

## Acronyms and Abbreviations

<b>AACS</b>	attitude and articulation control subsystem
<b>ABM</b>	aerobraking maneuver
<b>ABX</b>	aerobraking exit
<b>Ac</b>	acquisition (also ACQ)
<b>ACE</b>	Advanced Composition Explorer
<b>ACE</b>	call sign for project real-time mission controller
<b>ACIS</b>	antenna control and interface subsystem
<b>ACK</b>	acknowledgment
<b>ACQ</b>	acquisition (also Ac)
<b>ACS</b>	attitude control system
<b>A/D</b>	analog to digital
<b>ADC</b>	analog to digital converter
<b>ADR</b>	adaptive data rates
<b>AGC</b>	automatic gain control (received carrier power)
<b>AGL</b>	above ground level
<b>Ahr</b>	ampere hour
<b>AIS</b>	ancillary information subsystem
<b>AlBeMet</b>	trade name of aluminum beryllium composite produced by Brush Wellman Inc.
<b>ALC</b>	automatic level control
<b>AM</b>	ante meridian
<b>AMMOS</b>	Advanced Multimission Operations System
<b>AOA, AoA</b>	angle of attack
<b>AOS</b>	advanced orbiting systems
<b>APID</b>	application process identifier
<b>APXS</b>	alpha particle X-ray spectrometer
<b>ARC</b>	Ames Research Center
<b>ARF</b>	automatic restart function
<b>ARQ</b>	automatic repeat queuing
<b>ARQ</b>	automatic repeat request

<b>ASCII</b>	American Standard Code for Information Interchange
<b>ASI</b>	Italian Space Agency
<b>ASIC</b>	application-specific integrated circuit
<b>Assy</b>	assembly
<b>ATCM</b>	auto trajectory correction maneuver
<b>ATLO</b>	Assembly, Test, and Launch Operations
<b>ATN</b>	attenuator
<b>ATS</b>	aft transition structure
<b>AU</b>	astronomical unit ( $\sim 1.496 \times 10^8$ km)
<b>AutoNav</b>	autonomous navigation
<b>aux osc</b>	auxiliary oscillator
<b>AWGN</b>	additive white Gaussian noise
<b>b</b>	bit (note: telecommunications uses bits [b]; data storage uses bytes [B], which are 8 bits per byte)
<b>BBPP</b>	base-band patch panel
<b>BC</b>	buss controller
<b>BECO</b>	booster engine cutoff
<b>BER</b>	bit-error rate
<b>BIP</b>	backshell interface plate
<b>BLF</b>	best-lock frequency
<b>BLGA</b>	backshell low gain antenna on MER
<b>2BLO</b>	loop bandwidth (reference at threshold)
<b>BML</b>	backup mission load bps (bits per second (bps))
<b>BMOX</b>	Beacon-Monitor Operations Experiment
<b>BODA</b>	burnout detection algorithm
<b>BoL</b>	beginning of life
<b>BPF</b>	bandpass filter
<b>BPM</b>	UHF radio frequency module (MRO)
<b>bps</b>	bits per second
<b>BPSK</b>	binary phase-shift keying
<b>BS</b>	bachelor of science

<b>BSS</b>	backshell separation
<b>BTD</b>	buffered telemetry demodulator
<b>BTU</b>	British thermal unit (1.06 kilojoule)
<b>BUD</b>	bridle, umbilical, descent-rate-limiter device
<b>BVR</b>	Block V Receiver
<b>BW</b>	bandwidth
<b>BWG</b>	beam waveguide
<b>C3</b>	launch-specific energy
<b>CAN</b>	Canberra (Deep Space Communications Complex)
<b>CAS</b>	Cassini Project
<b>CBE</b>	current best estimate
<b>CBM</b>	Communications Behavior Manager
<b>CBM</b>	cruise balance mass
<b>C&amp;C</b>	command and control
<b>CCAFS</b>	Cape Canaveral Air Force Station
<b>CCAM</b>	collision and contamination avoidance maneuver
<b>CCB</b>	common core booster
<b>CCS</b>	computer command subsystem
<b>CCSDS</b>	Consultative Committee for Space Data Systems
<b>CD</b>	cumulative distribution
<b>C&amp;DH</b>	command and data handling
<b>CDR</b>	Central Data Recorder
<b>CDR</b>	Critical Design Review
<b>CDS</b>	command data subsystem
<b>CDSCC</b>	Canberra Deep Space Communications Complex (DSCC)
<b>CDU</b>	command detector unit
<b>CEP</b>	circular error probability
<b>C.E.</b>	convolutional encoding
<b>CFDP</b>	CCSDS (Consultative Committee for Space Data Systems) file delivery protocol
<b>CG</b>	center of gravity
<b>CLBW</b>	carrier-loop bandwidth

<b>ChemCam</b>	Chemistry and mineralogy camera (MSL)
<b>CheMin</b>	Chemistry and Mineralogy (makes X-ray diffraction analyses of rock and soil samples, MSL)
<b>C-ISA</b>	Centaur interstage adapter
<b>CLA</b>	carrier-lock accumulator
<b>CLGA</b>	cruise low-gain antenna on MER
<b>Clk</b>	clock
<b>CLK GEN</b>	clock generator
<b>CLTU</b>	command link transmission unit
<b>cm</b>	centimeter
<b>CMA</b>	command modulator assembly
<b>Cmd</b>	command
<b>CMDRAD</b>	command radiation
<b>CME</b>	coronal-mass ejection
<b>CNR</b>	carrier-to-noise ratio
<b>Comm</b>	communication, or on a diplexer, common port (connected to an antenna)
<b>conscan</b>	conical scanning
<b>CP</b>	coupler
<b>cPCI</b>	compact peripheral component interconnect
<b>CPA</b>	command processor assembly
<b>CRC</b>	cyclic redundancy check
<b>CRISM</b>	Compact Reconnaissance Imaging Spectrometer for Mars Reconnaissance Orbiter (MRO)
<b>CRS</b>	cosmic ray system (Voyager)
<b>CS</b>	check sum
<b>CSIRO</b>	Commonwealth Scientific and Industrial Research Organization (Australia)
<b>CSS</b>	cruise stage separation
<b>CSS</b>	channel select synthesizer
<b>CTS</b>	coaxial transfer switch (also referred to as CXS)
<b>CTT</b>	compatibility test trailer
<b>CTX</b>	Context Camera
<b>CW</b>	continuous wave

<b>CXS</b>	coaxial switch (also referred to as CTS)
<b>D-</b>	descent
<b>D/A</b>	digital to analog
<b>DAC</b>	digital-to-analog converter
<b>DACS</b>	data acquisition and command subsystem
<b>DAN</b>	Dynamic albedo of neutrons (instrument to detect and analyze hydrogen in the near-subsurface of Mars)
<b>dB</b>	decibel
<b>dBc</b>	dB below carrier
<b>dB-Hz</b>	decibel-hertz
<b>dB<sub>i</sub></b>	decibel with respect to isotropic gain
<b>dB<sub>ic</sub></b>	decibel with respect to isotropic antenna
<b>dB<sub>m</sub></b>	decibels referenced to milliwatts
<b>DC</b>	direct current; steady-state bias
<b>DCC</b>	downlink channel controller
<b>DCD</b>	data capture and display
<b>DCO</b>	digital control oscillator
<b>DCPC</b>	Downlink Channel Processing Cabinet
<b>DCT</b>	design control table
<b>DCT</b>	discrete cosine transform
<b>DDUT</b>	drop-dead uplink time
<b>DEA</b>	digital electronics assembly
<b>DEA</b>	descent engine assembly
<b>DEC</b>	Dual-Engine Centaur
<b>deg</b>	degree
<b>delta-DOR</b>	delta differential one-way ranging
<b>DESCANSO</b>	Deep Space Communications and Navigation Systems Center of Excellence
<b>DFE</b>	direct-from Earth
<b>DGT</b>	Deep Space Communications Complex (DSCC) Galileo Telemetry (system)
<b>DI</b>	Deep Impact

<b>DIXI</b>	Deep Impact Extended Investigation
<b>DKF</b>	Deep Space Network keyword files
<b>DKT</b>	DSN (Deep Space Network) keyword files
<b>DL, D/L</b>	downlink
<b>DLGA</b>	descent LGA (low-gain antenna)
<b>DM</b>	data mover
<b>DMC</b>	DSCC meteorological computer
<b>DMD</b>	data monitor and display
<b>DN</b>	data number
<b>DOE</b>	Department of Energy
<b>DOFF</b>	degrees off (boresight)
<b>DOM</b>	distributed object manager
<b>DOR</b>	differential one-way ranging
<b>DOY</b>	day of year
<b>DPDU</b>	digital power distribution unit
<b>DPM</b>	digital processing module (in Small Deep Space Transponder)
<b>DPT</b>	data priority table
<b>DR</b>	Discrepancy Report
<b>DRCF</b>	data-rate capability file
<b>Drv</b>	drive
<b>DS</b>	descent stage
<b>DS1</b>	Deep Space 1
<b>DSCC</b>	Deep Space Communications Complex
<b>DSDST</b>	descent stage small deep space transponder
<b>DSMS</b>	Deep Space Mission Systems
<b>DSN</b>	Deep Space Network
<b>DSS</b>	Deep Space Station
<b>DSS-14</b>	70-m Deep Space Station at Goldstone, California
<b>DSS-15</b>	34-m Deep Space Station at Goldstone, California
<b>DSS 19</b>	Very Large Array (San Agustin, near Socorro, New Mexico)
<b>DSS-25</b>	34-m Deep Space Station at Goldstone, California
<b>DSS-26</b>	34-m Deep Space Station at Goldstone, California

<b>DSS-34</b>	34-m Deep Space Station at Canberra, Australia
<b>DSS-42</b>	26-m Deep Space Station at Canberra, Australia
<b>DSS-43</b>	70-m Deep Space Station at Canberra, Australia
<b>DSS-45</b>	34-m Deep Space Station at Canberra, Australia
<b>DSS-49</b>	Parkes 64-m radio telescope (Parkes, Australia)
<b>DSS-55</b>	34-m Deep Space Station at Madrid, Spain
<b>DSS-63</b>	70-m Deep Space Station at Madrid, Spain
<b>DSS-65</b>	34-m Deep Space Station at Madrid, Spain
<b>DTE</b>	direct-to Earth
<b>DTF</b>	DSN Test Facility
<b>DTR</b>	digital tape recorder
<b>DTT</b>	Downlink Telemetry and Tracking Subsystem
<b>DTTL</b>	data transition tracking loop
<b>DTV</b>	digital television
<b>D-UCTS</b>	descent UHF (ultrahigh frequency) coaxial transfer switch
<b>DUHF</b>	descent UHF (ultrahigh frequency) antenna
<b>DVCF</b>	data-volume capability file
<b>DX</b>	diplexer
<b>EADS</b>	Casa Espacio, European Aeronautic Defense and Space Company (HGA vendor)
<b>EAS</b>	engineering analysis subsystem
<b>EBM</b>	entry balance mass
$E_b$	energy per command bit
$E_b/N_0$	bit-energy-to-noise spectral-density ratio
<b>EAS</b>	engineering analysis subsystem
<b>EBM</b>	entry balance mass
<b>EDA</b>	EDL data analysis
<b>EDL</b>	entry, descent, and landing
<b>EFPA</b>	entry flight path angle
<b>EH&amp;A</b>	engineering health (or housekeeping) and accountability (rate)
<b>EH&amp;A</b>	engineering housekeeping, and analysis

<b>EIRP</b>	effective isotropic radiated power
<b>ELT</b>	Electra Lite transponder
<b>EM</b>	electromagnetic
<b>EMC</b>	electromagnetic compatibility
<b>EMI</b>	electromagnetic interference
<b>Eng/HK</b>	Engineering/housekeeping
<b>EOL</b>	end of life
<b>EOM</b>	end of mission
<b>EPC</b>	electronic power converter
<b>EPOCH</b>	Extrasolar Planet Observations and Characterization
<b>EPOXI</b>	(combination of two mission names) Extrasolar Planet Observations and Characterization (EPOCH), and the flyby of comet Hartley 2, called the Deep Impact Extended Investigation (DIXI)
<b>EPS</b>	electrical power system
<b>ERT</b>	Earth-received time
$E_s$	energy per telemetry symbol
$E_s/N_0$	symbol energy-to-noise spectral-density ratio
<b>ESA</b>	European Space Agency
<b>EST</b>	Eastern Standard Time
<b>ESTEC</b>	European Space Administration Research and Technology Centre
<b>ETX</b>	exciter transmitter
<b>EU</b>	engineering unit
<b>EUT</b>	Electra UHF (ultrahigh frequency) transceiver
<b>eV</b>	electron volt
<b>EVR</b>	Event Report
<b>Ex</b>	exciter (provides the radio frequency drive to the transmitter)
<b>EXC</b>	exciter
<b>F1</b>	fundamental frequency of the small deep space transponder (SDST)
<b>FA</b>	flight acceptance
<b>FA</b>	flight allowable

<b>FCD</b>	feedback concatenated decoder
<b>FDS</b>	flight data subsystem
<b>FET</b>	field effect transistor
<b>FEM</b>	flight-engineering model
<b>FFA</b>	front-end filter assembly
<b>FFT</b>	fast Fourier transform
<b>FPA</b>	fault-protection algorithm
<b>FPGA</b>	field programmable gate array
<b>FRO</b>	frequency reference offset
<b>FS</b>	Flight System
<b>FSC</b>	full-spectrum combiner
<b>FSK</b>	frequency-shift keying
<b>FSP</b>	full-spectrum processing subsystem
<b>FSR</b>	full-spectrum recorder
<b>FSS</b>	Frame Synchronizer System (subsystem in Voyager)
<b>FSS</b>	frequency selective surface (on Voyager S-/X-band antenna (SXA))
<b>FSU</b>	filtering and switch unit
<b>FSW</b>	flight software
<b>FTE</b>	full-time equivalent
<b>FTS</b>	frequency and timing system
<b>FY</b>	fiscal year
<b>GaAs</b>	gallium arsenide
<b>Gb</b>	gigabit
<b>GB</b>	gigabyte
<b>GCN</b>	Ground Communications Network
<b>GDS</b>	Ground Data System
<b>GEM</b>	Galileo Europa Mission
<b>GDS</b>	Goldstone (Deep Space Communications Complex)
<b>GDSCC</b>	Goldstone Deep Space Communications Complex (DSCC)
<b>GFE</b>	Government furnished equipment
<b>GHz</b>	gigahertz

<b>GMM</b>	Galileo Millennium Mission
<b>GMSK</b>	Gaussian-filtered minimum-shift keying
<b>GNC</b>	guidance, navigation, and control
<b>GRACE</b>	Gravity Recovery and Climate Experiment
<b>GRASP</b>	General Reflector Antenna Scatter Program
<b>GSE</b>	ground support equipment
<b>GS&amp;E</b>	general science and engineering
<b>GSOC</b>	German Space Operations Center
<b>G/T</b>	ratio of antenna gain to noise temperature
<b>GTP</b>	generalized telecom predictor
<b>GUI</b>	graphical user interface
<b>GWU</b>	George Washington University
<b>H</b>	
<b>H</b>	hydrogen
<b>Hazcam</b>	hazard camera
<b>HCD</b>	hardware command decoder
<b>HDO</b>	half-duplex overlay
<b>HEF</b>	high efficiency (antenna)
<b>HEMT</b>	high electron mobility transistor
<b>HGA</b>	high-gain antenna
<b>HGAG</b>	HGA (high-gain antenna) gimbal
<b>HGAS</b>	high-gain antenna system
<b>hh:mm</b>	hours:minutes
<b>HiRISE</b>	High Resolution Imaging Science Experiment
<b>HK</b>	housekeeper
<b>HLAN</b>	high-speed LAN (local area network)
<b>HP</b>	high power
<b>HPCW</b>	high-priority comm window
<b>HRS</b>	heat rejection system (or subsystem)
<b>HSD</b>	high-speed data
<b>HVPS</b>	high-voltage power supply
<b>Hz</b>	hertz
<b>ICA</b>	
<b>ICA</b>	IF (interface) channel assembly

<b>ICD</b>	interface control document
<b>ICT</b>	integer cosine transform
<b>ID</b>	identification
<b>IDC</b>	image data compression
<b>IDC</b>	intermediate frequency to digital converter
<b>IDD</b>	(MER) instrument deployment device
<b>IDS</b>	IPS (ion-propulsion system ) diagnostic sensors
<b>IEM</b>	integrated-electronics module
<b>IF</b>	intermediate frequency
<b>IMP</b>	interplanetary monitoring platform
<b>IMU</b>	inertial-measurement unit
<b>IND</b>	Interplanetary Network Directorate (now IPN-ISD)
<b>IPN-ISD</b>	InterPlanetary Network and Information Systems Directorate (formerly TDA, TMOD, and IND)
<b>IPP</b>	inter pulse period
<b>IPS</b>	ion-propulsion system
<b>IR</b>	improved ranging
<b>IR</b>	infrared
<b>IRIS</b>	infrared interferometer spectrometer
<b>IS</b>	isolator
<b>ISA</b>	Incident, Surprise, Anomaly (report)
<b>ISA</b>	interstage adapter
<b>ISO</b>	isolator (at traveling wave tube amplifier output)
<b>ISS</b>	imaging science subsystem
<b>ITE</b>	impact through egress
<b>IUS</b>	Inertial Upper Stage
<b>JIRAM</b>	Jovian InfraRed Auroral Mapper
<b>JOI</b>	Jupiter orbit insertion
<b>JPL</b>	Jet Propulsion Laboratory
<b>JSX</b>	Jupiter Saturn Explorer (previous name for Voyager 2 spacecraft)

<b>K</b>	kelvin
<b>Ka-band</b>	frequencies in the range 26.5–40 GHz
<b>KaPA</b>	Ka-band power amplifier
<b>KaTS</b>	Ka-band Translator System
<b>kb</b>	kilobit (note: telecommunications uses bits [b]; data storage uses bytes [B], which are 8 bits per byte)
<b>kbps</b>	thousand(s) of bits per second
<b>kg</b>	kilogram
<b>KHA</b>	Ka-band horn antenna
<b>km</b>	kilometer
<b>km/hr</b>	kilometers/per hour
<b>km<sup>2</sup>/s<sup>2</sup></b>	kilometers squared per second squared
<b>kN</b>	kilonewton
<b>kW</b>	kilowatt
<b>LAN</b>	local-area network
<b>L-band</b>	frequency range between 390 and 1550 MHz
<b>LC</b>	inductance capacitance filter
<b>LCCD</b>	level clock conversion distribution (interface)
<b>LCP</b>	left-circular polarization; left circularly polarized
<b>LECP</b>	low-energy charged particle
<b>LGA</b>	low-gain antenna
<b>LGAX</b>	LGA (low-gain antenna) directed along the +x-axis
<b>LGZ</b>	LGA (low-gain antenna) directed along the +z-axis
<b>LGZ–LGA</b>	LGA (low-gain antenna) directed along the –z-axis
<b>LH<sub>2</sub></b>	liquid hydrogen
<b>LH</b>	left hand
<b>LHCP</b>	left-hand circular polarized (or polarization)
<b>LMA</b>	Lockheed Martin Aerospace
<b>LO<sub>2</sub></b>	liquid oxygen
<b>LOS</b>	loss of signal
<b>Lox</b>	liquid oxygen

<b>LP</b>	low power
<b>LMC</b>	link monitor and control
<b>LNA</b>	low-noise amplifier
<b>LPA</b>	lander petal actuator (MER)
<b>LPE</b>	low-power electronics
<b>LPF</b>	low-pass filter
<b>LST</b>	local solar time
<b>LTST</b>	local true solar time
<b>LV</b>	launch vehicle
<b>LVDS</b>	low-voltage differential signaling
<b>m</b>	meter
<b>MAD</b>	Madrid DSCC (Deep Space Communications Complex)
<b>MAG</b>	magnetometer
<b>MAHLI</b>	Mars hand lens imager (color microscopic imager)
<b>MAQ</b>	Magellan acquisition
<b>MARCI</b>	Mars Color Imager (MRO)
<b>MARDI</b>	Mars descent imager (high-resolution color descent imager)
<b>Mastcam</b>	(multi-spectral, stereo imaging and video camera on MSL mast)
<b>Mbit</b>	megabit (note: telecommunications uses bits [b]; data storage uses bytes [B], which are 8 bits per byte)
<b>Mbps</b>	megabit per second
<b>MBR</b>	Mars Balloon Relay (protocol)
<b>MCD</b>	maximum-likelihood convolutional decoder
<b>MCD/FS</b>	maximum-likelihood convolutional decoder frame synchronizer (subsystem)
<b>MCIC</b>	motor controller interface card
<b>MCIF</b>	motor controller interface
<b>MCS</b>	Mars Climate Sounder (MRO)
<b>MDA</b>	metric data assembly
<b>mdeg</b>	millidegree
<b>MDNS</b>	mission design and navigation subsystem

<b>MDS</b>	modulation-demodulation subsystem
<b>MDSCC</b>	Madrid Deep Space Control Center (DSCC)
<b>MECO</b>	main engine cutoff
<b>MEDLI</b>	MSL EDL instrumentation
<b>MEP</b>	Mars Exploration Program
<b>MER</b>	Mars Exploration Rover
<b>MER-A</b>	Mars Exploration Rover “Spirit”
<b>MER-B</b>	Mars Exploration Rover “Opportunity”
<b>MES</b>	main engine start
<b>MEX</b>	Mars Express
<b>MFS</b>	Multi-Functional Structure (experiment)
<b>MFSK, M-FSK</b>	multiple frequency shift keying (tones)
<b>MGA</b>	medium-gain antenna
<b>Mgate</b>	million gates
<b>MGDS</b>	Multi-mission Ground Data System
<b>MGS</b>	Mars Global Surveyor
<b>MHz</b>	megahertz
<b>MIC</b>	microwave integrated circuit
<b>MICAS</b>	miniature integrated-camera spectrometer
<b>MIL-71</b>	name of Deep Space Network station at Cape Canaveral (not an acronym)
<b>MIL-STD</b>	Military Standard [usually followed by a document number]
<b>MIT</b>	Massachusetts Institute of Technology
<b>MLE</b>	Mars landing engine
<b>MM</b>	multi mission
<b>MOC</b>	Mars Orbiter Camera
<b>MMO</b>	(JPL) Mission Management Office
<b>MMRTG</b>	multimission radioisotope thermoelectric generator
<b>MOD</b>	modulation
<b>MOI</b>	Mars orbit insertion
<b>MOLA</b>	Mars Observer laser altimeter
<b>MON</b>	monitor system
<b>MOS</b>	mission operations system

<b>MP</b>	modem processor
<b>MPa</b>	megapascal
<b>MPCS</b>	mission data processing and control subsystem
<b>MPF</b>	Mars Pathfinder
<b>MPST</b>	Mission Planning and Sequencing Team
<b>mrad</b>	milliradian
<b>MREU</b>	MSL remote electronics unit (also called REU)
<b>MRO</b>	Mars Reconnaissance Orbiter
<b>MRO</b>	memory readout
<b>ms</b>	millisecond
<b>m/s</b>	meter(s) per second
<b>MS</b>	master of science
<b>MSA</b>	mission-support area
<b>MSAP</b>	multi mission system architecture platform
<b>MSAT</b>	Mobile Satellite
<b>MSL</b>	Mars Science Laboratory
<b>MSLICE</b>	MSL InterfaCE (a surface operations visualization and planning tool)
<b>MSPA</b>	multiple spacecraft per aperture
<b>MSR</b>	Mars Sample Return
<b>Msp/s</b>	megasymbols per second
<b>MSSS</b>	Malin Space Science Systems
<b>MST</b>	monitor sample time
<b>MTC</b>	Mars Time coordinated
<b>MTIF</b>	MSAP telecommunications interface board
<b>MUKOW</b>	MRO uplink keep out window
<b>mW</b>	milliwatt
<b>N</b>	newton
<b>Na</b>	sodium
<b>NAIF</b>	Navigation and Ancillary Information Facility
<b>NASA</b>	National Aeronautics and Space Administration
<b>NAV</b>	navigation

<b>NCO</b>	numerically controlled oscillator
<b>NISN</b>	NASA Integrated Services Network
<b>NMC</b>	Network Monitor and Control
<b>NMP</b>	New Millennium Program
<b>NOCC RT</b>	Network Operations Control Center real time (System)
<b>NOP</b>	network operations plan
<b>NPO</b>	NPO Energomash (Russian manufacturer)
<b>NPP</b>	Network Planning and Preparation system
<b>nrad</b>	nanoradians
<b>NRAO</b>	National Radio Astronomy Observatory
<b>NRZ</b>	non-return to zero
<b>ns</b>	nanosecond
<b>NSP</b>	Network Simplification Project
<b>NVM</b>	nonvolatile memory
<b>NVM</b>	nonvolatile memory/camera
<b>NVM/CAM</b>	nonvolatile memory/camera
<b>OCM</b>	organic check material
<b>OD</b>	orbit determination
<b>ODB</b>	operational database
<b>ODY</b>	Odyssey
<b>ONC</b>	Optical Navigation Camera Experiment (MRO)
<b>ORSC</b>	orbiter relay state change
<b>Osc</b>	oscillator
<b>OWLT</b>	one-way light time
<b>P-</b>	parachute
<b>PASM</b>	power actuation and switching module
<b><math>P_c</math></b>	carrier power
<b>PCM</b>	pulse code modulation
<b><math>P_c/N_0</math></b>	carrier power to noise-spectral-density ratio
<b>PD</b>	passive device (in solid state power amplifier, a microwave coupler or combiner)

<b>PDF</b>	Portable Document Format
<b><math>P_d/N_0</math></b>	data power-to-noise spectral-density ratio
<b>PDS</b>	Planetary Data System (label)
<b>PDU</b>	protocol data unit
<b>PEDL</b>	pre-entry, descent, and landing
<b>PEPE</b>	Plasma Experiment for Planetary Exploration
<b>P-file</b>	prediction file
<b>P/FR</b>	Problem/Failure Report
<b>PhD</b>	doctor of philosophy
<b>PI</b>	principal investigator
<b>PLAR</b>	Post-Launch Assessment Review
<b>PLF</b>	payload fairing
<b>PLGA</b>	Parachute Low-Gain Antenna (MSL, chapter 8)
<b>PLGA</b>	Petal Low-Gain Antenna (MER, chapter 7)
<b>PLL</b>	phase-locked loop
<b>PLS</b>	plasma science
<b>PM</b>	post meridian
<b>PMA</b>	Pancam Mast Assembly (MER)
<b>PMP</b>	payload mounting module
<b>PN</b>	pseudonoise
<b>Pol</b>	polarizer
<b>POR</b>	power-on reset
<b>PPI</b>	Planetary Plasma Interactions
<b>ppm</b>	parts per million
<b>PPS</b>	photopolarimeter system
<b><math>P_r</math></b>	downlink ranging power
<b>PRA</b>	planetary radio astronomy
<b><math>P_r/N_0</math></b>	ranging power-to-noise spectral-density ratio
<b>Prox-1</b>	Proximity-1 protocol
<b>PR/TSA</b>	project requirements/TMOD [Telecommunications and Mission Operations Directorate (now called IPN-ISD)] support agreement
<b>psf</b>	pounds per square foot

<b>PSM</b>	power supply module (MRO)
<b>PSS</b>	parachute support structure
$P_t/N_0$	quantity downlink
$P_t/N_0$	total power-to-noise spectral-density ratio
$P_{tone}$	power in differential one-way ranging (DOR) tone
<b>PUHF</b>	parachute UHF (ultrahigh frequency) antenna
<b>PWS</b>	plasma wave spectrometer (Galileo)
<b>PWS</b>	plasma wave system
<b>QPSK</b>	quadrature phase-shift keying
<b>R-</b>	rover
<b>RAAR</b>	relay antenna assembly receive
<b>RAAT</b>	relay antenna assembly transmit
<b>rad</b>	radian (57.3 degrees)
<b>RAD</b>	radiation assessment detector
<b>RAD</b>	Rocket-Assisted Deceleration (system in MER)
<b>RAMP</b>	rover avionics mounting plate
<b>RAT</b>	rock abrasion tool
<b>RC</b>	radar controller
<b>RC</b>	request command
<b>RAX</b>	Remote-Agent Experiment
<b>RC</b>	radar controller
<b>RCC</b>	receiver control computer
<b>RCE</b>	rover computer element
<b>RCP</b>	receiver channel processor
<b>RCP</b>	right-circular polarization; right-circularly polarized
<b>RCS</b>	reaction control system
<b>RCVR</b>	receiver
<b>RED</b>	Rover Equipment Deck (MER)
<b>Reff</b>	effective information rate
<b>REM</b>	rover electronics module

<b>REMS</b>	Rover environmental monitoring station (instrument to measure meteorological conditions and ultraviolet near the rover)
<b>REU</b>	remote electronics unit (also called MREU for MSL remote electronics unit)
<b>RF</b>	radio frequency
<b>RFM</b>	(ultrahigh frequency, UHF) radio frequency module (MRO)
<b>RFPDU</b>	radio frequency power distribution unit
<b>RFS</b>	radio frequency subsystem
<b>RFSTLC</b>	radio frequency subsystem tracking-loop capacitor
<b>RH</b>	right hand
<b>RHCP</b>	right-hand circular polarized (or polarization)
<b>RID</b>	radio-frequency to intermediate-frequency downconverter
<b>R<sub>j</sub></b>	Jupiter radii
<b>RLAN</b>	receiver local area network (LAN)
<b>RLGA</b>	Rover low-gain antenna
<b>RM</b>	ranging maximum
<b>rng</b>	ranging
<b>RNS</b>	Reliable Network Service
<b>RP</b>	radar processor
<b>RP</b>	rocket propellant or refined petroleum (kerosene)
<b>RPAM</b>	rover power and analog module
<b>RPDU</b>	RF (radio frequency) power distribution unit (in TDS)
<b>RPFA</b>	rover pyro fire assembly
<b>rpm</b>	revolutions per minute
<b>RRA</b>	relay receiving [or radio] antenna
<b>RRH</b>	relay radio hardware
<b>RRH</b>	relay receiving hardware
<b>RRP</b>	receiver and ranging processor
<b>RS</b>	Reed-Solomon (code)
<b>RSDL</b>	RS (Reed-Solomon) downlink
<b>RSDS</b>	Raw Science Data Server
<b>RSDST</b>	Rover Small Deep Space Transponder

<b>RSM</b>	remote sensing mast
<b>RSR</b>	radio science receiver
<b>RT</b>	remote terminal
<b>R/T</b>	receive/transmit
<b>RTG</b>	radioisotope thermoelectric generator
<b>RTLT</b>	round-trip light time
<b>RTN</b>	return
<b>ru</b>	range unit
<b>R-UCTS</b>	rover UHF (ultrahigh frequency) coax transfer switch
<b>RUHF</b>	rover UHF (ultrahigh frequency) antenna
<b>R-WTS</b>	rover waveguide transfer switch
<b>Rx</b>	receive
<b>SA</b>	sample acquisition
<b>SAIC</b>	Science Applications International Corporation
<b>S&amp;L</b>	standards and limits
<b>SAM</b>	sample analysis at Mars (instrument for chemical and isotopic analysis of acquired samples)
<b>SAMPEX</b>	Solar Anomalous and Magnetospheric Particle EXplorer
<b>S-band</b>	RF frequencies 2 to 4 GHz for spacecraft in the deep space frequency bands, S-band refers to an uplink frequency of about 2115 MHz and a downlink frequency of about 2295 MHz)
<b>S/C</b>	spacecraft
<b>SCaN</b>	Space Communications and Navigation (Office)
<b>SCARLET</b>	Solar Concentrator Array Using Refractive Linear Element Technology (Deep Space 1)
<b>SCET</b>	spacecraft event time
<b>SCID</b>	spacecraft identifier
<b>SCMF</b>	spacecraft command message file
<b>SDR</b>	software defined radio
<b>SDST</b>	Small Deep-Space Transponder
<b>SEC</b>	Single-Engine Centaur

<b>SEC</b>	Sun–Earth–Craft (angle)
<b>S–E–C</b>	Sun–Earth–Craft (angle)
<b>SEP</b>	separation
<b>SEP</b>	solar-electric propulsion (technology)
<b>S–E–P</b>	Sun–Earth–probe (angle)
<b>SeqGen</b>	sequence generation (spacecraft activity planning software)
<b>S-EXC</b>	S-band exciter
<b>SFOC</b>	Space Flight Operations Center
<b>SFOS</b>	spaceflight operations schedule
<b>SHARAD</b>	Shallow (Subsurface) Radar (MRO)
<b>sigma</b>	spelled out form of Greek character, $\sigma$ (for 1 standard deviation)
<b>SIM</b>	Space Interferometry Mission (proposed space radio telescope; the program was cancelled in 2010)
<b>SIT</b>	select in test
<b>SLC-17A</b>	Space Launch Complex 17A
<b>SLE</b>	Space Link Extension
<b>SMAP</b>	Soil Moisture Active & Passive Mapping (satellite)
<b>SMM</b>	spacecraft mode manager
<b>SNR</b>	signal-to-noise ratio
<b>SNT</b>	system-noise temperature
<b>SOAS</b>	science operations analysis subsystem
<b>SOC</b>	state of charge
<b>SOE</b>	sequence of events
<b>sol</b>	Martian day
<b>SOWG</b>	Science Operations Working Group
<b>SP</b>	service package
<b>SPaH</b>	sample preparation and handling
<b>SPARC</b>	scalable processor architecture
<b>SPC</b>	Signal Processing Center
<b>SPD</b>	S-band polarization diversity
<b>SPE</b>	static phase error
<b>SPE</b>	Sun–Probe–Earth (angle)

<b>SPIE</b>	Society of Photo-Optical Instrumentation Engineers
<b>sps</b>	symbols per second
<b>SR</b>	sweep range
<b>SRA</b>	sequential ranging assembly
<b>SRB</b>	solid rocket booster
<b>SRBJ</b>	solid rocket booster jettison
<b>S-RCVR</b>	S-band receiver
<b>SRM</b>	solid rocket motor
<b>SRU</b>	stellar-reference unit
<b>SSA</b>	solid state amplifier
<b>SSA</b>	Sun-sensor assembly (Deep Space 1)
<b>SSD</b>	symbol stream distribution
<b>SSI</b>	solid state imaging
<b>SSK</b>	soft symbol controller
<b>SSNR</b>	symbol signal-to-noise ratio
<b>SSPA</b>	solid state power amplifier
<b>SSR</b>	solid-state recorder
<b>STDN</b>	NASA Spaceflight Tracking and Data Network
<b>STE</b>	system test equipment
<b><math>ST/N_0</math></b>	ratio to product of power in data sidebands ( $S$ ) and bit duration ( $T$ ) to noise spectral density; equivalent to $E_b/N_0$
<b>STS</b>	Space Transportation System
<b>STS-34</b>	Space Transpiration System 34 (Shuttle Atlantis)
<b>S-TWTA</b>	S-band traveling-wave tube amplifier
<b>SUFR</b>	straighten up and fly right
<b>SUPAERO</b>	École nationale supérieure de l'aéronautique et de l'espace
<b>SXA</b>	S- and X-band antenna
<b>sync</b>	synchronization
<b>TBOT</b>	telecom at beginning of tracks
<b>TC</b>	transmit command
<b>TCA</b>	telemetry channel assembly (Voyager)
<b>TCM</b>	trajectory correction maneuver

<b>T<sub>cyc</sub></b>	cycle time
<b>TDA</b>	Telecommunications and Data Acquisition (previous name for Deep Space Network)
<b>TDDS</b>	Tracking Data Delivery Subsystem
<b>TDL</b>	telecom development lab
<b>TDM</b>	time-division multiplexing
<b>TDRSS</b>	Tracking and Data Relay Satellite System
<b>TDS</b>	terminal descent sensor
<b>TDSA</b>	TDS (terminal descent sensor) antenna array
<b>TDSD</b>	TDS (terminal descent sensor) digital stack
<b>TDSR</b>	TDS (terminal descent sensor) radio frequency stack
<b>TEOT</b>	telecom at end of tracks
<b>TFP</b>	telecom forecaster predictor
<b>TFREQ</b>	ultrastable oscillator (USO) frequency update messages for use in tracking operations
<b>TIP</b>	target interface point
<b>TIRS</b>	Transverse Impulse Rocket System (in MER)
<b>TLGA</b>	tilted low-gain antenna
<b>tlm</b>	telemetry
<b>TLM</b>	telemetry system
<b>TLMGEN</b>	telemetry-rate generator
<b>TLP</b>	telemetry processor
<b>TMOD</b>	Telecommunications and Mission Operations Directorate (now called IPN-ISD)
<b>TMU</b>	telemetry modulation unit
<b>TOAST</b>	Telecom Orbit Analysis and Simulation Tool
<b>T/R</b>	transmit/receive; transmitter/receiver
<b>TRK</b>	tracking system
<b>TRM</b>	transmit/receive module
<b>TSB</b>	telecom support board
<b>TTE</b>	turn to entry
<b>TTS</b>	test and telemetry system
<b>TW</b>	truth window

<b>T/W</b>	ratio of thrust and weight on pad
<b>TWNC</b>	two-way noncoherent (mode, TWNC-on and TWNC-off)
<b>TWTA</b>	traveling-wave tube amplifier
<b>Tx</b>	transmit (or transmitter)
<b>UA</b>	University of Arizona
<b>UCTS</b>	UHF (ultrahigh frequency) coax transfer switch
<b>UCXS</b>	UHF (ultrahigh frequency) coaxial transfer switch
<b>UDIM</b>	up/down IF (intermediate frequency) module
<b>UDMM</b>	up down MIC [microwave integrated circuit] module
<b>UHF</b>	ultra-high frequency
<b>UL, U/L</b>	uplink
<b>ULDL</b>	uplink–downlink
<b>UPA</b>	uplink processor assembly
<b>UPL</b>	Uplink Subsystem
<b>URA</b>	uplink ranging assembly
<b>USA</b>	United States of America
<b>USN</b>	Universal Space Network
<b>USO</b>	ultrastable oscillator
<b>UTC</b>	Universal Time Coordinated (also known as Greenwich Mean Time)
<b>UTCS</b>	UHF transceiver coaxial switch
<b>UV</b>	ultraviolet
<b>UVS</b>	ultraviolet spectrometer
<b>VCO</b>	voltage-controlled oscillator
<b>VCXO</b>	voltage-controlled crystal oscillator (list only one)
<b>VDC</b>	volts direct current
<b>VEEGA</b>	Venus-Earth-Earth gravity assist
<b>VGA</b>	variable gain amplifier
<b>VGR</b>	Voyager
<b>VIM</b>	Voyager Interstellar Mission
<b>VLA</b>	Very Large Array (San Agustin, near Socorro, New Mexico)

<b>VLBI</b>	very long baseline interferometry
<b>VSR</b>	very long baseline interferometry (VLBI) science receiver
<b>VSWR</b>	voltage standing wave ratio
<b>W</b>	watt
<b>W2CX</b>	waveguide to coaxial
<b>WEB</b>	warm electronics box
<b>WG</b>	waveguide
<b>Whr</b>	watt-hour
<b>WIND</b>	full name (not an acronym) of a spacecraft studying near-Earth solar wind
<b>WIPL-D</b>	Wires, Plates, Dielectrics (a commercial high frequency electromagnetic modeling software package)
<b>WTS</b>	waveguide transfer switch
<b>X-band</b>	radio frequencies from 7 to 12.5 GHz (for spacecraft in the deep space frequency bands, X-band refers to a downlink frequency of about 8415 MHz)
<b>X-EXC</b>	X-band exciter
<b>XFMR</b>	transformer
<b>XPA</b>	X-band power amplifier
<b>XSDC</b>	X- to S-band downconverter
<b>X-TWTA</b>	X-band traveling-wave tube amplifier
<b>XTR</b>	X-band transmit receive

