

**A****Accessories**

Mechanical devices, such as cable clamps, added to connector shells and other such hardware which is attachable to connectors to make up the total connector configuration.

**AMC**

Amphenol Micro Coaxial Connectors. For use in applications with 50  $\Omega$  impedance requirements. Low profile (2.5 mm of the board) with extremely small board footprint (3mm x 3mm).

**AMPS**

Advanced Mobile Phone System, an analog standard for wireless service.

**A/D**

Analog-to-digital.

**Alloy**

A mixture of two or more metals combined to achieve properties, such as a lower melting point or greater strength, that the individual metals do not possess.

**Ambient**

The atmospheric conditions surrounding a given item. Normally in terms of factors which influence or modify, such as temperature, humidity, etc.

**Amplitude**

The magnitude of variation in a changing quantity from its zero value. The word required modification - as with adjectives such as peak, maximum, rms, etc. - to designate the specific amplitude in question.

**Analog**

The representation of information by means of continuously variable signal.

**Attenuation (a)**

The decrease of a signal with the distance in the direction of propagation. Attenuation may be expressed as the scalar ratio of the input power to the output power, or as the ratio of the input signal voltage to the output signal voltage.

**B****Back Mounted (rear mounting)**

When a connector is mounted from the inside of a panel or box with its mounting flange inside the equipment.

**Backplane Panels**

An interconnection panel into which PCB cards or other panels can be plugged. These panels come in a variety of designs ranging from a PC motherboard to individual connectors mounted in a metal frame. Panels lend themselves to automated wiring.

**Bandwidth**

The range of frequencies for which performance falls within specific limits.

**Barrier Seal**

A barrier seal is a seal preventing the passage of moisture or gases through the insulator and the gap between insulator and center conductor or outer conductor of a connector or adapter.

**Base Material**

Metal from which the connector, contact or other piece part accessory is made and on which one or more metals or coatings may be deposited.

**Bayonet Coupling**

A quick coupling device for plug and receptacle connectors, accomplished by rotation of a cam operating device designed to bring the connector halves together.

**B-CDMA**

Broadband - Code Division Multiple Access (CDMA)

**Bending Radius**

The minimum permissible radius for fixed installation of the cable. This radius is mainly used in climatic tests. Minimum dynamic: The minimum permissible radius for flexible applications of the cable.

**BNC (Bayonet Neill Concelman)**

Coaxial connector with bayonet coupling mechanism. Available in 50 Ohm and 75 Ohm versions. Frequency range DC - 4 GHz (50 Ohm) and DC-1 GHz (75 Ohm), respectively. Named after Amphenol Engineer Carl Concelman, and Bell Labs Engineer Paul Neill.

**Body**

Main, or largest, portion of a connector to which other portions are attached.

**Bonded Assembly**

A connector assembly in which the components are bonded together using an electrically appropriate adhesive in a sandwich structure to provide sealing against moisture.

**Braid**

Woven wire used as shielding for insulated wires and coaxial cables. Also, a woven fibrous protective outer covering over a conductor or cable.

**Braid Coverage**

A calculated percentage which defines the completeness with which a braid or shield covers the surface of the underlying component.

**Bulkhead**

A term used to define a mounting style of connectors. Bulkhead connectors are designed to be inserted into a panel cutout from the rear (component side) or front side of the panel.

**Butted Contact**

When two conductors come together end-to-end, but do not overlap, with their axis in line.

**C****CATV**

Cable television (previously community antenna television) technology, commonly employed by broadband LANs for signal distribution.

**Cable Assembly**

A completed cable and its associated hardware (e.g. connector).

**Capacitance**

The property of an electrical conductor (dielectric in a capacitor) that permits the storage of energy as a result of electrical displacement. The basic unit of capacitance is the Farad, however measurement is more commonly in microfarads or picofarads.

**Capillary Actions**

The effect of surface tension that draws a liquid into a small opening.

**Catcher's Mitt**

A smooth bore style that has a large interface target area. The larger target area is used to maximize the target area for blind mate applications.

**CDMA (IS-95)**

Code Division Multiple Access, a digital standard for wireless service.

**Closed Entry Contact**

A specially designed connector interface which controls the entry of the male pin from damaging the female contact.

**Coaxial Cable**

A transmission line consisting of two concentric conductors insulated from each other. In its flexible form it consists of either a solid or stranded center conductor surrounded by a dielectric. A braid is then woven over the dielectric to form an outer conductor. A protective plastic covering is placed on top of the braid.

**Concelman**

Amphenol Engineer after which many coaxial connectors are named: C, BNC, TNC, etc.

**Connector Assembly**

Includes housing and contact plus additional components such as hardware used to hold the assembly together and/or make the assembly a functional connector.

**Contact**

The conducting part of an interconnect at the interface between the connector and the lead on the device being connected.

**Contact Alignment**

Defines the overall radial play which contacts shall have within the insert cavity so as to permit self-alignment of mated contacts. Sometimes referred to as amount of contact float.

**Contact Cavity**

A defined hole in the connector insert or housing into which the contact must fit.

**Contact Durability**

The number of insertion and withdrawal cycles that a connector must be capable of withstanding while remaining within the performance levels of the applicable

**Contact Engaging & Separating Force**

Force needed to either engage or separate pins and socket contacts when they are in and out of connector inserts. Values are generally established for maximum and minimum forces. Performance acceptance levels vary by specification and/or customer requirements.

## Glossary

**Contact Plating**

Deposited metal applied to the basic contact metal to provide the required contact-resistance and/or wear-resistance.

**Contact Pressure**

Force which mating surfaces exert against one another.

**Contact Resistance**

Measurement of electrical resistance of mated contacts when assembled in a connector under typical service use. Electrical resistance is determined by measuring from the rear of the electrical area of one contact to the rear of the mating contact (excluding both crimps) while carrying a specified test current.

**Contact Retention**

Defines minimum axial load in either direction which a contact must withstand while remaining firmly fixed in its normal position within an insert.

**Convection**

The transfer of heat by movement of hot air. Often used in conjunction with infrared radiation to reduce the effect of IR shadowing.

**Coplanarity**

The distance between the lowest and highest lead when the connector is laying in its seating plane.

**Corona**

A luminous discharge due to ionization of the air surrounding a conductor caused by a voltage gradient exceeding a certain critical value.

**Crimp**

Act of compressing (deforming) a connector ferrule around a cable in order to make an electrical connection.

**Crimping Dies**

A term used to identify the shaping tools that, when moved toward each other, produce a certain desirable shape to the barrel of the terminal or contact that has been placed between them. Crimping dies are often referred to as die sets or as die inserts.

**Crimping Termination**

Connection in which a metal sleeve is secured to a conductor by mechanically crimping the sleeve with pliers, presses or crimp dies.

**Crimping Tool**

A term commonly used to identify a hand held mechanical device or table press that is used to crimp a contact, terminal or splice.

**Cross Talk**

A magnetic or electrostatic coupling which causes the unwanted transfer of energy from one circuit (disturbing circuit) to another circuit (disturbed circuit).

**CTIA**

Cellular Telecommunications Industry Association.

**Cut-off Frequency (fc)**

The frequency, above which other than the TEM mode may occur. The transmission characteristics of cables above their cutoff frequency may be unstable.

**Cycle**

One complete sequence of values of an alternating quantity, including a rise to maximum in one direction and of return to zero. The number of cycles occurring in one second is called the frequency.

## D

**D/A**

Digital-to-analog

**dBm**

Relative measure of signal power where the reference 0 dBm is equal to one milliwatt. See also decibel.

**Decibel (dB)**

A relative unit without dimensions calculated as ten times the logarithm to the base 10 of a power ratio or as twenty times the logarithm to the base 10 of a voltage ratio. Note: What is commonly measured as VSWR in the RF world is referred to as return loss and measured in dB in the CATV industry.

**Delay Line**

A cable that delays electrical signals by a specified amount of time.

**Dewetting**

A situation where a lead or pad was at one point in the soldering process wetted by the solder, but due to extended time or temperature, the presence of intermetallics, volatiles or other causes, has become withdrawn from the wetted surface.

**Dielectric**

In a coaxial cable, the insulation between inner and outer conductor. It significantly influences electrical characteristics such as impedance, capacitance, and velocity of propagation.

**Dielectric Constant**

Electrical property of a material that describes its behavior in an electric field. The dielectric constant of the dielectric is the most important design parameter for coaxial cables and determines dimensions, losses and propagation characteristics.

**Dielectric Loss**

In a coaxial cable, the losses caused by transformation of electromagnetic energy into heat within the dielectric material.

**Dielectric Strength**

The voltage which an insulating material can withstand before breakdown occurs.

**Dielectric Withstanding Voltage**

The maximum potential gradient that a dielectric material can withstand without failure.

**Digital**

(1) Pertaining to the utilization of discreet integral numbers in a given base to represent all the quantities that occur in a problem or a calculation. It is possible to express in digital form all information stores, transferred or processed by a dual-state condition; e.g., on-off, open-closed and true-false. (2) Compare with analog.

**DIN 7/16**

50 ½ coaxial connector with screw type coupling mechanism providing excellent intermodulation characteristics. Suitable for medium to high power applications. Frequency range DC - 7.5 GHz.

**Dip Solder Terminal**

The terminals on a connector which are inserted into holes in the PC board and then soldered in place.

**Direct Current (DC)**

An electric current which flows in only one direction. Dissipation Unusable or lost energy, such as the production of unused heat in a circuit.

**Distortion**

An unwanted change or addition to a signal or waveform when it is amplified. This definition excludes noise which is an extraneous signal super-imposed on the desired signal.

**Dummy Load**

A dissipative device used at the end of a transmission line or waveguide to convert transmitted energy into heat, so essentially no energy is radiated outward or reflected back to its source.

**Dust Cap**

A device attached to a connector to provide protection against dust and foreign debris.

## E

**Eccentricity**

A measure of a conductor's location with respect to the circular cross section of the insulation. Expressed as a percentage of center displacement of one circle within the other.

**EIA**

Electronic Industries Association.

**Electromagnetic Compatibility (EMC)**

EMC describes the ability of an electrical system to avoid electromagnetic interference with the environment.

**Electromagnetic Interference (EMI)**

Unwanted electrical or electromagnetic energy that causes undesirable responses, degrading performance or complete malfunctions in electronic equipment. See also: Noise.

**Electronic Industries Association (EIA)**

A.U.S. manufacturer's group which, as one of its functions, sets some interface standards.

**Electroplating**

A method of electrically depositing metals of very precise compositions and thickness onto a base metal.

**Ethernet**

(1) In a local computer network, a branching broadcast communications system for carrying digital data packets among locally distributed computing stations. (2) A two-level, baseband, local-area data communications network developed by Xerox and supported by DEC and Intel, among others.

**Eutectic Solder**

The most common solder alloy because of its low melting point (183oC/ 361oF), composed of 63% tin and 37% lead.

## F

**FCC**

Federal Communications Commission.

**Feed-through**

A connector or terminal block, usually having double-ended terminals which permits simple distribution and bussing of electrical circuits. Also used to describe a bushing in a wall or bulkhead separating compartments at different pressure levels, with terminations on both sides.

**Ferrule**

A short tube to make solderless connections to shielded or coaxial cable (e.g. as in crimping).

**Fiber Optics**

The technology for guidance of light waves through optical fibers; specifically when the optical energy is guided to another location in order to transmit information.

**Flange**

A projection extending from, or around the periphery of, a connector and provided with holes to permit mounting the connector to a panel, or to another mating connector half.

**Footprint**

The pattern on the printed circuit board to which the leads on a surface mount component are mated. Also called a land or a pad.

**Frequency Modulation (fm)**

A scheme for modulating a carrier frequency in which the amplitude remains constant but the carrier frequency is displaced in frequency proportionally to the amplitude of the modulating signal. An fm broadcast is practically immune to atmospheric and man-made interference.

**Fretting Corrosion**

A form of accelerated oxidation that appears at the interface of contacting materials undergoing slight cyclic relative motion. All non-noble metals (tin) are susceptible to some degree of fretting corrosion and will suffer contact resistance increases.

**Front Mounted (front mounting)**

A connector is front mounted when it is attached to the outside or mating side of a panel. A front mounted connector can only be installed or removed from the outside of the equipment.

## G

**GHz**

See Gigahertz.

**Gigahertz (GHz)**

One billion cycles per second (1x10<sup>9</sup>).

**GPS**

Global Positioning System

**GSM**

Global System for Mobile communication, a digital standard for wireless service for high-performance cell phones; European and defacto world standard.

## H

**HDTV**

High-definition television.

**Heat Shock**

Test to determine the stability of a material when exposed to a sudden high temperature change for a short period of time.

**Heat Treating**

A process that uses precise heating and tooling of metals in order to optimize internal stresses and spring properties.

**Hermetic Seal**

Hermetically sealed connectors provide contacts bonded to the connector by glass. They permit maximum leakage rate of gas through the connector of 1.0 micron ft/hr at one atmosphere pressure for special applications.

**Hermaphroditic Connector**

A connector where both mating members are exactly alike at their mating face. There are no male or female members, but provisions have been made to maintain correct polarity, hot lead protection, sealing and coupling.

**Hermaphroditic Contacts**

Contacts in which both mating elements are precisely alike at their mating face.

**Hertz (Hz)**

International standard term for cycles per second. Named after the German physicist Heinrich R. Hertz (e.g. 60 cycles per second is equal to 60 hertz or 60 Hz).

## I

**IEEE**

Institute of Electrical and Electronics Engineers.

**IM/PIM (Passive Intermodulation)**

The generation of new (and in the case of cable assemblies undesirable) signals (intermodulation products) at the non-linear characteristics of transmission elements.

**Impedance (characteristic, Z<sub>0</sub>)**

Characteristic property of a transmission line describing the ratio between electric and magnetic fields.

**Impedance Match**

A condition in which the impedance of a component or circuit is equal to the internal impedance of a transmission line. This gives maximum transfer of energy from the source to the load, as well as minimum reflection and distortion.

**Inductance**

The property of a circuit or circuit element that opposes a change in current flow, thus causing current changes to lag behind voltage changes. It is measured in Henrys.

**Insert**

The part which holds the contacts in their proper arrangement and electrically insulates them from each other and from the shell.

**Insertion Loss**

The loss in load power due to the insertion of a component, connector or device at some point in a RF transmission system. Generally expressed in decibels as the ratio of the power received at the load before insertion of the apparatus, to the power received at the load after insertion (for more information please refer to Appendix).

**Insulation**

A material having high resistance to the flow of electric current. Often called a dielectric in RF cable.

**Insulation Resistance**

The electrical resistance of the insulating material (determined under specified conditions) between any pair of contacts, conductors, or grounding device in various combinations.

**Interconnection**

Mechanically joining assemblies together to complete electrical circuits.

**Interface**

The two surfaces on the contact side of both halves of a multiple-contact connector which face each other when the connector is assembled.

**Interference**

An electrical or electromagnetic disturbance that causes undesirable response in electronic equipment.

**Intermetallic**

Chemical compounds formed between the metals present in the solder, base metal and protective plating. Intermetallic formation is necessary for good solder joints, but excessive intermetallics can cause brittleness.

**Intermodulation (IMD)**

A phenomenon that occurs when two or more fundamental frequencies are present in an electronic circuit.

**IR Shadowing**

When connector bodies or other components prevent the infrared energy from directly striking some solder joints, causing non-uniform heating.

**ISO**

International Standards Organization.

# Glossary

## J

### Jack

A connecting device into which a plug can be inserted to make circuit connections. The jack may also have contacts which open or close to perform switching functions when the plug is inserted or removed. See also: receptacle.

### Jacket

An outer non-metallic protective cover applied over an insulated wire or cable.

### J-Lead

A surface mount lead configuration where leads are bent into curves. Infrequently used on interconnects.

## L

### LAN

Local Area Network. A data communication network confined to a limited geographic area (up to 6 miles or about 10 kilometers).

### Land

The metal portion of a printed circuit board where the pads on a surface mount component are mated. Also called a footprint or a pad.

### LCP

Liquid Crystal Polymer

### Levels of Interconnection

Device to board or chassis. The connection point between components (tubes, transistors, IC packages) and the PC board or chassis. Board to motherboard or backplane. The connection point between PC boards or sub-circuit modules and the motherboard or a backplane Board.

### Backplane wiring

Connections between levels to each other and to other sub-circuits. Input/output. Connections for power and signals into and out of a system. Connections may be between subassemblies within the same enclosure or between individual units.

### Limited detent (for AFI and SMP type interfaces):

The inside surface of the connector has an undercut to a larger diameter. This creates a snap feature so the bullet adapter will remain in position with the limited detent connector during disengagement from its mating smooth bore connector.

### Line Impedance

Impedance as measured across the terminals of a transmission line; frequently the characteristic impedance of the line.

### Low Noise Cable

Cable specially constructed to avoid spurious electrical disturbances caused by mechanical movements.

## M

### Mating Face Seal

A mating face seal is a seal preventing the passage of moisture or gases into or out of the connecting interface of two connectors in mated condition.

### MCX (Micro coaxial)

Micro coaxial connector with snap on coupling mechanism. Available in 50 ohm and 75 ohm versions. Frequency range DC - 6 GHz.

### MHV (Miniature High Voltage)

Coaxial connector with bayonet coupling mechanism. Working voltage 2.2 kV DC.

### Microstrip

A type of transmission line configuration which consists of a conductor over a parallel ground plane, and separately by a dielectric.

### Microwave

That portion of the electromagnetic spectrum lying between the far infrared and conventional radio frequency range. The microwave frequency range extends from 1 GHz to 300 GHz. Microwaves are usually used in point-to-point communications because they are easily concentrated into a beam.

### MIL

Military (e.g. as in Military Standards).

### Mini 75 $\Omega$ SMB

Mini 75  $\Omega$  SMB provides broadband capability through 2 GHz. Its snap-on design utilizes die cast components on non-critical areas to provide a low cost solution. The Mini 75  $\Omega$  SMB offers snap fit mating for quick connect/disconnect. The reduced housing allows circuit miniaturization and efficient "real estate" utilization. Built in accordance with requirements of Mil-C-39012, the interface is in compliance with Mil-STD 348 and is interchangeable with Industry Standard for Miniature 75  $\Omega$  SMB.

### Mini BNC

Amphenol RF introduces the new generation of quality BNC connectors for the telecommunication and broadband applications for higher connector densities while preserving the positive characteristics of the Amphenol full-size BNC's for 75  $\Omega$  systems. This allows 40% more interconnects in the same area.

The Mini BNC series provides a positive locking bayonet system where SMB and SMZ system have no locking feature. The SMB and SMZ were not designed to be field installed or repaired, while the Mini BNC is specifically designed to be a drop-in replacement and used with the Telco DS3 application and is compatible with the present field installer tooling and strip dimensions.

### Mismatch (Connector Impedance or Line Impedance)

The condition in which the impedance of a source does not match or equal the impedance of the connected load. This reduces power transfer by causing reflection.

### MMCX

Miniature Microcoax connector with snap on coupling mechanism. Available in 50 ohm and 75 ohm versions. Frequency range DC - 6 GHz.

### Moisture Resistance

The ability of a material to resist absorbing moisture from the air or when immersed in water.

### Motherboard

A printed board used for interconnecting arrays of plug-in electronic modules.

## N

### N (Neill)

Coaxial connector with screw type coupling mechanism. Available in 50 ohm and 75 ohm version. Frequency range DC - 18 GHz (50 ohm) and DC-1 GHz (75 ohm), respectively.

### NAB

National Association of Broadcasters

### Noise

Random electrical signals, generated by circuit components or by natural disturbances.

## O

### OEM

Original Equipment Manufacturer.

### Ohm

The unit of measurement for electrical resistance. A circuit is said to have a resistance of one ohm when an applied emf of one volt causes a current of one ampere to flow.

## P

### Pad

The metal portion of a printed circuit board where the leads on a surface mount component are mated. Also called a footprint or a land.

### Panel Seal

A panel seal is a seal preventing the passage of moisture or gases through the gap between the mounting hole of the panel and the connector body of the fixed connector.

### PCB

Printed Circuit Board.

### PC

Personal Computer.

### Permeability (magnetic)

The measure of how much better a material is than air as a path for magnetic lines of force. Air is assumed to have a permeability of 1.

### Permittivity Relative

Synonym term for relative dielectric constant  $\epsilon_r$ .

### Phase Shift

Change in phase of a voltage or current after passing through a circuit or cable.

### Phase Stability

Variation of the electrical length of a cable that can result from temperature or mechanical stress due to bending or torsion.

### Pin Contact

A male type contact, usually designed to mate with a socket or female contact. It is normally connected to the "dead" side of a circuit.

**Plated Through-Hole**

A hole through a printed circuit board that has been electroplated and into which a lead is placed and soldered for electrical and mechanical connection.

**Plug**

In coaxial RF connectors the plug is usually the movable portion, and is usually attached to a cable or removable assembly. Plugs mate with receptacles, jacks, outlets, etc.

**Press-Fit Contact**

An electrical contact which can be pressed into a hole in an insulator, printed board (with or without plated-through holes), or a metal plate.

**Printed Circuit Board (PCB)**

An epoxy glass and metal composite on which circuits are etched and to which active, passive and hardware components are attached. Also called PCB or PC Board.

**Propagation Delay**

Time required for an electronic digital device, or transmission network to transfer information from its input to its output.

**Prototype**

A model suitable for use in the complete evaluation of form, design and performance.

**PTFE (polytetrafluoroethylene)**

The thermally most stable and chemically most resistant carbonaceous compound. It is unaffected by sunlight, moisture, and virtually all chemicals. Temperature range is -200°C to +260°C / -320°F to +500°F. Electrical properties are very constant over temperature and wide range of frequencies.

**Pulse**

A change in the level, over a relatively short period of time, of a signal whose value is normally constant.

**Pulse Width**

The length of time that the pulse voltage is at the transient level. Electronic pulse widths are usually in the millisecond (10-3), microsecond (10-6) or nanosecond (10-9) range.

**Q****QMA**

A quick disconnect version of the SMA connector. The electrical performance benefits of the QMA include low loss RF performance up to 6 GHz.

**R****Range**

Number of sizes of connectors or cables of a particular type.

**Receptacle**

Usually the fixed or stationary half of a two-piece multiple contact connector. Also the connector half usually mounted on a panel and containing socket (female) contacts.

**Reflection**

See VSWR.

**Reflection Loss**

The part of a signal which is lost due to reflection of power at a line discontinuity.

**Reflow Soldering**

The process of screen printing solder paste and then heating it to cause it to melt, or "reflow", to wet the leads and pads around it.

**RF**

Radio frequency.

**RG/U**

Symbol used to designate coaxial cables that are made to government specification (e.g., RG-58U; in this designation the "R" means radio frequency, the "G" means government, the "58" is the number assigned to the government approval, and the "U" means it is an universal specification).

**Rise Time**

The time required for a component or logic circuit to change from the quiescent to the transient state when an output is applied, (e.g. elapsed time between application of input and attainment of full output level).

**RMS**

Root Mean Square The effective value of an alternating current, corresponding to the direct current value that will produce the same heating effect.

**S****SC (Concelman, Amphenol Engineer)**

Threaded connector 0 to 11 GHz.

**Screening Effectiveness**

Ratio of the power fed into a coaxial cable to the power transmitted by the cable through the outer conductor.

**Screw Machine Contact**

A contact which is machined from solid bar stock.

**Self-Align**

Design of two mating parts so that they will engage in the proper relative position.

**Self Alignment**

The tendency of leads to center themselves on solder pads due to the surface tension of the liquid solder.

**Semi-Rigid**

A cable containing a flexible inner core and a relatively inflexible sheathing.

**Shield**

(1) A conducting housing or screen that substantially reduces the effect of electric or magnetic fields on one side thereof, upon devices or circuits on the other side. Cable shields may be solid, braided, or taped (longitudinally or spirally). (2) In cables, a metallic layer placed around a conductor or group of conductors to prevent electrostatic or electromagnetic interference between the enclosed wires and external fields.

**Shielding**

The metal sleeve surrounding one or more of the conductors, in a wire circuit to prevent interference, interaction or current leakage.

**Shock (mechanical)**

(1) An abrupt impact applied to a stationary object. (2) An abrupt or non-periodic change in position, characterized by suddenness, and by the development of substantial internal forces.

**SHV (Safe High Voltage)**

Coaxial connector with bayonet coupling mechanism. Working voltage 5 kV DC.

**Skin Effect**

The phenomenon wherein the depth of penetration of electric currents into a conductor decreases as the frequency of the current increases.

**SMA (Subminiature A)**

50 ohm - subminiature coaxial connector with screw type coupling mechanism. Frequency range DC-18 GHz.

**SMB (Subminiature B)**

Subminiature coaxial connector with snap-on coupling mechanism. Frequency range DC - 4 GHz.

**SMC (Subminiature C)**

Subminiature coaxial connector with screw type coupling mechanism. Frequency range DC - 10 GHz.

**SMP**

A subminiature interface in the same scale as MMCX connectors but offers a frequency range of DC to 40 GHz. Commonly used in miniaturized high frequency coaxial modules, SMP is offered in both push-on and snap-on mating styles.

**Smooth bore (for AFI and SMP type interfaces):**

The inside surface is smooth and of a constant diameter. This allows un-mating with less force so the bullet will remain in position with the limited detent connector during disengagement.

**SMS**

Subminiature coaxial connector with slide-on coupling mechanism. Frequency range DC - 4 GHz.

**Snap on**

Used to describe the easy removal or assembly of one part to another. A connector containing socket (female) contacts into which a plug connector having male contacts is inserted.

**Solder Contact**

A contact or terminal with a cup, hollow cylinder, eyelet or hood to accept a wire for a conventional soldered termination.

**Spring-Finger Action**

Design of a contact, as used in a printed circuit connector or a socket contact, permitting easy, stress-free spring action to provide contact pressure and/or retention.

## Glossary

**Standing-Wave**

Distribution of current and voltage on a transmission line, resulting from two sets of waves traveling in opposite directions.

**Standing Wave Ratio**

A measure of the mismatch between the load the line. It is equal to 1 when the line impedance is perfectly matched to the load. (In which case the maximum and minimum are the same, as current and voltage do not vary along the line). The perfect match would be a 1 to 1 ratio.

**Stripline**

A type of transmission line configuration which consists of a single narrow conductor parallel and equidistant to two parallel ground planes.

**Surface Mount Device (SMD)**

An active or passive device designed to be soldered to the surface of the printed circuit board.

**Surface Mount Technology (SMT)**

The process of assembling printed circuit boards with components soldered to the surface rather than fastened to printed circuit board through-holes.

**SWR**

Standing Wave Ratio.

## T

**TDMA**

Time Division Multiple Access, a digital standard primarily used in Asia and Europe.

**Thermal Shock**

The effect of heat or cold applied at such a range that non-uniform thermal expansion or contraction occurs within a given material or combination materials. The effect can cause inserts and other insulation materials to pull away from metal parts.

**Third Generation (3G)**

The next generation in wireless producing a convergence of standards and services.

**TNC (Threaded Neill Concelman)**

Coaxial connector with screw type coupling mechanism. Available in 50 ohm and 75 ohm versions. Frequency range DC - 11 GHz (50 ohm) and DC - 1 GHz (75 ohm), respectively.

**Transmission Line**

A signal-carrying circuit composed of conductors and dielectric material with controlled electrical characteristics used for the transmission of high-frequency, narrow-pulse type signals.

**Transmission Loss**

The decrease of loss in power during transmission of energy from one point or another. Usually expressed in decibels.

**Triaxial Cable**

A cable consisting of one center conductor and two outer concentric conductors (with an insulating layer separating them). Notable for increased shielding efficiency.

**Twinaxial Cable**

Two conductors that are insulated from one another, twisted together and surrounded by a common shield.

## U

**UG**

Symbol used to describe coaxial connectors that were made to a government specification. This specification is now obsolete.

**UHF**

Coaxial connector with screw type coupling mechanism invented in the 1930's by Amphenol engineer E. Clark Quackenbush for use in the radio industry. Non-defined impedance. Frequency range DC.

**Ultra High Frequency (UHF)**

A Federal Communications Commission designation for the band from 300 MHz to 3,000 MGz (3 GHz) on the radio spectrum.

**UMTS**

Universal Mobile Telecommunications Systems.

## V

**Very High Frequency (VHF)**

A Federal Communications Commission designation for the band from 30 to 300 MHz on the radio spectrum.

**Velocity of Propagation**

The speed of an electrical signal down a length of cable compared to speed in free space expressed as a percentage.

**Voltage**

The term most often used to designate electrical pressure that exists between two points and is capable of producing a flow of current when a closed circuit is connected between the two points. Voltage is measured in volts, millivolts, microvolts and kilovolts. The terms electromotive force (emf), potential, potential difference and voltage drop are often referred to as voltage.

**Voltage Standing Wave Ratio (VSWR)**

A measure of the reflection, resulting from a ratio of the input signal to the reflected signal.  $VSWR = (1+L) / (1-L)$

**VSWR**

See Voltage Standing Wave Ratio and Standing Wave Ratio.

## W

**Wavelength**

The distance, measured in the direction of propagation, of a repetitive electrical pulse or waveform between two successive points that are characterized by the same phase of vibration.

**Wave Soldering**

The most widely used mass soldering process, primarily for through-hole boards, where the board is passed over a wave of solder which laps against the bottom of the board to wet the metal surfaces to be joined.

**W-CDMA**

Wideband-Code Division Multiple Access (CDMA).

**Wetting**

The ability of liquid solder to attach itself to the surfaces being joined through the formation of intermetallic bonds.

**Wiping Action**

The action which occurs when contacts are mated with a sliding action. Wiping has the effect of removing small amounts of contamination from the contact surfaces, thus establishing better conductivity.

**WLAN**

Wireless Local Area Network.

**WLL**

Wireless Local Loop.