3. DEFINITIONS

3.1 Definitions of terms. Definitions of terms not listed below are as defined in FED-STD-1037. For purposes of this document, some definitions deviate from those found in FED-STD-1037.

Acquisition: A necessary preliminary condition of a receiver, by which frequency and phase ambiguities of an incoming rf carrier are sufficiently resolved to allow information modulated onto the carrier to be properly demodulated. The condition of acquisition includes bit synchronization.

Binary phase-shift keying (BPSK): A form of phase-shift keying (PSK). In PSK modulation, the phase angle of the carrier is discretely controlled by the information bits being transmitted. In BPSK, the instantaneous phase of the carrier can be either unchanged or shifted 180 degrees.

Bit synchronization (clock lock): The condition achieved when significant transitions of the recovered data rate clock are phase-stable to within 25 percent of the bit period.

C/kT: The ratio of the rf carrier power *(C)* relative to noise power density. Carrier power is measured into the receiving system. k = Boltzman's constant and T = the effective noise temperature at the terminal antenna in kelvins (centigrade degrees above absolute zero.)

Coherent demodulation: A demodulation process characterized by a synchronized, phase-matched condition between a receiver's reference and the received signal.

Differential encoding: A process by which baseband digital data before modulation is used to resolve the phase ambiguity of digital data recovered from demodulation. It is not used for error detection or correction. A process such that if the prior code bit and the message bit are the same, the encoder output is zero. If they are different, the encoder output is a one.

Effective isotropically radiated power (EIRP): The product of the power supplied to an antenna and its gain relative to a hypothetical antenna that radiates or receives equally in all directions.

Energy per bit (E_b): The average signal energy contained in a binary digit.

Frequency uncertainty: The difference between a receive signal's expected frequency and its actual frequency. Frequency uncertainty results when (1) there is a difference in frequency between reference oscillators, (2) Doppler effects cause frequency shifts, or (3) there are frequency-setting inaccuracies.

Frequency-shift keying (FSK): A form of frequency modulation. In FSK modulation, the frequency of the carrier is discretely controlled by the transmitted information bits. In binary FSK, the instantaneous frequency of a signal is shifted between two discrete values called the *mark* and *space* frequencies.

Narrowband operation: A communications mode whose essential spectral content is limited to a channel of nominal 5-kHz bandwidth.

Noise power spectral density ($N_o = kT$): The noise power per Hz of bandwidth.

Noncoherent demodulation: A demodulation process in which there is no synchronized phase-matched condition between a receiver's reference and the desired signal.

Nonprocessed satellite channel: A channel capable only of receiving, amplifying, frequency translating, and retransmitting a received signal. (There is no signal processing.)

Offset quadrature phase-shift keying (OQPSK): A form of QPSK in which the in-phase (I) and quadrature (Q) bit streams are offset in time by one-half a symbol period, equal to the reciprocal of the data rate.

Preamble. Consists of an unmodulated carrier segment followed immediately by a carrier segment modulated by a predetermined signal used for acquisition. The unmodulated carrier segment is used by the receiver during carrier acquisition. The carrier segment modulated by a predetermined bit pattern is used by the demodulator for bit synchronization. The preamble bit pattern immediately precedes, and is phase-locked to, transmitted baseband data.

Quadrature phase-shift keying (QPSK): A form of PSK in which the instantaneous phase of the carrier can be either unchanged, shifted ±90 degrees, or shifted 180 degrees. QPSK may be represented as two independent binary bit streams modulated onto the I and Q components of the carrier.

Shaped binary phase-shift keying (SBPSK): A form of BPSK modified to produce the phase-shift over a period of time. For

example, in 50-percent SBPSK, the phase-shift occurs over a period of time equal to one-half a bit period.

Shaped offset quadrature phase-shift keying (SOQPSK): A form of OQPSK modified to produce phase-shift over a period of time. For example, in 50-percent SOQPSK, the phase-shift occurs over a period of time equal to one-half a bit period.

Total received carrier power: The amount of signal power captured by the receiving antenna.

Terminal: Equipment designed to receive and transmit voice or data information using the frequencies, modulations, data rates, access protocols, EIRP, and sensitivity needed to establish and sustain voice or data communications over a satellite channel, as appropriate. A terminal includes internal or external voice or data encryption devices, or both, if present.

Transmitter turn-on time: The time interval between baseband equipment key down and the time at which the terminal transmitter has reached 90 percent of final steady state power, and the carrier is phase-stable to within 20 Hz of the steady-state rf frequency.

Wideband operation: A communications mode whose essential spectral content is limited to a nominal 25-kHz channel bandwidth.

3.2 Abbreviations and acronyms. The abbreviations and acronyms used in this military standard (MIL-STD) are defined as follows:

ACI	adjacent channel interference
AM	amplitude modulation
ANDVT	Advanced Narrowband Digital Voice Terminal
BER	bit error ratio (bit error rate)
bps	bit(s) per second
BPSK	binary phase-shift keying
C	total received carrier power
C/kT	carrier-to-noise power density
COMSEC	communications security

CVSD	continuously variable slope delta
DAMA	demand assignment multiple access
dB	decibel(s)
dBW	decibel(s) relative to 1 watt
DCA	Defense Communications Agency
DCAC	DCA circular
DCS	Defense Communication System
DISA	Defense Information Systems Agency
DoD	Department of Defense
DoDD	DoD Directive
DoDISS	DoD Index of Specifications and Standards
E_b	energy per bit
E_b/N_o	energy-per-bit--to--noise-power-spectral-density ratio
EIRP	effective isotropically radiated power
f	frequency
FDMA	frequency-division multiple access
FED-STD	federal standard
FLTSATCOM	fleet satellite communications satellite
FM	frequency modulation
FSK	frequency-shift keying
GHz	gigahertz
G/T	antenna gain-to-noise temperature in dB/K
Hz	hertz

I	in-phase
I/O	input/output
JCS	Joint Chiefs of Staff
JIEO	Joint Interoperability and Engineering Organization
JTCO	Joint Tactical Communications Office
k	Boltzman's constant
K	kelvins
kbps	kilobit(s) per second
kHz	kilohertz
LEASAT	leased satellite
M	power margin
MARISAT	maritime satellite
MHz	megahertz
MIL-STD	military standard
MJCS	JCS memorandum
ms	millisecond(s)
NATO	North Atlantic Treaty Organization
N_o	noise power spectral density
NMCS	National Military Command System
OQPSK	offset quadrature phase-shift keying
ppm	part(s) per million
PSK	phase-shift keying
Q	quadrature
R	link data rate

rf	radio frequency
s	second(s)
SATCOM	satellite communications
SBPSK	shaped binary phase-shift keying
SHF	super high frequency
SOQPSK	shaped offset quadrature phase-shift keying
STANAG	standardization agreement (NATO)
T	bit period
TDMA	time-division multiple access
UFO	UHF follow-on
UHF	ultra high frequency
W	watt(s)
$\triangle f$	change in frequency (f_2-f_1)