DEFINITIONS

8PSK: Phase-shift keying (PSK) is a digital modulation scheme that conveys data by changing (modulating) the phase of a reference signal (the carrier wave). The modulation is impressed by varying the sine and cosine inputs at a precise time. It is widely used for wireless LANs, RFID and Bluetooth communication.

ACI: Adjacent-channel interference (ACI) is interference caused by extraneous power from a signal in an adjacent channel. ACI may be caused by inadequate filtering (such as incomplete filtering of unwanted modulation products in FM systems), improper tuning or poor frequency control (in the reference channel, the interfering channel or both). ACI is distinguished from crosstalk.[1]

BPSK: (also sometimes called PRK, phase reversal keying, or 2PSK) is the simplest form of phase shift keying (PSK). It uses two phases which are separated by 180° and so can also be termed 2-PSK. It does not particularly matter exactly where the constellation points are positioned, and in this figure they are shown on the real axis, at 0° and 180°. This modulation is the most robust of all the PSKs since it takes the highest level of noise or distortion to make the demodulator reach an incorrect decision. It is, however, only able to modulate at 1 bit/symbol (as seen in the figure) and so is unsuitable for high data-rate applications. In the presence of an arbitrary phase-shift introduced by the communications channel, the demodulator is unable to tell which constellation point is which. As a result, the data is often differentially encoded prior to modulation. BPSK is functionally equivalent to 2-QAM modulation.

CCI: Co-channel interference or CCI is crosstalk from two different radio transmitters using the same frequency. There can be several causes of co-channel radio interference; four examples are listed here.

CBP: A contention-based protocol (CBP) is a communications protocol for operating wireless telecommunication equipment that allows many users to use the same radio channel without pre-coordination. The "listen before talk" operating procedure in IEEE 802.11 is the most well known contention-based protocol.

CSMA: **Carrier sense multiple access** (**CSMA**) is a probabilistic media access control (MAC) protocol in which a node verifies the absence of other traffic before transmitting on a shared transmission medium, such as an electrical bus, or a band of the electromagnetic spectrum. *Carrier sense* means that a transmitter attempts to determine whether another transmission is in progress before initiating a transmission. That is, it tries to detect the presence of a carrier signal from another node before attempting to transmit. If a carrier is sensed, the node waits for the transmission in progress to end before initiating its own transmission. In other words, CSMA is based on the principle "sense before transmit" or "listen before talk".

CSMA/CA: Carrier sense multiple access with collision avoidance (CSMA/CA) in computer networking, is a network multiple access method in which carrier sensing is used, but nodes attempt to avoid collisions by transmitting only when the channel is sensed to be "idle".[1][2] When they do transmit, nodes transmit their packet data in its entirety. It is particularly important for wireless networks, where the collision detection of the alternative CSMA/CD is unreliable due to the hidden node problem.[3][4] CSMA/CA is a protocol that operates in the Data Link Layer (Layer 2) of the OSI model.

CSMA/CD: Carrier sense multiple access with collision detection (CSMA/CD) is a media access control method used most notably in earlyEthernet technology for local area networking. It uses a carrier sensing scheme in which a transmitting station detects collisions by sensing transmissions from other stations while transmitting a frame. When this collision condition is detected, the station stops transmitting that frame, transmits a jam signal, and then waits for a random time interval before trying to resend the frame.[1] CSMA/CD is a modification of pure carrier sense multiple access (CSMA). CSMA/CD is used to improve CSMA performance by terminating transmission as soon as a collision is detected, thus shortening the time required before a retry can be attempted.

CTS: Clear To Send

DSSS: **direct-sequence spread spectrum (DSSS)** is a spread spectrum modulation technique. Spread spectrum systems are such that they transmit the message bearing signals using a bandwidth that is in excess of the bandwidth that is actually needed by the message signal. This spreading of the transmitted signal over a large bandwidth make the resulting wideband signal appear as a noise signal which allows greater resistance to intentional and unintentional interference with the transmitted signal.[1]

EGPRS: Enhanced General Packet Radio Service (GPRS) is a packet oriented mobile data service on the 2G and 3G cellular communication system's global system for mobile communications (GSM). GPRS was originally standardized by European Telecommunications Standards Institute (ETSI) in response to the earlier CDPD and i-mode packet-switched cellular technologies. It is now maintained by the 3rd Generation Partnership Project (3GPP).[1][2]

FBMC: Filter bank multicarrier.

FDM: **frequency-division multiplexing** (**FDM**) is a technique by which the total bandwidth available in a communication medium is divided into a series of non-overlapping frequency sub-bands, each of which is used to carry a separate signal. This allows a single transmission medium such as the radio spectrum, a cable or optical fiber to be shared by multiple independent signals. Another use is to carry separate serial bits or segments of a higher rate signal in parallel.

GMSK: In digital communication, **Gaussian minimum shift keying** or **GMSK** is a continuous-phase frequency-shift keying modulation scheme. GMSK is similar to standard minimum-shift keying (MSK); however the digital data stream is first shaped with a Gaussian filter before being applied to a frequency modulator, and typically has much narrower phase shift angles than most MSK modulation systems. This has the advantage of reducing sideband power, which in turn reduces out-of-band interference between signal carriers in adjacent frequency channels.

GSM: (**Global System for Mobile Communications**, originally ***Groupe SpécialMobile***), is a standard developed by the European Telecommunications Standards Institute (ETSI) to describe the protocols for second-generation (2G) digital cellular networks used by mobile phones, first deployed in Finland in July 1991.[2] As of 2014 it has become the de facto global standard for mobile communications - with over 90% market share, operating in over 219 countries and territories

Hidden Node Problem: In wireless networking, the hidden node problem or hidden terminal problem occurs when a node is visible from a wireless access point (AP), but not from other nodes communicating with that AP.[1] This leads to difficulties in media access control sublayer.

IEEE 802.11: is a set of media access control (MAC) and physical layer (PHY) specifications for implementing wireless local area network (WLAN) computer communication in the 900 MHz and 2.4, 3.6, 5, and 60 GHz frequency bands. They are created and maintained by the Institute of Electrical and Electronics Engineers(IEEE) LAN/MAN Standards Committee (IEEE 802). The base version of the standard was released in 1997, and has had subsequent amendments. The standard and amendments provide the basis for wireless network products using the Wi-Fi brand. While each amendment is officially revoked when it is incorporated in the latest version of the standard, the corporate world tends to market to the revisions because they concisely denote capabilities of their products. As a result, in the market place, each revision tends to become its own standard.

MAC: In the IEEE 802 reference model of computer networking, the medium access control or media access control (MAC) layer is the lower sublayer of the data link layer (layer 2) of the seven-layer OSI

model. The MAC sublayer provides addressing and channel access control mechanisms that make it possible for severalterminals or network nodes to communicate within a multiple access network that incorporates a shared medium, e.g. an Ethernet network. The hardware that implements the MAC is referred to as a media access controller. The MAC sublayer acts as an interface between the logical link control (LLC) sublayer and the network's physical layer. The MAC layer emulates a full-duplex logical communication channel in a multi-point network. This channel may
provide unicast, multicast or broadcast communication service.

MANET: A **mobile ad hoc network** (**MANET**) is a continuously self-configuring, infrastructure-less network of mobile devices connected wirelessly.[1] Each device in a MANET is free to move independently in any direction, and will therefore change its links to other devices frequently. Each must forward traffic unrelated to its own use, and therefore be arouter. The primary challenge in building a MANET is equipping each device to continuously maintain the information required to properly route traffic[1]. Such networks may operate by themselves or may be connected to the larger Internet. They may contain one or multiple and different transceivers between nodes. This results in a highly dynamic, autonomous topology.[2]

MIC: Mono interference cancellation.

OFDM: **Orthogonal frequency-division multiplexing** (**OFDM**) is a method of encoding digital data on multiple carrier frequencies. OFDM has developed into a popular scheme for wideband digital communication, used in applications such as digital television and audio broadcasting, DSL Internet access, wireless networks,powerline networks, and 4G mobile communications.

Proactive Protocols: Proactive protocols constantly maintain all possible routes from source to the destination.

PSK: Phase-shift keying (PSK) is a digital modulation scheme that conveys data by changing (modulating) the phase of a reference signal (the carrier wave). The modulation is impressed by varying the sine and cosine inputs at a precise time. It is widely used for wireless LANs, RFID and Bluetooth communication. Any digital modulation scheme uses a finite number of distinct signals to represent digital data. PSK uses a finite number of phases, each assigned a unique pattern of binary digits. Usually, each phase encodes an equal number of bits. Each pattern of bits forms the symbol that is represented by the particular phase. The demodulator, which is designed specifically for the symbol-set used by the modulator, determines the phase of the received signal and maps it back to the symbol it represents, thus recovering the original data. This requires the receiver to be able to compare the phase of the received signal to a reference signal — such a system is termed coherent (and referred to as CPSK). Alternatively, instead of operating with respect to a constant reference wave, the broadcast can operate with respect to itself. Changes in phase of a single broadcast waveform can be considered the significant items. In this system, the demodulator determines the changes in the phase of the received signal rather than the phase (relative to a reference wave) itself. Since this scheme depends on the difference between successive phases, it is termed differential phase-shift keying (DPSK). DPSK can be significantly simpler to implement than ordinary PSK, since there is no need for the demodulator to have a copy of the reference signal to determine the exact phase of the received signal (it is a non-coherent scheme).[1] In exchange, it produces more erroneous demodulation

Reactive Protocols: generates routes on demand or when needed. In general, proactive protocols are low latency and do not scale well, whereas reactive protocols are high latency and scales better than the proactive routing protocol

RTS: Request To Send.

RTS/CTS: (Request to Send / Clear to Send) is the optional mechanism used by the 802.11 wireless networking protocol to reduce frame collisions introduced by the hidden node problem. Originally the protocol fixed the exposed node problem as well, but modern RTS/CTS includes ACKs and does not solve the exposed node problem.

SAIC: **Single antenna interference cancellation** (**SAIC**) is a promising technology to boost the capacity of GSM networks without any needed change in the network.

SS: **spread-spectrum** techniques are methods by which a signal (e.g. an electrical, electromagnetic, or acoustic signal) generated with a particular bandwidth is deliberately spread in the frequency domain, resulting in a signal with a wider bandwidth. These techniques are used for a variety of reasons, including the establishment of secure communications, increasing resistance to natural interference, noise and jamming, to prevent detection, and to limit power flux density (e.g. in satellite downlinks).

TDMA: **Time division multiple access** (TDMA) is a channel access method for shared medium networks. It allows several users to share the same frequency channel by dividing the signal into different time slots.[1]The users transmit in rapid succession, one after the other, each using its own time slot. This allows multiple stations to share the same transmission medium (e.g. radio frequency channel) while using only a part of its channel capacity. TDMA is used in the digital 2G cellular systems such as Global System for Mobile Communications (GSM), IS-136, Personal Digital Cellular (PDC) and iDEN, and in the Digital Enhanced Cordless Telecommunications (DECT) standard for portable phones. It is also used extensively in satellite systems, combat-net radio systems, and PON networks for upstream traffic from premises to the operator. For usage of Dynamic TDMA packet mode communication, see below.

WSN: **Wireless sensor networks** (**WSN**), sometimes called **wireless sensor and actuator networks** (**WSAN**),[1][2] are spatially distributed autonomous sensors to *monitor* physical or environmental conditions, such as temperature, sound, pressure, etc. and to cooperatively pass their data through the network to a main location. The more modern networks are bi-directional, also enabling *control* of sensor activity. The development of wireless sensor networks was motivated by military applications such as battlefield surveillance; today such networks are used in many industrial and consumer applications, such as industrial process monitoring and control, machine health monitoring, and so on.