

**INTERNATIONAL ELECTRICAL
WIRE & CABLE, INC.**



Marine Cable Products

Made in the U.S.A.

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TRUTHS AND MYTHS ABOUT MARINE COAX AND BOAT CABLE

There is much misunderstanding of the various types and uses of marine coaxes and power cable. This can result in poor electrical performance, equipment failure, and injury to your reputation, safety hazards and even death.

Almost every manufacturer has different grades of coaxes. The specifications also vary as to type of polymer jacket, percentage shield coverage, tinned or bare copper shield, dielectric composition (dielectric is the inner insulation around the center conductor) and stiffness of the center conductor depending on strand vs. solid construction. Outside jacket composition also affects both resistance to ultra violet deteriorating components of sunlight and the flexibility, or installation "snake ability", of the coax.

Jackets on coax and power cable come in various types, i.e., PVC, polyethylene (PE), and polyurethane (PU). While polyethylene and polyurethane are usually more resistive to moisture and ultraviolet, and PE is cheaper than PVC, HIGH QUALITY PVC has excellent moisture and ultra violet (UV sun rays) resistive qualities and is quite flexible, more so than the PE and PU, thus making installations easier. There is a Military Specification C-17, which requires a type PVC IIA outer jacket. All "**Marine Grade**" coax furnished by INTERNATIONAL ELECTRICAL WIRE & CABLE, INC. is composed of this PVC IIA as well as 95-96% shield coverage, tinned shield and tinned stranded center conductor. **Coaxes supplied by other sources often boast a PVC jacket, but the out jacket polymer is not the high quality of PVC IIA, Military Spec C-17. Some suppliers only provide C-17 on a portion of their coax types.**

COAX CABLE DO's & Don'ts

- RG58: .195" OD. Use for SHORT runs (up to 40 ft.) on VHF transceivers (160 MHz). DO NOT USE FOR CELLULAR PHONE (850 MHz) as the attenuation per ft (power loss) is too high @ cellular. See "Coax Losses" chart.
- RG8X: .242" OD. Low power losses, use for over 40 ft. VHF runs and for cellular phone (better yet for cellular, use RG213). See "Coax Losses" chart.
- RG213: .405" OD. Very low power loss at HF (2-8 MHz marine), VHF and cellular. Recommend this be used in all cases for these frequencies particularly if run length is more than 40 ft. See "Coax Losses" chart.
- LMR Cable: Various sizes used for low loss applications such as cell phone, sat phone and GPS. INTERNATIONAL ELECTRICAL WIRE & CABLE, INC. can advise you regarding correct product for your application.
- RG59, RG6: Cable TV installations or other 75 ohm applications.

GTO15, #14 stranded 15,000-volt cable: This cable LOOKS LIKE RG58 without a shield. It is used as RF (radio frequency) radiating cable between the antenna coupler output of an HF (MHz) transceiver and a backstay (or similar) antenna. It is important to note that this cable CAN NOT have a shielded center conductor, as does coax cable, as the shield restricts radiation of the RF signal from that portion of the transmission line.

B-FLEX Low Loss coaxial cable: This cable was developed in 1993 for use by various commercial types operating the cellular through mid-level microwave frequencies. The outer jacket is a rugged polyethylene, inherently plasticized free. Therefore, it is non-contaminating and highly abrasive resistant. We strongly recommend it be considered for special cellular applications. Its advantage is that it has a loss per 100 feet of 4.9 Db vs. RG213, which is 7.8 Db (the equivalent of delivering twice the power to the antenna vs. RG213). We recommend this cable where a vessel plans on being 25 to 75 miles outside of cellular fringe coverage areas (well off shore). This cable is somewhat stiff; however, it can be snaked through masts, etc., and coupled with RG213 or RG8X where needed. This cable has a double shield, an inner foil with the outer shield being tinned copper braid.

9086* Low Loss coaxial cable: We recommend it be considered for special cellular applications. Its advantage is that it has a loss per 100 ft. of 4.5 Db vs. 7.8 Db using RG213. This gain of 3.3 Db is equivalent to delivering over twice the transmitter power to the antenna. We recommend cable where a vessel plans on being 25 to 75 miles outside of cellular fringe coverage areas (well off shore). This cable can be snaked through masts and coupled with RG213 or RG8X where needed. As with all connectors, proper weather sealing is extremely important.

A glossary of typical marine electronic terms is attached for your convenience. Also attached is a chart entitled "COAXIAL CABLE—LOSSES, Db per 100 feet" which explains what attenuation really means, how important it is and how to judge various coaxes in various applications in terms of what percentage of your transmitter (and receiver) signal strength will actually reach the antenna (or receiver) depending on what type of coax is used. Also, remember that INTERNATIONAL ELECTRICAL WIRE & CABLE, INC. is providing you with **the best quality coax and boat cable available**. Do not settle for substitutes, or cable which you are not sure of as to its composition, electrical qualities and reliability. **Remember, we supply only Military Spec, C-17, PVC white outer jackets on our coaxes.**

PROTECT YOUR CUSTOMERS AND YOUR REPUTATION!

*9086 is a coax identification number of INTERNATIONAL ELECTRICAL WIRE & CABLE, INC.. 9086 has similar specifications as Belden 9913. 9086 O.D. dimensions are the same as RG213 and fits PL259, N-connectors, etc. 9086 has 100% shield coverage and is available with a black jacket.

COAXIAL CABLE—LOSSES, Db per 100 feet

MHz:	1	10	50	100	200	400	900	1000
RG8X:	.20	.78	2.0	3.5	4.5	6.0	8.8	N/A
RG58CU:	.44	1.4	4.1	5.3	8.2	12.6	20.0	24.0
RG213U:	.21	.66	1.6	2.0	3.0	4.7	7.8	8.4
9086:	.10	.40	.90	1.3	1.8	2.7	4.2	4.5
Bflex:	.26	.52	1.1	1.5	2.0	2.9	4.9	5.3

NOTE: Coaxes quoted above are produced by manufacturers affiliated with INTERNATIONAL ELECTRICAL WIRE & CABLE, INC. and have been tested, used, and sold by us for years. All coaxes are Military Spec, C-17, and out jackets are made of the highest-grade polymer PVC IIA jacket.

All coaxes above are 95% or 98% shield coverage (as opposed to other brands whose shields are as low as 80% coverage). Shield coverage is extremely important relative to restricting radiation along the cable thus concentrating the radiation strength at the antenna, where it counts. Shield coverage also greatly assists in resisting unwanted RF interference.

Attenuation rates noted are considerably better than Belden cable, particularly the RG8X supplied by us, which is close to one (1) Db better at 160 MHz (marine band) and 3.5 Db better at 800 MHz (cellular phone). 3.5 Db gain represents the equivalent of gaining over twice your transmitter power, rather than losing it, at the antenna input, for a coax run of 100 feet! Likewise, you will realize twice the received signal strength at the receiver.

CONNECTORS: The above cables use standard PL-259 connectors or TNC, N or SMA connectors more applicable to the 850 MHz cellular spectrum. Use only SILVER PLATED, not nickel plated plug or corrosion problems will likely occur.

NOTE: Whenever you use RG58 you must use a UG-175 adaptor which screws into the PL-259 as to create a snug fit between the back shoulder of the connector (adaptor) and the coax outer jacket. When using RG8X, use a UG-176 adaptor. It is also EXTREMELY IMPORTANT that all connectors have the center conductor of the coax soldered to the center pin of the PL-259 and that the entire connector be sealed against moisture penetration with a proper sealer. Be sure to thoroughly seal from 2" behind the connector to the very front of the connector and up against the flange that the connector plugs into. Various sealing tapes are available in this catalog. A very popular tape, submersible, no heat required, is AMP Fusion.

RF POWER ATTENUATION (LOSS) TABLE

Type coax vs. application (cellular or VHF) vs. power delivered

VHF—160 MHz

24 Watt transmitter output
50 feet of coaxial cable

Coax Type	Db Loss per 100'	Db Loss per 50'	Power to Antenna Watts
RG8X	3.70	1.85	16.22
RG58	6.76	3.38	11.48
RG213	2.50	1.25	18.75

Cellular—850 Mhz

3 Watt transmitter output
50 feet of coaxial cable

RG8X	8.8	4.4	1.09
RG58	20.0	10.0	.30
RG213	7.8	3.9	1.22
9086	4.2	2.1	1.85

CONDUCTOR SIZES (AWG) FOR 3% VOLTAGE DROP AT 12 VOLTS

LENGTH IN FEET

AMPS
(CURRENT)

	10	15	20	25	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170
5	18	16	14	12	12	10	10	10	8	8	8	6	6	6	6	6	6	6	6
10	14	12	10	10	10	8	6	6	6	6	4	4	4	4	2	2	2	2	2
15	12	10	10	8	8	6	6	6	4	4	2	2	2	2	2	1	1	1	1
20	10	10	8	6	6	6	4	4	2	2	2	2	1	1	1	1/0	1/0	1/0	2/0
25	10	8	6	6	6	4	4	2	2	1	1	1/0	1/0	1/0	2/0	2/0	2/0	2/0	3/0
30	10	8	6	6	4	4	2	2	1	1	1/0	1/0	1/0	2/0	2/0	3/0	3/0	3/0	3/0
40	8	6	6	4	4	2	2	1	1/0	1/0	2/0	2/0	3/0	3/0	3/0	4/0	4/0	4/0	4/0
50	6	6	4	4	2	2	1	1/0	2/0	2/0	3/0	3/0	4/0	4/0	4/0				
60	6	4	4	2	2	1	1/0	2/0	3/0	3/0	4/0	4/0	4/0	4/0					
70	6	4	2	2	1	1/0	2/0	3/0	3/0	4/0	4/0								
80	6	4	2	2	1	1/0	3/0	3/0	4/0	4/0									
90	4	2	2	1	1/0	2/0	3/0	4/0	4/0										
100	4	2	2	1	1/0	2/0	3/0	4/0											

CONDUCTOR SIZES (AWG) FOR 10% VOLTAGE DROP AT 12 VOLTS

LENGTH IN FEET

AMPS
(CURRENT)

	10	15	20	25	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170
5	18	18	18	18	18	16	16	14	14	14	12	12	12	12	12	10	10	10	10
10	18	18	16	16	14	14	12	12	10	10	10	10	8	8	8	8	8	8	6
15	18	16	14	14	12	12	10	10	8	8	8	8	8	6	6	6	6	6	6
20	16	14	14	12	12	10	10	8	8	8	6	6	6	6	6	6	4	4	4
25	16	14	12	12	10	10	8	8	6	6	6	6	6	4	4	4	4	4	2
30	14	12	12	10	10	8	8	6	6	6	6	4	4	4	4	2	2	2	2
40	14	12	10	10	8	8	6	6	6	4	4	4	2	2	2	2	2	2	2
50	12	10	10	8	8	6	6	4	4	4	2	2	2	2	2	1	1	1	1
60	12	10	8	8	6	6	4	4	2	2	2	2	2	1	1	1	1/0	1/0	1/0
70	10	8	8	6	6	6	4	2	2	2	2	1	1	1	1/0	1/0	1/0	2/0	2/0
80	10	8	8	6	6	4	4	2	2	2	1	1	1/0	1/0	1/0	2/0	2/0	2/0	2/0
90	10	8	6	6	6	4	2	2	2	1	1	1/0	1/0	1/0	2/0	2/0	2/0	3/0	3/0
100	10	8	6	6	4	4	2	2	1	1	1/0	1/0	1/0	2/0	2/0	2/0	3/0	3/0	3/0

MARINE WIRE COLOR CODE

*If Yellow is used for DC Negative, Bilge Blower must be Brown with a Yellow Stripe

SYSTEM	APPLICATION	WIRE COLOR
Accessory Feed	Ammeter to Alternator or Generator Output Accessory Fuses or Switches	Orange
Alternator Charge Light	Generator Terminal or Alternator Auxiliary Terminal to Regulator	Brown
Bilge Blowers	Fuse or Switch to Bilge Blower	Yellow
Bonding System	Bonding wires (if insulated)	Green
Cabin and Instrument	Fuse or Switch to Lights	Blue (dark)
Common Feed	Distribution Panel to Accessory Switch	Orange
DC Negative (ground)	DC Negative Mains	Black or Yellow*
Fuel Gauge	Fuel Gauge Sender to Gauge	Pink
Generator Armature	Generator Armature to Regulator	Brown
Generator Field	Gen/Alt to Regular Field Terminal	Yellow*
Ground (DC Negative)	Return or Negative Mains	Black
Ignition	Ignition Switch to Coil & Electrical Instrument	Purple
Instrument Feed	Distribution Panel Electrical Instruments	Purple
Main Power Feeds	Positive Mains (particularly unfused)	Red
Navigation Lights	Fuse or Switch to Lights	Gray
Oil Pressure	Oil Pressure Sender to Gauge	Blue (light)
Pumps	Fuse or Switch to Pumps	Brown
Starting Circuit	Starting Switch to Solenoid	Yellow w/Red
Tachometer	Tachometer Sender to Gauge	Gray

COAX CABLE**International Electrical Wire & Cable, Inc.**

TYPE	PART #	PUT-UPS
COAXIAL CABLE		
All Jackets Military Type, PVC #IIA, Non-contaminating, U.V. Resistant		
RG58CU	8160	100', 250', 500', 1000'
RG59/U	8159	100', 250', 500', 1000'
RG8X	8155	100', 250', 500', 1000'
RG213	8163	100', 250', 500', 1000'
RG6	8156	100', 250', 500', 1000'
NON-MARINE COAX CABLE		
Bare copper conductors, bare copper shield, black PVC jacket		
RG6/U	9049	100', 250', 500', 1000'
RG11/U	9050	100', 250', 500', 1000'
RG8/U	4009	100', 250', 500', 1000'
Bury Flex	8165	100', 250', 500', 1000'
LMR 240	9094	100', 250', 500', 1000'
LOW LOSS COAX		
LMR 400	9096F	100', 250', 500', 1000'
LMR 400-UF	9096UF	100', 250', 500', 1000'
LMR 600	9098	100', 250', 500', 1000'

**MULTI-CONDUCTOR &
PRIMARY WIRE**

International Electrical Wire & Cable, Inc.

TYPE	PART #	PUT-UPS
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DUPLEX -WHITE JACKET, TINNED COPPER CONDUCTORS

Standard Red/Black Conductors. Red/Yellow Conductors Available

8/2	8108	100', 250', 500', 1000'
10/2	8110	100', 250', 500', 1000'
12/2	8112	100', 250', 500', 1000'
14/2	8114	100', 250', 500', 1000'
16/2	8116	100', 250', 500', 1000'
18/2	8118	100', 250', 500', 1000'

HEAVY DUTY PRIMARY WIRE

Colors: Black, Green, Red, White

#2 Primary (665/30)	4361	100', 250', 500', 1000'
#4 Primary (420/30)	4364	100', 250', 500', 1000'
#6 Primary (266/30)	4366	100', 250', 500', 1000'

STANDARD PRIMARY WIRE

Colors: Black, Green, Red, White, Blue, Orange, Brown, Yellow, Violet, Gray

#8 Primary (168/30)	4368	100', 250', 500', 1000'
#10 Primary (105/30)	4370	100', 250', 500', 1000'
#12 Primary (65/30)	4372	100', 250', 500', 1000'
#14 Primary (41/30)	4374	100', 250', 500', 1000'
#16 Primary (26/30)	4376	100', 250', 500', 1000'
#18 Primary (16/30)	4378	100', 250', 500', 1000'

**TRIPLEX, AUDIO & CONTROL
BATTERY CABLES**

International Electrical Wire & Cable, Inc.

TYPE	PART #	PUT-UPS
TRIPLEX-WHITE JACKET		
White/Black/Green, White Jacket		
10/3	8111	100', 250', 500', 1000'
12/3	8113	100', 250', 500', 1000'
14/3	8115	100', 250', 500', 1000'
16/3	8117	100', 250', 500', 1000'
220 VOLT—TRIPLEX		
Red, Black, Green, Round White Jacket		
8/3	8178	100', 250', 500'
10/3	8180	100', 250', 500'
12/3	8182	100', 250', 500'
16/02	2342	500', 1000'
AUDIO & CONTROL CABLES		
PE Conductors/Shielded/Gray PVC Jacket		
2 Cond., tinned #16 (19/29) Shielded w/drain, Red/Black		
18/02 2 Cond., tinned #18 (16/30) Shielded w/drain, Red/Black	2340	500', 1000'
20/02 2 Cond., tinned #20 (10/30) Shielded w/drain, Red/Black	2330	500', 1000'
22/02 2 Cond., tinned #22 (7/30) Shielded w/drain, Red/Black	2600	500', 1000'

**BATTERY &
SPEAKER CABLES****International Electrical Wire & Cable, Inc.**

TYPE	PART #	PUT-UPS
BATTERY CABLE		
Red or Black, Tinned		
4/0 Battery 2107/30	8304	25', 50', 100', 500', 1000'
3/0 Battery 1672/30	8303	25', 50', 100', 500', 1000'
2/0 Battery 1330/30	8302	25', 50', 100', 500', 1000'
1/0 Battery 1064/30	8301	25', 50', 100', 500', 1000'
Other colors, such as Yellow available upon request		
STEREO SPEAKER WIRE		
18/2	2560	500', 1000'
16/2	2540	500', 1000'
14/2	2544	500', 1000'
12/2	2545	500', 1000'

MISCELLANEOUS

International Electrical Wire & Cable, Inc.

TYPE	PART #
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**U.V. MOISTURE TAPES, COLD SHRINK TAPE (NO HEATING REQUIRED)
3M & AMP WATER PROOF COLD FUSION TAPE & COLD SHRINK TUBING**

3/4" Wide x 30', Fusion Seal Tape, Black, Waterproof	AMP605980-1
1" Wide x 30', Fusion Seal Tape, Black, Waterproof	AMP605980-2
Ultra Violet Resistant Elect. Tape, 3/4" x 66', Flame Resistant	3M-35 White
Moisture, Alkaline, & Acid Resistant	3M-35 Black
F Connector for RG-6, Gold Plated	F6G

"F" TYPE CONNECTORS

F Connector for RG-59, Gold Plated	F59G
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SPECIAL CABLES**International Electrical Wire & Cable, Inc.**

TYPE	PART #	PUT-UPS
SPECIAL CABLES		
18/4 Shield Control 4 Cond. Tinned #18 Shielded Red/Black/Green/White	8184	100', 250', 500', 1000'
FLOSCAN: Fuel Monitoring System Cable		
18/5	8185	100', 250', 500', 1000'
GTO CABLE: For HF Radio to Back Stay Antenna		
GTO 15 Type	GTO-15	100', 250', 500', 1000'
14/4 Shield Control Cable	8194	100', 250', 500', 1000'
14/5 Mast Cable (No Shield)	8195	100', 250', 500', 1000'
18/8 Shield Control Cable	8198	100', 250, 500', 1000'
20/8 Mast Cable (No Shield)	8199	100', 250, 500', 1000'

CONNECTORS**International Electrical Wire & Cable, Inc.**

CABLE	DESCRIPTION	PART #
CONNECTORS		
RG8X LMR 240	UHF, Male Clamp UHF, Male Crimp UHF, Female Clamp UHF, Female Crimp TNC, Male Clamp TNC, Male Crimp TNC, Female Clamp TNC, Female Crimp BNC, Male Clamp BNC, Male Crimp BNC, Female Clamp BNC, Female Crimp N, Male Clamp N, Male Crimp N, Female Clamp N, Female Crimp M-UHF, Male Clamp M-UHF, Male Crimp M-UHF, Female Clamp M-UHF, Female Crimp	RFU-501 CPL-259-17 N/A N/A RFT-1201-1X CPMC-TNC-17 N/A RFT-1217-X RFB-1101-X CPMC-88-17 N/A RFB-1124-1X RFN-1004-ISX RFN-1007-2SX RFN-1026-1X RFN-1029-SX N/A MINI-UHF-17 N/A RFU-601-1X

CONNECTORS**International Electrical Wire & Cable, Inc.**

CABLE	DESCRIPTION	PART #
CONNECTORS		
RG58 LMR 195	UHF, Male Clamp UHF, Male Crimp UHF, Female Clamp UHF, Female Crimp TNC, Male Clamp TNC, Male Crimp TNC, Female Clamp TNC, Female Crimp BNC, Male Clamp BNC, Male Crimp BNC, Female Clamp BNC, Female Crimp N, Male Clamp N, Male Crimp N, Female Clamp N, Female Crimp M-UHF, Male Clamp M-UHF, Male Crimp M-UHF, Female Clamp M-UHF, Female Crimp	RFU-501 CPL-259-17 RFU-520 RFU-527 RFT-1200 CPMC-TNC-17 N/A RFT-1216-1 RFB-1100-2ST CPMC-88-1 N/A RFB-1123-1 RFN-1000-1S RFN-1005-3C RFN-1025-1 RFN-1027 N/A MINI-UHF-1 N/A RFU-601-1

CONNECTORS**International Electrical Wire & Cable, Inc.**

CABLE	DESCRIPTION	PART #
CONNECTORS		
RG59	UHF, Male Clamp UHF, Male Crimp UHF, Female Clamp UHF, Female Crimp TNC, Male Clamp TNC, Male Crimp TNC, Female Clamp TNC, Female Crimp BNC, Male Clamp BNC, Male Crimp BNC, Female Clamp BNC, Female Crimp N, Male Clamp N, Male Crimp N, Female Clamp N, Female Crimp M-UHF, Male Clamp M-UHF, Male Crimp M-UHF, Female Clamp M-UHF, Female Crimp	RFU-501 CPL-259-2 N/A N/A RFT-1805 CPMC-TNC-2 RFT-1815 RFT-1813 RFB-1701-D CPMC-88-2 RFB-1720 RFB-1724-D RFN-1904-1S RFN-1907-2S N/A N/A N/A MINI-UHF-2 N/A RFU-601-5

GLOSSARY OF MARINE CABLE AND ELECTRONIC TERMS

Attenuation: The decrease in magnitude of a wave as it travels through any transmitting medium, such as a cable or circuitry. Attenuation is measured as a ratio or as the logarithm of a ratio (decibel).

Attenuation Constant: A rating for a cable or other transmitting medium, which is the relative rate of amplitude, decrease of voltage or current in the direction of travel. It is measured in decibels per unit of length of cable.

Balanced Line: A cable having two identical conductors with the same electromagnetic characteristics in relation to other conductors and to ground. Coaxial cable is not balanced line (see unbalanced line”).

Capacitance: The ability of a dielectric material between conductors to store electricity when a difference of potential exists between the conductors. The unit of measurement is the farad, which is the capacitance value that will store a charge of one coulomb when a one-volt potential difference exists between the conductors. In AC, one farad is the capacitance value, which will permit one ampere of current when the voltage across the capacitor changes at a rate of one volt per second.

Capacitive Reactance: The opposition to alternating current due to the capacitance of a capacitor, cable, or circuit. It is measured in ohms and is equal to $1/6.281C$ where f is the frequency in Hz and C is the capacitance in farads.

Capacitor: Two conducting surfaces separated by a dielectric material. The capacitance is determined by the area of the surfaces, type of dielectric, and spacing between the conducting surfaces.

Cellular Polyethylene: Expanded or “foam” polyethylene, consists of individual closed cells of inert gas suspended in a polyethylene medium, resulting in a desirable reduction of the dielectric constant.

Coaxial Cable: A cylindrical transmission line comprised of a conductor centered inside a metallic tube or shield, separated by a dielectric material, and usually covered by an insulating jacket.

Conductivity: The ability of a material to allow electrons to flow, measured by the current per unit of voltage applied. It is the reciprocal of resistivity.

Decibel (dB): One-tenth of a bel. It is equal to 10 times the logarithm of the power ratio, or 20 times the log of the current ratio. One decibel is the amount by which the pressure of a pure sine wave of sound must be varied in order for the change to be detected by the average human ear. The decibel can express an actual level only when comparing with some definite reference level that is assumed to be zero dB.

Earth: British terminology for zero-reference ground.

Farad: A unit capacity that will store one coulomb of electrical charge when one volt of electrical pressure is applied.

Foam Polyethylene: See cellular polyethylene.

Gain: The increase of voltage, current, or power over a standard or previous reading. Usually expressed in decibels.

GND: Ground

Ground: An electrical connection to the earth, generally through a ground rod. Also a common return to point of zero potential, such as the metal chassis in radio equipment.

Hertz: The unit of frequency, one cycle per second. Formerly referred to as “cycle”. One kilohertz (kHz) = 100 cycles. One megahertz (MHz) = one million cycles.

High Frequency: The band from 3 to 30 MHz in the radio spectrum, as designed by the Federal Communications Commission.

12R: Formula for power in watts, where I = current in amperes, R = resistance in ohms. Also see watt.

IF: Intermediate-frequency.

Impedance: The total opposition a circuit, cable, or component offers to alternating current flow. It includes both resistance and reactance and is generally expressed in ohms and designated by the symbol z.

Insertion Loss: A measure of the attenuation of a device by determining the output of a system before and after the device is inserted into the system.

Intermediate Frequency: A frequency to which a signal is converted for ease of handling. Receives its name from the fact that it is an intermediate step between the initial and final conversion or detection stages.

Jacket: Pertaining to wire and cable, the outer protective covering, may also provide additional insulation.

Loss: The portion of energy applied to a system that is dissipated and performs no useful work.

Low Frequency: A band of frequencies extending from 30 to 300 KHz in the radio spectrum, designated by the Federal Communications Commission.

Ohm: The electrical unit of resistance. The value of resistance through which a potential difference of one volt will maintain a current of one ampere.

Ohm's Law: Stated $E = IR$, $I = E/R$ or $R = E/I$, the current I in a circuit is directly proportional to the voltage E , and inversely proportional to the resistance R .

Polyethylene: A thermoplastic material having excellent electrical properties.

Polymer: A substance made of many repeating chemical units or molecules. The term polymer is often used in place of plastic, rubber, or elastomer.

Polypropylene: A thermoplastic similar to polyethylene but stiffer and having a higher softening point (temperature).

Polyurethane: Broad class of polymers noted for good abrasion and solvent resistance. Can be solid or cellular form.

Polyvinyl Chloride (PVC): A general purpose thermoplastic used for wire and cable insulation and jackets. Various grades provide good to excellent moisture and ultra violet resistance as well as physical flexibility.

Power Loss: The difference between the total power delivered to a circuit, cable, or device and the power delivered by a device to a load.

R-F: Radio-frequency.

RG/U: "RG" is the military designation for coaxial cable, "U" stands for "general utility".

Shield: A tape, serve or braid of metal, usually copper, aluminum, or other conductive material placed around or between electric circuits or cables or their components, to prevent signal leakage or interference.

Shield Percentage or Shield Coverage: The physical area of a circuit or cable actually covered by shielding material expressed as a percentage.

Standing Wave Ratio (swr): A ratio of the maximum amplitude to the minimum amplitude of a standing wave stated in current or voltage amplitudes.

Standing Wave: The stationary pattern of waves of the same frequency traveling in opposite directions on the same transmission line. The existence of voltage and current maxima and minima along a transmission line is a result of reflected energy from an impedance mismatch.

Transmission Line: An arrangement of two or more conductors or a wave guide used to transfer signal energy from one location to another.

Transceiver: An electrical communicating device consisting of both transmitter and a receiver.

Unbalanced Line: A transmission line in which voltages on the two conductors are unequal with respect to ground (e.g., a coaxial cable).

Velocity of Propagation: A transmission speed of electrical energy in a length of cable compared to speed in free space. Usually expressed as a percentage.

VHF: Very High Frequency. The spectrum extending from 30 to 300 MHz as designated by the Federal Communications Commission.

VLF: Very Low Frequency. The spectrum extending from 10 to 30 KHz, as designated by the Federal Communications Commission.

Watt: A unit of electrical power. One watt is equivalent to the power represented by one ampere of current with a pressure of one volt in a DC circuit.