IEEE EDITORIAL STYLE MANUAL

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D. Common Abbreviations of Words in References

Acoustics	Acoust.
Administration	Admin.
Administrative	Administ.
American	Amer.
Analysis	Anal.
Annals	Ann.
Annual	Annu.
Apparatus	App.
Applications	Appl.
Applied	Appl.
Association	Assoc.
Automatic	Automat.
British	Brit.
Broadcasting	Broadcast.
Business	Bus.
Canadian	Can.
Chinese	Chin.
Communications	Commun.

Computer(s)	Comput.
Conference	Conf.
Congress	Congr.
Convention	Conv.
Correspondence	Corresp.
Cybernetics	Cybern.
Department	Dept.
Design	Des.
Development	Develop.
Digest	Dig.
Economic(s)	Econ.
Education	Edu.
Electric	Elect.
Electrical	Elect.
Electronic	Electron.
Electronics	Electron.
Engineering	Eng.
Ergonomics	Ergonom.
European	Eur.
Evolutionary	Evol.
Experimental	
Express	Express
Foundation	Found.
Geoscience	Geosci.
Graphics	Graph.
Industrial	Ind.
Information	Inform.
Institute	Inst.
Intelligence	Intell.
International	Int.
Japan	Jpn.
Journal	J.
Letter(s)	Lett.
Machine	Mach.
Magazine	Mag.
Magnetics	Magn.
Management	Manage.
Managing	Manag.
Mathematical	Math.
Mechanical	Mech.
Meeting	Meeting
National	Nat.
Newsletter	Newslett.
Nuclear	Nucl.
Occupation	Occupat.
Operational	Oper.
Optical	Opt.
Optics	Opt.
Organization	Org.
Philosophical	Philosoph.
Proceedings	Proc.
Processing	Process.
Production	Prod.
Productivity	Productiv.
Quarterly	Quart.
Record	Rec.
Reliability	Rel.
Report	Rep.
Research	Res.

Review	Rev.
Royal	Roy.
Science	Sci.
Selected	Select.
Society	Soc.
Sociological	Sociol.
Statistics	Statist.
Studies	Stud.
Supplement	Suppl.
Symposium	Symp.
Systems	Syst.
Technical	Tech.
Techniques	Techn.
Technology	Technol.
Telecommunications	Telecommun.
Transactions	Trans.
Vehicular	Veh.
Working	Work.

E. IEEE Abbreviations for Transactions, Journals, Letters

NOTE: * denotes past acronyms/abbreviations of journals (used for pre-1988 publications).

Publication	Acronym	Reference Abbreviation
IEEE ACCESS		*IEEE Access*
IEEE TRANSACTIONS ON AEROSPACE AND ELECTRONIC SYSTEMS	AES	*IEEE Trans. Aerosp. Electron. Syst.*
	ANE*	*IEEE Trans. Aeronaut. Navig. Electron.**
	ANE*	*IEEE Trans. Aerosp. Navig. Electron.**
	AS*	*IEEE Trans. Aerosp.**
	MIL*	*IEEE Trans. Mil. Electron.**
	AE*	*IEEE Trans. Airborne Electron.**
IEEE TRANSACTIONS ON AFFECTIVE COMPUTING	AFFC	*IEEE Trans. Affect. Comput.*
IEEE TRANSACTIONS ON ANTENNAS AND PROPAGATION	AP	*IEEE Trans. Antennas Propag.*
IEEE ANTENNAS AND WIRELESS PROPAGATION LETTERS	LAWP	*IEEE Antennas Wireless Propag. Lett.*
IEEE TRANSACTIONS ON APPLIED SUPERCONDUCTIVITY	ASC	*IEEE Trans. Appl. Supercond.*
IEEE/ACM TRANSACTIONS ON AUDIO, SPEECH, AND LANGUAGE PROCESSING	ASLP	*IEEE/ACM Trans. Audio, Speech, Language Process.*
IEEE TRANSACTIONS ON AUDIO, SPEECH, AND LANGUAGE PROCESSING		*IEEE Trans. Audio, Speech, Language Process.(2006–2013)*
	ASL	
	SAP*	*IEEE Speech Audio Process. (1993−2005)*
IEEE TRANSACTIONS ON AUTOMATIC CONTROL	AC	*IEEE Trans. Autom. Control*
IEEE/CAA JOURNAL OF AUTOMATICA SINICA	JAS	*IEEE/CAA J. Autom. Sinica*
IEEE TRANSACTIONS ONS AUTOMATION SCIENCE AND ENGINEERING	ASE	*IEEE Trans. Autom. Sci. Eng.(from Jul. 2004)*
IEEE TRANSACTIONS ON BIG DATA	BD	*IEEE Trans. Big Data*
IEEE JOURNAL OF BIOMEDICAL AND HEALTH INFORMATICS	BHI	*IEEE J. Biomed. Health Inform.*
	ITB	*IEEE Trans. Inf. Technol. Biomed. (1995–2012)*
IEEE TRANSACTIONS ON BIOMEDICAL CIRCUITS AND SYSTEMS	BCAS	*IEEE Trans. Biomed. Circuits Syst.*
IEEE REVIEWS IN BIOMEDICAL ENGINEERING	RBME	*IEEE Rev. Biomed. Eng.*
IEEE TRANSACTIONS ON BIOMEDICAL ENGINEERING	BME	*IEEE Trans. Biomed. Eng.*
	BME*	*IEEE Trans. Bio-Med. Eng.**
	BME*	*IEEE Trans. Bio-Med. Electron.**
	PGME*	*IEEE Trans. Med. Electron.**
IEEE TRANSACTIONS ON BROADCASTING	BC	*IEEE Trans. Broadcast.*
IEEE TRANSACTIONS ON CIRCUITS AND SYSTEMS—I: REGULAR PAPERS	CSI	*IEEE Trans. Circuits Syst. I, Reg. Papers*
IEEE TRANSACTIONS ON CIRCUITS AND SYSTEMS—II: EXPRESS BRIEFS	CSII	*IEEE Trans. Circuits Syst. II, Express Briefs*
IEEE TRANSACTIONS ON CIRCUITS AND SYSTEMS—I: FUNDAMENTAL THEORY AND APPLICATIONS	CAS1*	*IEEE Trans. Circuits Syst. I, Fundam. Theory Appl. (1993–2003)*
IEEE TRANSACTIONS ON CIRCUITS AND SYSTEMS—II: ANALOG AND DIGITAL SIGNAL PROCESSING	CAS2*	*IEEE Trans. Circuits Syst. II, Analog Digit. Signal Process.(1993–2003)*
	CAS*	*IEEE Trans. Circuits Syst.* (1974–1992)*
	CT*	*IEEE Trans. Circuit Theory* (until 1973)*
IEEE TRANSACTIONS ON CIRCUITS AND SYSTEMS FOR VIDEO TECHNOLOGY	CSVT	*IEEE Trans. Circuits Syst. Video Technol.*
IEEE TRANSACTIONS ON CLOUD COMPUTING	CC	*IEEE Trans. Cloud Comput.*
IEEE TRANSACTIONS ON COGNITIVE AND DEVELOPMENTAL SYSTEMS	CDS	*IEEE Trans. Cogn. Develop. Syst.*
	AMD*	*IEEETrans. Auton.Mental Develop. (2009–2015)*
IEEE TRANSACTIONS ON COGNITIVE COMMUNICATIONS AND NETWORKING	CCN	*IEEE Trans. Cogn. Commun. Netw.*
IEEE TRANSACTIONS ON COMMUNICATIONS	COM	*IEEE Trans. Commun.*
	COM*	*IEEE Trans. Commun. Technol.* (until 1971)*
IEEE COMMUNICATIONS LETTERS	COMML	*IEEE Commun. Lett.*
IEEE COMMUNICATONS SURVEYS & TUTORIALS	COMST	*IEEE Commun. Surveys Tut.*
IEEE TRANSACTIONS ON COMPONENTS, PACKAGING AND MANUFACTURING TECHNOLOGY	CPMT	*IEEE Trans. Compon. Packag. Manuf. Technol.*
	CAPT	*IEEE Trans. Compon. Packag. Technol.(1999–2010)*

Publication	Acronym	Reference Abbreviation
	CPMTA	*IEEE Trans. Compon., Packag.,Manuf. Technol. A (1994–1998)*
	CHMT*	*IEEE Trans. Compon., Hybrids, Manuf. Technol.* (1978–1993)*
	MFT*	*IEEE Trans. Manuf. Technol.* (1972–1977)*
	PHP*	*IEEE Trans. Parts, Hybrids, Packag.* (June 1971–1977)*
	PMP*	*IEEE Trans. Parts, Mater., Packag.* (1965−1971)*
	ADVP	*IEEE Trans. Adv. Packag. (1999–2010)*
	CPMTB	*IEEE Trans. Compon., Packag., Manuf. Technol. B (1994–1998)*
	EPM	*IEEE Trans. Electron. Packag. Manuf. (1999−2010)*
	CPMTC	*IEEE Trans. Compon., Packag., Manuf. Technol. C (1996–1998)*
IEEE/ACM TRANSACTIONS ON COMPUTATIONAL BIOLOGY AND BIOINFORMATICS	CBB	*IEEE/ACM Trans. Comput. Biol. Bioinf.*
IEEE TRANSACTIONS ON COMPUTATIONAL INTELLIGENCE AND AI IN GAMES	CIAIG	*IEEE Trans. Comput. Intell. AI in Games*
IEEE TRANSACTIONS ON COMPUTATIONAL SOCIAL SYSTEMS	CSS	*IEEE Trans. Comput. Social Syst.*
IEEE TRANSACTIONS ON COMPUTERS	C	*IEEE Trans. Comput.*
IEEE TRANSACTIONS ON COMPUTER-AIDED DESIGN OF INTEGRATED CIRCUITS AND SYSTEMS	CAD	*IEEE Trans. Comput.-Aided Des. Integr. Circuits Syst.*
IEEE COMPUTER ARCHITECTURE LETTERS	CAL	*IEEE Comput. Archit. Lett.*
IEEE TRANSACTIONS ON CONSUMER ELECTRONICS	CE	*IEEE Trans. Consum. Electron.*
	BTR	*IEEE Trans. Broadcast. Telev. Receiv. (1963−1974)*
IEEE TRANSACTIONS ON CONTROL OF NETWORK SYSTEMS	CNS	*IEEE Trans. Control Netw. Syst.*
IEEE TRANSACTIONS ON CONTROL SYSTEMS TECHNOLOGY	CST	*IEEE Trans. Control Syst. Technol.*
	CYB	*IEEE Trans. Cybern.*
IEEE TRANSACTIONS ON CYBERNETICS	SMCB*	*IEEE Trans. Syst. Man, Cybern. B, Cybern. (1995–2012)*
IEEE TRANSACTIONS ON DEVICE AND MATERIALS RELIABILITY	DMR	*IEEE Trans. Device Mater. Rel.*
IEEE TRANSACTIONS ON DIELECTRICS AND ELECTRICAL INSULATION	DEI	*IEEE Trans. Dielectr. Electr. Insul.*
	EI*	*IEEE Trans. Electr. Insul.* (through 1993)*
IEEE TRANSACTIONS ON DEPENDABLE AND SECURE COMPUTING	DSC	*IEEE Trans. Depend. Sec. Comput.*
IEEE/OSA JOURNAL OF DISPLAY TECHNOLOGY	DT	*J. Display Technol.*
IEEE TRANSACTIONS ON EDUCATION	E	*IEEE Trans. Edu.*
IEEE TRANSACTIONS ON ELECTROMAGNETIC COMPATIBILITY	EMC	*IEEE Trans. Electromagn. Compat.*
	RFI*	*IEEE Trans. Radio Freq. Interference**
IEEE TRANSACTIONS ON ELECTRON DEVICES	ED	*IEEE Trans. Electron Devices*
IEEE JOURNAL OF ELECTRON DEVICES SOCIETY	EDS	*IEEE J. Electron Devices Soc.*
IEEE ELECTRON DEVICE LETTERS	EDL	*IEEE Electron Device Lett.*
IEEE TRANSACTIONS ON ELECTRONICS PACKAGING MANUFACTURING	EPM	*IEEE Trans. Electron. Packag. Manuf.(1999−2010)*
IEEE EMBEDDED SYSTEMS LETTERS	ES	*IEEE Embedded Syst. Lett.*
IEEE TRANSACTIONS ON EMERGING TOPICS IN COMPUTING	ETC	*IEEE Trans. Emerg. Topics Comput.*
IEEE TRANSACTIONS ON EMERGING AND SELECTED TOPICS IN CIRCUITS AND SYSTEMS	ETCAS	*IEEE Trans. Emerg. Sel. Topics Circuits Syst.*
IEEE TRANSACTIONS ON EMERGING AND SELECTED TOPICS IN POWER ELECTRONICS	ESTPE	*IEEE Trans. Emerg. Sel. Topics Power Electron.*
IEEE TRANSACTIONS ON ENERGY CONVERSION	EC	*IEEE Trans. Energy Convers.*
IEEE TRANSACTIONS ON ENGINEERING MANAGEMENT	EM	*IEEE Trans. Eng. Manag.*
IEEE TRANSACTIONS ON EVOLUTIONARY COMPUTATION	EVC	*IEEE Trans. Evol. Comput.*

Publication	Acronym	Reference Abbreviation
IEEE JOURNAL ON EXPLORATORY SOLID-STATE COMPUTATIONAL DEVICES AND CIRCUITS	XCDC	*IEEE J. Explor. Solid-State Computat. Devices Circuits*
IEEE TRANSACTIONS ON FUZZY SYSTEMS	FUZZ	*IEEE Trans. Fuzzy Syst.*
IEEE TRANSACTIONS ON GEOSCIENCE AND REMOTE SENSING	GRS	*IEEE Trans. Geosci. Remote Sens.*
IEEE GEOSCIENCE AND REMOTE SENSING LETTERS	GRSL	*IEEE Geosci. Remote Sens. Lett.*
IEEE TRANSACTIONS ON HAPTICS	H	*IEEE Trans. Haptics*
IEEE TRANSACTIONS ON HUMAN–MACHINE SYSTEMS	HMS*	*IEEE Trans. Human–Mach. Syst.*
	SMCC*	*IEEE Trans. Syst., Man, Cybern. C, Appl. Rev. (1995–2012)*
	SMC*	*IEEE Trans. Syst., Man, Cybern.* (1971–1995)*
	SSC*	*IEEE Trans. Syst. Sci. Cybern.* (through 1970)*
IEEE TRANSACTIONS ON IMAGE PROCESSING	IP	*IEEE Trans. Image Process.*
IEEE TRANSACTIONS ON INDUSTRIAL ELECTRONICS	IE	*IEEE Trans. Ind. Electron.*
IEEE TRANSACTIONS ON INDUSTRIAL INFORMATICS	II	*IEEE Trans. Ind. Informat.*
IEEE TRANSACTIONS ON INDUSTRY APPLICATIONS	IA	*IEEE Trans. Ind. Appl.*
IEEE TRANSACTIONS ON INFORMATION FORENSICS AND SECURITY	IFS	*IEEE Trans. Inf. Forensics Security*
IEEE TRANSACTIONS ON INFORMATION THEORY	IT	*IEEE Trans. Inf. Theory*
IEEE TRANSACTIONS ON INSTRUMENTATION AND MEASUREMENT	IM	*IEEE Trans. Instrum. Meas.*
	I, PGI*	*IEEE Trans. Instrum.**
IEEE TRANSACTIONS ON INTELLIGENT TRANSPORTATION SYSTEMS	ITS	*IEEE Trans. Intell. Transp. Syst.*
IEEE TRANSACTIONS ON INTELLIGENT VEHICLES	IV	*IEEE Trans. Intell. Veh.*
IEEE INTERNET OF THINGS JOURNAL	IOT	*IEEE Internet Things J.*
IEEE TRANSACTIONS ON KNOWLEDGE AND DATA ENGINEERING	KDE	*IEEE Trans. Knowl. Data Eng.*
IEEE TRANSACTIONS ON LEARNING TECHNOLOGIES	LT	*IEEE Trans. Learn. Technol.*
IEEE LIFE SCIENCES LETTERS	LS	*IEEE Life Sci. Lett.*
JOURNAL OF LIGHTWAVE TECHNOLOGY	LT	*J. Lightw. Technol.*
IEEE TRANSACTIONS ON MAGNETICS	MAG	*IEEE Trans. Magn.*
IEEE MAGNETICS LETTERS	MAGL	*IEEE Magn. Lett.*
IEEE/ASME TRANSACTIONS ON MECHATRONICS	MECH	*IEEE/ASME Trans. Mechatronics*
IEEE TRANSACTIONS ON MEDICAL IMAGING	MI	*IEEE Trans. Med. Imag.*
IEEE JOURNAL OF MICROELECTROMECHANICAL SYSTEMS	MEMS	*J. Microelectromech. Syst.*
JOURNAL OF MICROELECTROMECHANICAL SYSTEMS	MEMS	*J. Microelectromech. Syst.(1992–2013)*
IEEE MICROWAVE AND WIRELESS COMPONENTS LETTERS	MWCL	*IEEE Microw. Compon. Lett.*
	MGWL*	*IEEE Microw. Guided Wave Lett. (1991−2000)*
IEEE TRANSACTIONS ON MICROWAVE THEORY AND TECHNIQUES	MTT	*IEEE Trans. Microw. Theory Techn.*
IEEE TRANSACTIONS ON MOBILE COMPUTING	MC	*IEEE Trans. Mobile Comput.*
IEEE TRANSACTIONS ON MOLECULAR, BIOLOGICAL AND MULTI-SCALE COMMUNICATIONS	MBSC	*IEEE Trans. Mol. Biol. Multi-Scale Commun.*
IEEE TRANSACTIONS ON MULTIMEDIA	MM	*IEEE Trans. Multimedia*
IEEE TRANSACTIONS ON MULTI-SCALE COMPUTING SYSTEMS	MSCS	*IEEE Trans. Multi-Scale Comput. Syst.*
IEEE JOURNAL ON MULTISCALE AND MULTIPHYSICS COMPUTATIONAL TECHNIQUES	MMCT	*IEEEJ. Multiscale Multiphys. Comput. Techn.*
IEEE TRANSACTIONS ON NANOBIOSCIENCE	NB	*IEEE Trans. Nanobiosci.*
IEEE TRANSACTIONS ON NANOTECHNOLOGY	NANO	*IEEE Trans. Nanotechnol.*
IEEE NANOTECHNOLOGY EXPRESS	XNANO	*IEEE Nanotechnol. Express*
IEEE TRANSACTIONS ON NETWORK SCIENCE AND ENGINEERING	NSE	*IEEE Trans. Netw. Sci. Eng.*
IEEE/ACM TRANSACTIONS ON NETWORKING	NET	*IEEE/ACM Trans. Netw.*
IEEE TRANSACTIONS ON NEURAL NETWORKS AND LEARNING SYSTEMS	NNLS	*IEEE Trans. Neural Netw. Learn. Syst.*
	NN	*IEEE Trans. Neural Netw. (1990−2011)*
IEEE TRANSACTIONS ON NEURAL SYSTEMS AND REHABILITATION ENGINEERING	NSRE	*IEEE Trans. Neural Syst. Rehabil. Eng.*
	RE*	*IEEE Trans. Rehabil. Eng.* (1993–2000)*

Publication	Acronym	Reference Abbreviation
IEEE TRANSACTIONS ON NUCLEAR SCIENCE	NS	*IEEE Trans. Nucl. Sci.*
IEEE JOURNAL OF OCEANIC ENGINEERING	OE	*IEEE J. Ocean. Eng.*
IEEE/OSA JOURNAL OF OPTICAL COMMUNICATIONS AND NETWORKING	OCN	*J. Opt. Commun. Netw.*
IEEE TRANSACTIONS ON PARALLEL AND DISTRIBUTED SYSTEMS	PDS	*IEEE Trans. Parallel Distrib. Syst.*
IEEE TRANSACTIONS ON PATTERN ANALYSIS AND MACHINE INTELLIGENCE	PAMI	*IEEE Trans. Pattern Anal. Mach. Intell.*
IEEE PHOTONICS TECHNOLOGY LETTERS	PTL	*IEEE Photon. Technol. Lett.*
IEEE PHOTONICS JOURNAL	PJ	*IEEE Photon. J.*
IEEE JOURNAL OF PHOTOVOLTAICS	PHOT	*IEEE J. Photovolt.*
IEEE TRANSACTIONS ON PLASMA SCIENCE	PS	*IEEE Trans. Plasma Sci.*
IEEE TRANSACTIONS ON POWER APPARATUS AND SYSTEMS	PAS*	*IEEE Trans. Power App. Syst.* (through 1985)*
IEEE TRANSACTIONS ON POWER DELIVERY	PWRD	*IEEE Trans. Power Del.*
IEEE TRANSACTIONS ON POWER ELECTRONICS	PEL	*IEEE Trans. Power Electron.*
	LPEL	*IEEE Power Electron Lett. (2003-2005; abolished)*
IEEE TRANSACTIONS ON POWER SYSTEMS	PWRS	*IEEE Trans. Power Syst.*
PROCEEDINGS OF THE IEEE		*Proc. IEEE*
		Proc. IRE (through 1962)*
IEEE POWER AND ENERGY TECHNOLOGY SYSTEMS JOURNAL	PETS	*IEEE Power Energy Technol. Syst. J.*
IEEE TRANSACTIONS ON PROFESSIONAL COMMUNICATION	PC	*IEEE Trans. Prof. Commun.*
IEEE JOURNAL OF QUANTUM ELECTRONICS	QE	*IEEE J. Quantum Electron.*
IEEE RFIC JOURNAL	RFIC	*IEEE RFIC J.*
IEEE RFID JOURNAL	RFID	*IEEE RFID J.*
IEEE TRANSACTIONS ON RELIABILITY	R	*IEEE Trans. Rel.*
IEEE REVISTA IBEROAMERICANA DE TECNOLOGÍAS DEL APRENDIZAJE	RITA	
IEEE TRANSACTIONS ON ROBOTICS	RO	*IEEE Trans. Robot.*
IEEE TRANSACTIONS ON ROBOTICS AND AUTOMATION	RA*	*IEEE Trans. Robot. Autom. (1989–June 2004)*
	RA*	*IEEE J. Robot. Autom.* (1985–1988)*
IEEE ROBOTICS AND AUTOMATION LETTERS	RAL	*IEEE Robot. Autom. Lett.*
IEEE JOURNAL OF SELECTED TOPICS IN APPLIED EARTH OBSERVATIONS IN REMOTE SENSING	STARS	*IEEE J. Sel. Topics Appl. Earth Observ.in Remote Ses.*
IEEE JOURNAL ON SELECTED AREAS IN COMMUNICATIONS	SAC	*IEEE J. Sel. Areas Commun.*
IEEE JOURNAL OF SELECTED TOPICS IN QUANTUM ELECTRONICS	STQE	*IEEE J. Sel. Topics Quantum Electron.*
IEEE JOURNAL OF SELECTED TOPICS IN SIGNAL PROCESSING	STSP	*IEEE J. Sel. Topics Signal Process.*
IEEE TRANSACTIONS ON SEMICONDUCTOR MANUFACTURING	SM	*IEEE Trans. Semicond. Manuf.*
IEEE SENSORS JOURNAL	SEN	*IEEE Sensors J.*
IEEE TRANSACTIONS ON SIGNAL AND INFORMATION PROCESSING OVER NETWORKS	SIPN	*IEEE Trans. Signal Inf. Process. Netw.*
IEEE TRANSACTIONS ON SIGNAL PROCESSING	SP	*IEEE Trans. Signal Process.*
	ASSP*	*IEEE Trans. Acoust., Speech, Signal Process. * (1975–1990)*
	AU*	*IEEE Trans. Audio Electroacoust.* (until 1974)
IEEE SIGNAL PROCESSING LETTERS	SPL	*IEEE Signal Process. Lett.*
IEEE TRANSACTIONS ON SERVICES COMPUTING	SC	*IEEE Trans. Serv. Comput.*
IEEE TRANSACTIONS ON SMART GRID	SG	*IEEE Trans. Smart Grid*
IEEE TRANSACTIONS ON SOFTWARE ENGINEERING	SE	*IEEE Trans. Softw. Eng.*
IEEE JOURNAL OF SOLID-STATE CIRCUITS	SSC	*IEEE J. Solid-State Circuits*
IEEE SUSTAINABLE COMPUTING	SUSC	*IEEE Sustain. Comput.*
IEEE TRANSACTIONS ON SUSTAINABLE ENERGY	STE	*IEEE Trans. Sustain. Energy*
IEEE SYSTEMS JOURNAL	SJ	*IEEE Syst. J.*

Publication	Acronym	Reference Abbreviation
IEEE TRANSACTIONS ON SYSTEMS, MAN, AND CYBERNETICS: SYSTEMS	SMC	*IEEE Trans. Syst., Man, Cybern., Syst.*
	SMCA*	*IEEE Trans. Syst., Man, Cybern. A, Syst., Humans (1995-2012)*
	MMS*	*IEEE Trans. Man-Mach. Syst.* (through 1970)*
	HFE*	*Hum. Factors Electron.* (through 1968)*
IEEE JOURNAL OF TRANSLATIONAL ENGINEERING IN HEALTH AND MEDICINE	TEHM	*IEEE J. Transl. Eng. Health Med.*
IEEE TRANSLATION JOURNAL ON MAGNETICS IN JAPAN	TJMJ	*IEEE Transl. J. Magn. Jpn.(through 2010)*
IEEE JOURNAL ON TECHNOLOGY IN COMPUTER AIDED DESIGN	TCAD	*IEEE J. Technol. Computer Aided Des.*
IEEE TRANSACTIONS ON TERAHERTZ SCIENCE AND TECHNOLOGY	THZ	*IEEE Trans. THz Sci. Technol.*
IEEE TRANSACTIONS ON TRANSPORTATION ELECTRIFICATION	TTE	*IEEE Trans. Transport. Electrific.*
IEEE TRANSACTIONS ON ULTRASONICS, FERROELECTRICS, AND FREQUENCY CONTROL	UFFC	*IEEE Trans. Ultrason., Ferroelect., Freq. Control*
	SU*	*IEEE Trans. Sonics Ultrason.* (through 1985)*
	UE*	*IEEE Trans. Ultrason. Eng.**
	PGUE*	*IEEE Trans. Ultrason. Eng.**
IEEE TRANSACTIONS ON VEHICULAR TECHNOLOGY	VT	*IEEE Trans. Veh. Technol.*
	VC*	*IEEE Trans. Veh. Commun.**
IEEE TRANSACTIONS ON VERY LARGE SCALE INTEGRATION (VLSI) SYSTEMS	VLSI	*IEEE Trans. Very Large Scale Integr. (VLSI) Syst.*
IEEE TRANSACTIONS ON VISUALIZATION AND COMPUTER GRAPHICS	VCG	*IEEE Trans. Vis. Comput. Graphics*
IEEE TRANSACTIONS ON WIRELESS COMMUNICATIONS	WC	*IEEE Trans. Wireless Commun.*
IEEE WIRELESS COMMUNICATIONS LETTERS	WCL	*IEEE Wireless Commun. Lett.*

List of IEEE Magazines

Magazines	Reference Abbreviation
IEEE Aerospace and Electronics Systems Magazine	*IEEE Aerosp. Electron. Syst. Mag.*
IEEE Annals of the History of Computing	*IEEE Ann. Hist. Comput.*
IEEE Antennas and Propagation Magazine	*IEEE Antennas Propag. Mag.*
IEEE ASSP Magazine (1984–1990)	*IEEE ASSP Mag.*
IEEE Circuits and Systems Magazine	*IEEE Circuits Syst. Mag.*
IEEE Circuits and Devices Magazine (1988–2006)	*IEEE Circuits Devices Mag.*
IEEE Communications Society Magazine (through 1978)	*IEEE Commun. Soc. Mag.*
IEEE Communications Magazine (1979–present)	*IEEE Commun. Mag.*
IEEE Computational Intelligence Magazine	*IEEE Comput. Intell. Mag.*
IEEE Computing in Science and Engineering Magazine	*IEEE Comput. Sci. Eng.*
IEEE Computer Magazine	*IEEE Computer*
IEEE Computer Applications in Power	*IEEE Comput. Appl. Power*
IEEE Computer Graphics and Applications Magazine	*IEEE Comput. Graph. Appl. Mag.*
IEEE Concurrency	*IEEE Concurrency*
IEEE Consumer Electronics Magazine	*IEEE Consum. Electron. Mag.*
IEEE Control Systems Magazine	*IEEE Control Syst. Mag.*
IEEE Design & Test	*IEEE Des. Test.*
	IEEE Des. Test. Comput. (through 2012)*
IEEE Electrical Insulation Magazine	*IEEE Elect. Insul. Mag.*
IEEE Electomagnetic Compatibility Magazine	*IEEE Electrmagn. Compat.*
IEEE Electrification Magazine	*IEEE Electrific. Mag.*
IEEE ElectroTechnology Review	*IEEE ElectroTechnol. Rev.*
	IEEE Eng. Med. Biol. Mag. (1982−2009)
IEEE Engineering Management Review	*IEEE Eng. Manag. Rev.*
IEEE Expert (through 1997)	*IEEE Expert*
IEEE Geoscience and Remote Sensing Magazine	*IEEE Geosci. Remote Sens. Mag.(replaces Newsletter)*
IEEE Industrial Electronics Magazine	*IEEE Ind. Electron. Mag.*
IEEE Industry Applications Magazine	*IEEE Ind. Appl. Mag.*
IEEE Instrumentation and Measurement Magazine	*IEEE Instrum. Meas. Mag.*
IEEE Intelligent Systems (formerly IEEE Expert)	*IEEE Intell. Syst.*
IEEE Intelligent Transportation Systems Magazine	*IEEE Intell. Transp. Syst. Mag.*
IEEE Internet Computing Magazine	*IEEE Internet Comput.*
IEEE IT Professional	*IEEE IT Prof.*
IEEE Micro Magazine	*IEEE Micro*
IEEE Microwave Magazine	*IEEE Microw. Mag.*
IEEE MultiMedia Magazine	*IEEE Multimedia Mag.*
IEEE Nanotechnology Magazine	*IEEE Nanotechnol. Mag.*
IEEE Network	*IEEE Netw.*
IEEE Personal Communications	*IEEE Pers. Commun.*
IEEE Potentials	*IEEE Potentials*
IEEE Power Electronics Magazine	*IEEE Power Electron. Mag.*
IEEE Power and Energy Magazine	*IEEE Power Energy Mag.*
IEEE Power Engineering Review	*IEEE Power Eng. Rev.*
IEEE Pulse	*IEEE Pulse*
IEEE Robotics and Automation Magazine	*IEEE Robot. Autom. Mag.*
IEEE Signal Processing Magazine (1991–present)	*IEEE Signal Process. Mag.*
IEEE Solid-State Circuits Magazine	*IEEE Solid State Circuits Mag.*
IEEE Security and Privacy	*IEEE Security Privacy*
IEEE Software	*IEEE Softw.*
IEEE Spectrum	*IEEE Spectr.*
IEEE Systems, Man, and Cybernetics Magazine	*IEEE Syst., Man, Cybern. Mag.*
IEEE Technology and Society Magazine	*IEEE Technol. Soc. Mag.*
IEEE Vehicular Technology Magazine	*IEEE Veh. Technol. Mag.*
China Communications Magazine	*China Commun.*
Internet Computing	*Internet Comput.*

VI. APPENDIX

G. Some Common Acronyms and Abbreviations

NOTE: Asterisks (*) indicate terms which must be defined the first time they are used in text. Other terms listed here may be used without definition.

ac	alternating current
A–D, A/D	analog-to-digital
AF	audio frequency*
AFC	automatic frequency control*
AGC	automatic gain control*
AM	amplitude modulation
APD	avalanche photodiode
AR	antireflection*
ARMA	autoregressive moving average*
ASIC	application-specified integrated circuit*
ASK	amplitude shift keying
ATM	asynchronous transfer mode
av	average (subscript)*
avg	average (function)
AWGN	additive white Gaussian noise*
B–E	base–emitter source
BER	bit error rate*
BPSK	binary phase-shift keying
BWO	backward-wave oscillator*
c.c.	complex conjugate (in equations)
CCD	charge-coupled device*
CDMA	code division multiple access*
CD-ROM	compact disk read-only memory
CIM	computer integrated manufacturing*
CIR	carrier-to-interference ratio*
CMOS	complimentary metal–oxide–semiconductor
CPFSK	continuous phase frequency-shift keying*
CPM	continuous phase modulation*
CPSK	continuous phase-shift keying*
CPU	central processing unit
CRT	cathode-ray tube
CT	current transformer*
CV	capacitance–voltage
CW	continuous wave*
dc	direct current
DC	directional coupler
DF	direction finder*; deuterium fluoride; degree of freedom*
DFT	discrete Fourier transform*
DMA	direct memory access*
DPCM	differential pulse code modulation*
DPSK	differential phase-shift keying*
EDP	electronic data processing
EHF	extremely high frequency*
ELF	extremely low frequency*
EMC	electromagnetic compatibility*
EMF	electromotive force*

EMI	electromagnetic interference*
ems	expected value of mean square*
FDM	frequency division multiplexing*
FDMA	frequency division multiple access*
FET	field-effect transistor
FFT	fast Fourier transform*
FIR	finite-impulse response*
FM	frequency modulation
FSK	frequency-shift keying*
FTP	file transfer protocol
FWHM	full-width at half-maximum*
GUI	graphical user interface
HBT	heterojunction bipolar transistor
HEMT	high-electron mobility transistor
HF	high frequency
HTML	hypertext markup language
HV	high voltage
HVdc	high voltage direct current
HEVC	high efficiency video coding
IC	impedance compensation*; integrated circuit
ID	inside diameter; induced draft*; interdigital*
IDP	integrated data processing*
IF	intermediate frequency
IGFET	insulated-gate field-effect transistor
i.i.d.	independent identically distributed*
IM	intermediate modulation
IMPATT	impact ionization avalanche transit time (diode)
I/O, I–O	input–output
IR	infrared
IR	current-resistance
ISI	intersymbol interference
I–V	current–voltage
JFET	junction field-effect transistor
JPEG	Joint Photographers Expert Group
LAN	local area network
LC	inductance–capacitance
LED	light-emitting diode
LHS	left-hand side*
L–I	light output–current
LMS	least mean square
LO	local oscillator*
LP	linear programming*
LPE	liquid phase epitaxy*
LR	inductance–resistance
MESFET	metal–semiconductor field-effect transistor
MF	medium frequency*
MFSK	minimum frequency-shift keying
MHD	magnetohydrodynamics
MIS	metal–insulator–semiconductor
MLE	maximum-likelihood estimator*
MLSE	maximum-likelihood sequence estimator*
MMF	magnetomotive force
MMIC	monolithic microwave integrated circuit*

MoM	method of moments*
MOS	metal–oxide–semiconductor
MOSFET	metal–oxide–semiconductor field-effect transistor
MOST	metal–oxide–semiconductor transistor
MPEG	Motion Pictures Expert Group
NA	numerical aperture*
NIR	near infrared response*
NMR	nuclear magnetic resonance*
n-p-n	(diode)
NRZ	nonreturn to zero*
OD	outside diameter
OEIC	optoelectronic integrated circuit*
OOP	object-oriented programming
PAM	pulse-amplitude modulation*
PC	personal computer
PCM	pulse-code modulation*
pdf	probability density function*
PDM	pulse-duration modulation*
PF	power factor*
PID	Proportional-integral differential
p-i-n, p-n-p	(diode)
PLL	phase-locked loop*
PM	phase modulation*
PML	perfectly matched layer
pp, p–p	peak-to-peak*
PPM	pulse-position modulation*
PRF	pulse-repetition frequency*
PRR	pulse-repetition rate*
PSK	phase-shift keying*
PTM	pulse–time modulation
p.u.	per unit*
PWM	pulse width modulation*
Q	quality factor; figure of merit
QoS	quality of service
QPSK	quaternary phase-shift keying
RAM	random access memory
RC	resistance–capacitance
R&D	research and development
RF	radio frequency
RFI	radio frequency interference*
RHS	right-hand side*
RIN	relative intensity noise*
RL	resistance–inductance
rms	root mean square
ROM	read-only memory
RV	random variable
SAW	surface acoustic wave*
SGML	standard generalized markup language
SHF	super high frequency*
SI	International System of Units; severity index*
SIR	signal-to-interference ratio
S/N, SNR	signal-to-noise ratio
SOC	system-on-a-chip*

SSB	single sideband*
SW	short wave*
SWR	standing-wave ratio*
TDM	time-division modulation*; time-division multiplexing*
TDMA	time-division multiple access*
TE	transverse electric
TEM	transverse electromagnetic
TFT	thin-film transistor*
TM	transverse magnetic
TVI	television interference*
TWA	traveling-wave amplifier*
UHF	ultrahigh frequency
UV	Ultraviolet
VCO	voltage-controlled oscillator*
VHF	very high frequency*
V–I	voltage–current
VLF	very low frequency*
VLSI	very large scale integration*
WAN	wide area network
WDM	wavelength division multiplexing*

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