

## Abbreviations and Acronyms

2AFC	Two-Alternative, Forced-Choice	ASHA	American Speech-Language-Hearing Association
2-D	Two-Dimensional	ASIC	Application-Specific Integrated Circuit
3-D	Three-Dimensional	ASL	Above Sea Level
4-D	Four-Dimensional	ASRS	Aviation Safety Reporting System
$\mu\text{M}$	Micron	ASSIST	Automated System of Self Instruction for Specialized Training
$^{\circ}$	Degree	ASTMP	Army Science and Technology Master Plan
$\lambda$	Wavelength	ATC	Air Traffic Control
ABR	Auditory Brainstem Response	AVCATT-A	Aviation Combined Arms Tactical Trainer – Aviation Reconfigurable Manned Simulator
ACCES	Attenuating Custom Communication Earpiece System	AVCN	Anterior Ventral Cochlear Nucleus
ACES	Advanced Concept Ejection Seat	BAT	Brightness Acuity Tester
ACG	Angle Closure Glaucoma	BMLD	Binaural Masking Level Difference
ACGIH	American Conference of Governmental Industrial Hygienists	BTE	Behind-the-Ear
ACH	Advanced Combat Helmet	C&HPS	Communication and Hearing Protection Systems
ACT-R	Adaptive Control of Thought-Rational	CABS	Cockpit Air Bag System
ADAS	Advanced Distributed Aperture System	CAD	Computer-Aided Design
ADHD	Attention Deficit Hyperactivity Disorder	CAE	Computer-Aided Engineering; Combat Arms Earplug
AFQT	Armed Forces Qualification Test	CANS	Central Auditory Nervous System
AFP	Advanced Flat Panel	CAP	Compound Action Potential
AFRL	(U.S.) Air Force Research Laboratory	CB	Chemical-Biological; Critical Band
AGC	Automatic Gain Control	CBT	Core Body Temperature
AGSM	Anti-G Straining Maneuver	CCRP	Command and Control Research Program
AHAAH	Auditory Hazard Assessment Algorithm for the Human Ear	CCTT	Close Combat Tactical Trainer
AHMD	Advanced Helmet Mounted Display	CEP	Communications Earplug
AI	Articulation Index	CEPS	Communication Enhancement and Protection System
AIHS	Aircrew Integrated Helmet System	CF	Characteristic Frequency
AIS	Abbreviated Injury Scale	CFE	Critical Flicker Fusion
AKE	Autokinetic Effect	CG	Center-of-Gravity
AM	Active Matrix; Amplitude Modulation	CIC	Completely In-the-Canal
AMEL	Active Matrix Electroluminescent	CIE	Commission Internationale de l'Eclairage or International Commission on Illumination
AMLCD	Active Matrix Liquid Crystal Display	CIPIC	Center for Image Processing and Integrated Computing
AMOLED	Active Matrix Organic Light-Emitting Diode	CL	Contact Lens
AMP	Ampere	CM	Center-of-Mass, Centimeter, Cochlear Microphonis
ANR	Active Noise Reduction	CMNR	Committee on Military Nutrition Research
ANSI	American National Standards Institute	CNS	Central Nervous System
ANVIS	Aviator's Night Vision Imaging System		
AO	Atlanto-Occipital		
AOI	Area of Interest		
APL	Aeromedical Policy Letter		
AR	Augmented Reality		
ARL	Army Research Laboratory		
ARMD	Age-Related Macular Degeneration		
ARSA	Arc-Segmented Attitude Reference		
ARU	Aircraft Retained Unit		

CO	Carbon Monoxide	FCS	Future Combat System
COTS	Commercial Off-the-Shelf	FD	Far-Domain
CPD	Cycles Per Degree	FDA	Federal Drug Administration
CPR	Conditioned Position Responding	FED	Field Emission Display
CPS	Cycles Per Second	FFW	Future Force Warrior
CR	Critical Ratio; Contrast Ratio	FIR	Finite Impulse Response
CRE	Control Reversal Error	FL	Foot-Lambert
CRT	Cathode-Ray-Tube	FLC	Ferroelectric Liquid Crystal
CSF	Contrast Sensitivity Function	FLCD	Flexible Liquid Crystal Display
CVC	Combat Vehicle Crewman	FLIR	Forward-Looking Infrared
CY	Cycle	FM	Frequency Modulation
DA	Department of the Army (U.S.)	FMRI	Functional Magnetic Resonance Imaging
DARPA	Defense Advanced Research Projects Agency	FMVSS	Federal Motor Vehicle Safety Standards
DASH	Display and Sight Helmet	FOLED	Flexible Organic Light Emitting Diode
DB	Decibel (dB)	FOM	Figure of Merit
DBA	Decibel, A-Weighted	FOV	Field-of-View
DBP	Decibel, Peak	FP	Flat Panel
DC	Direct Current	FPD	Flat Panel Display
DCN	Dorsal Cochlear Nucleus	FPS	Feet Per Second
DGPS	Differential Global Positioning Satellite	FSC	Field-Sequential Color
DHTVS	Drivers Head Tracked Vision System	FSXXI	Flight School XXI
DL	Difference Limen	FY	Fiscal Year
DLP	Digital Light Processing	G	Force of Gravity; Gram-of-Force
DMD	Digital Mirror Display	G-LOC	Gravity-Induced Loss of Consciousness
DOD	Department of Defense	GEN	Generation
DRL	Differential Reinforcement of Low Response Rates	GHZ	Gigahertz
DS	Directionally Selective	GLV	Grating Light Valve
DSHEA	Dietary Supplement Health and Education Act	GPS	Global Positioning System
DVE	Driver's Vision Enhancer	H	Horizontal
EAL	Energy Absorbing Liner	HACE	High Altitude Cerebral Edema
EC	Equalization-Cancellation	HAPE	High Altitude Pulmonary Edema
ECD	Eye Clearance Distance	HATS	Head and Torso Simulator
EDM	Electronic Data Manager	HAV	Hand-Arm Vibration
EEG	Electroencephalography; Electroencephalogram	HDD	Head-Down Display
EL	Electroluminescent	HDTV	High Definition Television
EM	Electromagnetic; Energetic Masking	HDU	Helmet Display Unit
ENVG	Enhanced Night Vision Goggles	HEA	Head Equipment Assembly
EPE	Exit Pupil Expander	HF	Human Factors
EPIC	Executive Process/Interactive Control	HFE	Human Factors Engineering
ERB	Equivalent Rectangular Bandwidth	HGU	Head Gear Unit
ERP	Event-Related Potential	HIDSS	Helmet Integrated Display Sighting System
ETI	Endotracheal Intubation	HIT	Human Interface Technology Lab
F	Frequency	HL	Hearing Level
FA	Factor Analysis	HMCS	Helmet Mounted Cueing System
FAA	Federal Aviation Administration	HMD	Head-/Helmet-Mounted Display
FBCB2	Force XXI Battle Command, Brigade and Below	HMDS	Helmet Mounted Display System
		HMI	Human-Machine Interface
		HMMWV	High Mobility Multi-Wheeled Vehicles
		HMS	Helmet-Mounted Sight
		HMW	Head-Supported Weight

HPD	Hearing Protection Device	JND	Just Noticeable Difference
HRTF	Head-Related Transfer Function	JSF	Joint Strike Fighter
HRU	Helicopter Retained Unit	KEAS	Knots Equivalent Air Speed
HSM	Head-Supported Mass	KEMAR	Knowles Electronic Manikin for Auditory Research
HSS	Helmet Subsystem	KHZ	Kilohertz
HUD	Head-Up Display	KG	Kilogram
HVI	Helmet-Vehicle Interface	KM	Kilometer
HWD	Head-Worn Display	L	Loudness
HZ	Hertz	LAN	Local Area Network
I	Intensity; Stimulus Magnitude	LASIK	Laser-Assisted in Situ Keratomileusis
I <sup>2</sup>	Image Intensification	LC	Liquid Crystal
I <sup>2</sup> CCD	Image-Intensified Charge-Coupled Device	LCD	Liquid Crystal Display
I <sup>2</sup> T	Image-Intensified Tubes	LCOS	Liquid Crystal on Silicon
IAP	Instrument Approach Procedures	LCS	Liquid Crystal Shutter
IBU	Inshore Boat Unit	L/D	Light/Dark
ICA	Index of Cognitive Activity	LDL	Loudness Discomfort Level
ICAD	International Community for Auditory Displays	LED	Light Emitting Diode
ICC	Interaural Cross Correlation	LGN	Lateral Geniculate Nucleus
ICWAA	Integrated Caution, Warning and Advisory Annunciator	LHX	Light Helicopter Experimental
ID	Discrimination Index	LL	Loudness Level
IDH	Integrated Display Helmet	LM	Lumen
IEC	International Electrotechnical Commission	LMS	Least Mean Square
IED	Improvised Explosive Device	LP	Line Pair
IERW	Initial Entry Rotary-Wing	LSE	Life Support Equipment
IFR	Instrument Flight Rules	LSOC	Lateral Superior Olivary Complex
IFT	Instrument Flight Trainer	LTG	Low Tension Glaucoma
IG	Image Generator	M	Magnocellular
IHADSS	Integrated Helmet and Display Sighting System	MAA	Minimum Audible Angle
IHAS	Integrated Helmet Assembly Subsystem	MAAWS	Multi-Role Anti-Armor Anti-Personnel Weapon System
IHC	Inner Hair Cell	MACH	Modular Aircrew Common Helmet
IID	Interaural Intensity Difference	MAE	Motion Aftereffect
IM	Informational Masking	MAF	Minimum Audible Field
IMC	Instrument Meteorological Conditions	MAMA	Minimum Audible Movement Angle
INVS	Integrated Night Vision System	MANTIS	Multispectral Adaptive Networked Tactical Imaging System
IPD	Interpupillary Distance; Interaural Phase Difference	MAP	Minimum Audible Pressure
IR	Infrared	MAR	Minimum Angle of Resolution
IRA	Incremental Repeated Acquisition	MCL	Most Comfortable Loudness
ISI	Inter-Stimulus Interval	MCP	Micro-Channel Plate
ISO	International Organization for Standardization	MDS	Multidimensional Scaling
ITC	In-the-Ear	MFD	Multi-Function Display
ITD	Interaural Time Difference	MG	Milligrams
ITH	Improved Tactical Headset	MIBU	Mobile Inshore Boat Unit
ITO	Indium-Tin-Oxide	MIHDS	Modular Integrated Helmet Display System
JHMCS	Joint Helmet-Mounted Cueing System	MIL-HDBK	Military Handbook
JMENS	Joint Mission Element Needs Statement	MIL-SPEC	Military Specification
		MIL-STD	Military Standard
		MLD	Masking Level Difference
		MLS	Maximum-Length Sequence

MM	Masking Margin; Millimeter	OCB	Olivocochlear Bundle
MONARC	Monolithic Afocal Relay Combiner	ODALab	Optical Diagnostics and Application Laboratory
MOPP	Mission Oriented Protective Posture	OEF	Operation Enduring Freedom
MOS	Military Occupational Specialty; Mean Opinion Score	OFT	Operational Flight Trainer
MOUT	Military Operations on Urban Terrain	OFW	Objective Force Warrior
MPS	Meters Per Second	OHC	Outer Hair Cell
MR	Milliradian; Mixed Reality	OIF	Operation Iraqi Freedom
MRE	Mission Rehearsal Exercises	OLED	Organic Light-Emitting Diode
MRI	Magnetic Resonance Imaging	OSAP	Optimum Sighting Alignment Point
MRO	Maintenance, Repair and Overhaul	OTC	Over-the-Counter
MRT	Modified Rhyme Test; Multiple Resource Theory	OTW	Out-the-Window
MS	Masking Stimulus	P	Parvocellular
MSEC	Millisecond	PA	Pascal
MSL	Mean Sea Level	PB	Phonetically Balanced
MSOC	Medial Superior Olivary Complex	PC	Personal Computer
MSTd	Medial Superior Temporal Area Pars Dorsalis	PDP	Plasma Display Panel
MTF	Modulation Transfer Function	PDU	Pilot Display Unit
MTN	Multitalker Noise	PFE	Pilot Flight Equipment
MURAL	Multilevel Auditory Assessment Language	PHODS	Portable Helicopter Oxygen Delivery System
MVA	Multi-Domain Vertical Alignment	PKI	Peacekeeping Institute
MWSS	Mounted Warrior Soldier System	PKSOI	Peacekeeping and Stability Operations Institute
NA	Numerical Aperture	PM-ACIS	Program Manager-Aircrew Integrated Systems
NASA	National Aeronautics and Space Administration	PNVG	Panoramic Night Vision Goggles
NATO	North Atlantic Treaty Organization	PNVS	Pilot's Night Vision System
NATOPS	Naval Air Training and Operating Procedure and Standard	POAG	Primary Open Angle Glaucoma
NBC	Nuclear-Chemical-Biological	PPE	Push-Pull Effect
NCW	Network Centric Warfare	PRK	Photorefractive Keratectomy
ND	Near-Domain	PRU	Pilot Retained Unit
NDFR	Non-Distributed Flight Reference	PSQ	Perceived Sound Quality
NIN	Nicotine-Induced Nystagmus	PST	Peristimulus
NIOSH	National Institute for Occupational Safety and Health	PT	Physical Training
NIHL	Noise-Induced Hearing Loss	PTA	Pure Tone Average
NM	Nanometer	PTS	Permanent Threshold Shift
NOE	Nap-of-the-Earth	PTSD	Posttraumatic Stress Disorder
NOMI	Naval Operational Medicine Institute	PTT	Push-to-Talk
NRC	National Research Council	PVCN	Posterior Ventral Cochlear Nucleus
NRR	Noise Reduction Rating	PZT	Lead Zirconium Titanate
NSRDEC	(U.S. Army) Natick Soldier Research, Development, and Engineering Center	QDC	Quick Disconnect
NTSB	National Transportation Safety Board	QVGA	Quarter Video Graphics Array
NVD	Night Vision Device	R&D	Research and Development
NVG	Night Vision Goggle	RA	Rapidly-Adapting
OAE	Otoacoustic Emission	RCTD	Reconfigurable Collective Training Device
OBOGS	On-Board Oxygen Generating System	RDK	Random-Dot Kinematogram
		RDS	Random Dot Stereogram
		RE	Real Environment
		REAT	Real-Ear-Attenuation-at-Threshold
		RETFL	Reference Equivalent Threshold Force

	Level		
RETSPL	Reference Equivalent Threshold Sound Pressure Level	SWIR	Short-Wave Infrared
RF	Radio Frequency	SXGA	Super Extended Graphics Array
RGB	Red-Green-Blue	T-NASA	Taxiway-Navigation and Situation Awareness
RGP	Rigid Gas Permeable	TACTICS	Tactile Communication System
RK	Radial Keratotomy	TE	Time Error
RMS	Root-Mean-Square	TFT	Thin Film Transistor
RPA	Rotorcraft Pilot's Associate	TLS	Tactor Locator System
RPE	Retinal Pigment Epithelium	TLV	Threshold Limit Value
RPM	Revolutions Per Minute	TMJ	Temporomandibular Joint
RSD	Retinal Scanning Display	TN	Twisted Nematic
RSE	Redundant Signals Effect	TNZ	Thermoneutral Zone
RSV	Rotationally Symmetric Visor	TPL	Thermal Plastic Liner
RSVP	Rapid Serial Visual Presentation	TRD	Temporal Response Differentiation
RT	Response Time; Reverberation Time	TS	Test Stimulus
RV	Reality-Virtuality	TSAS	Tactile Situation Awareness System
RWS	Remote Weapon System	TSAS-SF	Tactile Situation Awareness System for Special Forces
S&T	Science and Technology	TTS	Temporary Threshold Shift
SA	Situation Awareness; Slowly-Adapting	TUC	Time of Useful Consciousness
SAT	Speech Awareness Threshold	TV	Television
SBU	Special Boat Unit	TWS	Thermal Weapon Sight
SCN	Suprachiasmatic Nucleus	UAS	Unmanned Aerial System
SD	Spatial Disorientation	UAV	Unmanned Aerial Vehicle
SDT	Speech Detection Threshold	UHF	Ultra High Frequency
SI	International System (of units); Speech Intelligibility	UK	United Kingdom
SII	Speech Intelligibility Index	UNC	University of North Carolina
SIL	Sound Intensity Level	USAARL	United States Army Aeromedical Research Laboratory
SIR	Speech Intelligibility Rating	USACHPPM	U.S. Army Center for Health Promotion and Preventive Medicine
SL	Sensation Level	USAF	United States Air Force
SME	Subject Matter Expert	USAWC	United States Army War College
SNR	Signal-To-Noise-Ratio	USB	Universal Serial Bus
SOA	Stimulus Onset Asynchrony	UXGA	Ultra Extended Graphics Array
SOC	Superior Olivary Complex	V	Vertical
SOG	Shade-of-Gray	VA	Visual Acuity
SONAR	Sound Navigation And Ranging	VCOP	Virtual Cockpit Optimization Program
SP	Summating Potential	VCS	Visually-Coupled System
SPE	Solar Particle Events	VDT	Video Display Terminal
SPH	Soldier's Protective Headgear	VE	Virtual Environment; Ventriloquism Effect
SPL	Sound Pressure Level	VFD	Vacuum Fluorescent Display
SR	Speech Recognition	VFR	Visual Flight Rules
SRT	Speech Recognition Threshold	VGA	Video Graphics Array
SS	Standard Stimulus	VHF	Very High Frequency
STI	Speech Transmission Index	VISAA	Visual Survey of Apache Aviators
STN	Super Twisted Nematic	VMC	Visual Meteorological Conditions
STRICOM	Simulation, Training and Instrumentation Command	VOR	Vestibular-Ocular Reflex
STS	Significant Threshold Shift	VR	Virtual Reality
SVGA	Super Video Graphics Array	VRD	Virtual Retinal Display
SWAT	Subjective Workload Assessment Technique	VRDA	Virtual Reality Dynamic Anatomy

VSI Vision Systems International  
VTAS Visual Target Acquisition System  
W Watt  
WAN Wide Area Network  
WBGT Wet Bulb Globe Temperature

WBV Whole-Body Vibration  
WPM Words Per Minute  
XGA Extended Graphics Array  
Z Vertical Direction (Axis)