned to glass-reinforced epoxy laminate sheets, tubes, rods and printed circuit boards (PCB). FR-4 is a composite material composed of woven fiberglass cloth with an epoxy resin binder that is flame resistant (*self-extinguishing*
- Half Duplex : Is a two-way communication media. But unlike the duplex, half duplex two-way communication interchangeably. So when there is communication between A and B.
- Impedance : is a measure of resistance to the alternating current. The unit is ohm. To calculate the impedance, you must know the value of the sum of all the obstacles as well as the entire impedance inductors and capacitors that will provide varied amount of the decline of the current depends on the current changes.
- IMT-2000 Standar : is the third generation mobile communication system (mobile communication system) that is designed to provide global services, diverse service capabilities and improved the performance significantly

- Isolation : comparison of the power coming out at port 4 with the input power at port 1.
- Insertion Loss In telecommunications, insertion loss is the loss of signal power resulting from the insertion of a device in a transmission line or optical fiber and is usually expressed in decibels (dB).If the power transmitted to the load before insertion is P_T and the power received by the load after insertion is P_R,
- Intemediate Frequency is a frequency to which a carrier wave is shifted as an intermediate step in transmission or reception.
- Local oscilator is an electronic oscillator used with a mixer to change the frequency of a signal.
- Low noise amplifier an electronic amplifier that amplifies a very low-power signal without significantly degrading its signal-to-noise ratio. An amplifier increases the power of both the signal and the noise present at its input. LNAs are designed to minimize additional noise. Designers minimize noise by considering trade-offs that include impedance matching, choosing the amplifier technology (such as low-noise components) and selecting low-noise biasing conditions.
- Matched filter is obtained by correlating a known signal, or *template*, with an unknown signal to detect the presence of the template in the unknown signa
- Mobile station : Devices on the customer side that functions as a transceiver to communicate with customers
- Mixer: generally serves to combine the information signal and the signal carrie
- Pulse radar a radar system that determines the range to a target using pulse-timing techniques, radar device that emits short and powerful pulses and in the silent period receives the echo signals
- PRF is the number of pulses of a repeating signal in a specific time unit, normally measured in pulses per second. The term is used within a number of technical disciplines, notably radar.
- Propagating : transmission or distribution of signals from one place to another. Propagation media or also called wave transmission line
- Radio frequency is any of the electromagnetic wave frequencies that lie in the range extending from around 3 kHz to 300 GHz, which include those frequencies used for communications or radar signals.[1] RF usually refers to electrical rather than mechanical oscillations. However, mechanical RF systems do exist (see mechanical filter and RF MEMS).Although radio *frequency* is a rate of oscillation, the term "radio frequency" or its abbreviation "RF" are used as a synonym for radio – i.e., to describe the use of wireless communication, as opposed to communication via electric wires.
- Radar : Radio Detection and Ranging, which means the detection and spacing of radio) is a system of electromagnetic waves that are useful to detect, measure

distances and create a folder objects such as aircraft, motor vehicles and various weather (rain).

- Radar Bi-Static : the name given to a radar system which comprises a transmitter and receiver which are separated by a distance that is comparable to the expected target distance.
- Radar CW is a type of radar system where a known stable frequency continuous-wave radio energy is transmitted and then received from any reflecting objects
- Radar FMCW is special type of radar sensor which radiates continuous transmission power like a simple continuous wave radar, type of radar system where a known stable frequency continuous-wave radio energy is transmitted and then received from any reflecting object
- Radar Monostatic is type of radar that only has an antenna used to transmit and receive signals. The radar has a section called duplexer for separating between the receiver and transmitter.
- Radar OTH(Over The Horizon) is a type of radar system with the ability to detect targets at very long ranges, typically hundreds to thousands of kilo-metres, beyond the radar horizon, wh ich is the distance limit for ordinary radar.
- Receiver : parties to whom the message is sent by the source (communicator). Reciver can also be referred to as audience, objectives, readers, listeners, viewers, audience
- Return Loss In telecommunications, return loss is the loss of power in the signal returned/reflected by a discontinuity in a transmission line or optical fiber. This discontinuity can be a mismatch with the terminating load or with a device inserted in the line. It is usually expressed as a ratio in decibels (dB);
- Radio Frequency : any of the electromagnetic wave frequencies that lie in the range extending from around 3 kHz to 300 GHz, which include those frequencies used for communications or radar signals.
- RT/duroid 5880 high frequency laminates are PTFE composites reinforced with glass microfibers.The randomly oriented microfibers result in exceptional dielectric constant uniformity.
- S Parameter : parameter in particular on the coupler consists s11, s12, s13 and s14
- Substrate : is part of the microstrip antenna function to channel the electromagnetic waves emitted from the patch.
- S Band frequency is part of the microwave band of the electromagnetic spectrum. It is defined by an IEEE standard for radio waves with frequencies that range from 2 to 4 GHz,
- Time Division Duplexing refers to duplex communication links where uplink is separated from downlink by the allocation of different time slots in the same

frequency band. It is a transmission scheme that allows asymmetric flow for uplink and downlink data transmission.

- Transceiver : transmiter and receiver:
- Transmiter : transmitter telecommunications aiming to emit signals for Radio Frequency (RF) signal that carries information in the form of images (video) and audio (Audio), so it can be received by the receiver.
- UMTS (Universal Mobile Telecommunications Service) is a third-generation (3G) broadband, packet-based transmission of text, digitized voice, video, and multimedia at data rates up to 2 megabits per second (Mbps).
- Vswr the ratio between the maximum wave with minimum wave. VSWR is a parameter well as determining matching between the antenna and transmitter.
- Wave propagation is any of the ways in which waves travel, with respect to the direction of the oscillation relative to the propagation direction, we can distinguish between longitudinal wave andtransverse waves. For electromagnetic waves, propagation may occur in a vacuum as well as in a material medium. Other wave types cannot propagate through a vacuum and need a transmission medium to exist.
- Weigting filter used to emphasize or suppress some aspects of a phenomenon compared to others, for measurement or other purposes.