GLOSSARY OF TERMS AND ABBREVIATIONS

Terms

Attenuation - The decrease in intensity of a signal, beam, or wave as a result of absorption of energy and of scattering out of the path to the detector, but not including the reduction due to geometric spreading.

Diffraction - The deviation of an electromagnetic wavefront from the path predicted by geometric optics when the wavefront interacts with, *i.e.*, is restricted by, a physical object such as an opening (aperture) or an edge.

Duplex – *A communications mode with the ability to transmit and receive radio traffic simultaneously through two different frequencies, one to transmit and one to receive.*

Multipath – The propagation phenomena that results in radio signals' reaching the antenna by two or more paths. Causes of multipath include atmospheric ducting, ionospheric reflection and refraction, and refraction from terrestrial objects such as mountains or buildings.

Permittivity - A measure of the ability of a material to resist the formation of an electric field within it. Also called *dielectric constant, relative permittivity.*

Project MESA – Project MESA is an international partnership producing globally applicable technical specifications for digital mobile broadband technology, aimed initially at the sectors of public safety and disaster response.

Rake Technique - A receiver technique that uses several baseband correlators to individually process several signal multipath components. The correlator outputs are combined to achieve improved communications reliability and performance.

Reflection - The abrupt change in direction of a wavefront at an interface between two dissimilar media so that the wavefront returns into the medium from which it originated.

Refraction - Retardation, and—in the general case—redirection, of a wavefront passing through (a) a boundary between two dissimilar media or (b) a medium having a refractive index that is a continuous function of position, *e.g.*, a graded-index optical fiber.

Repeater - An analog device that amplifies an input signal regardless of its nature, *i.e.*, analog or digital. A digital device that amplifies, reshapes, retimes, or performs a combination of any of these functions on a digital input signal for retransmission.

Scattering - Of a wave propagating in a material medium, a phenomenon in which the direction, frequency, or polarization of the wave is changed when the wave encounters discontinuities in the medium, or interacts with the material at the atomic or molecular level.

Simplex – A communications mode with the ability to transmit or receive in one direction at a time. Simultaneous transmission cannot occur.

Trunking – In radio in communications, it is a system that may include a single user of different workgroups, which uses a group of radio frequencies (a trunk). The system is dynamically controlled by a computer, which directs a transmission to an available channel or frequency.

Wavefront - The surface defined by the locus of points that have the same phase, *i.e.*, have the same path length from the source. 1. The wavefront is perpendicular to the ray that represents an electromagnetic wave. 2. The plane in which the electric and magnetic field vectors lie is tangential to the wavefront at every point. 3. The vector that represents the wavefront indicates the direction of propagation.

Abbreviations and Acronyms

3G	third generation
ac	alternating current
AGC	automatic gain control
AM	amplitude modulation
AMPS	advanced mobile phone system (cellular system)
AOA	angle of arrival
ARRL	American Radio Relay League
ATM	asynchronous transfer mode
AWGN	additive white Gaussian noise
BDA	bi-directional amplifier
BFRL	Building and Fire Research Laboratory
BPL	broadband power line
bps	bits per second
CDMA	code division multiple access
CFP	contention-free period
cm	centimeter
COW	Cellular on Wheels
CP	contention period
CSMA	carrier sense multiple access
DARPA	Defense Advanced Research Projects Agency
dB	decibel
dc	direct current
DCF	distributed coordination function
DES	Data Encryption Standard
DSL	digital subscriber line
DSP	digital signal processor
DTIC	Defense Technical Information Center
EDCF	enhanced distributed coordination function
EHF	extremely high frequency
ELF	extremely low frequency
EMS	emergency medical service
ETSI	European Telecommunications Standards Institute
FCC	Federal Communications Commission
FDNY	Fire Department of New York
FEC	forward error correction
FEMA	Federal Emergency Management Agency

FM	frequency modulation
FSK	frequency shift keying
GHz	gigahertz
GIS	Geographic Information System
GPS	Global Positioning System
GSM	global system for mobile communication (cellular phone technology)
HC	hybrid coordinator
HCF	hybrid coordination function
HDTV	high-definition television
HF	high frequency
HVAC	heating, ventilation, and air conditioning
Hz	hertz
IAL	Intel Architecture Laboratories
ICP	incident command post
IETF	Internet Engineering Task Force
IF	intermediate frequency
IP	Internet protocol
ISL	Information Systems Laboratory
ISM	industrial, scientific, medical
kHz	kilohertz
km	kilometer
LAN	local area network
LCD	liquid crystal display
LF	low frequency
LOS	line of sight
LV	low voltage
M	mega
m	meter; milli
MAC	medium access control
MANet	mobile area network
MEA	mesh-enabled architecture
MHz	megahertz
MIMO	multiple input, multiple output
MRS	Mine Radio Systems Inc.
MSSI	Multi Spectral Solutions, Inc.
MV	medium voltage
mW	milliwatt
NFPA	National Fire Protection Association
NIOSH	National Institute for Occupational Safety and Health
NIST	National Institute of Standards and Technology
NLM	National Library of Medicine
NLOS	non-line of sight
NOI	notice of inquiry
NPRM	notice of proposed rule making

NTIA	National Telecommunications and Information Administration
OFDM	orthogonal frequency division multiplexing
OOK	on/off keying
PAM	pulse amplitude modulated
PAN	personal area network
PAS	personal accountability system
PASS	Personal Alarm Safety System
PCF	point coordination function
PCS	personal communications system
PED	personal emergency device
PLC	power line communication
PLL	phase-lock loop
PN	pseudo noise
PPE	personal protective gear
PPM	pulse position modulation
PRF	pulse repetition frequency
PSWAC	Public Safety Wireless Advisory Committee
QDMA	quadrature division multiple access
QoS	quality of service
RF	radio frequency
SBIR	small business innovation research
SCBA	self-contained breathing apparatus
SDTV	standard-definition television
SHF	super high frequency
SNR	signal-to-noise ratio
TDMA	time division multiple access
TDOA	time difference of arrival
TTCP	The Technical Cooperation Program]
TTE	through-the-earth
UHF	ultra high frequency
USFA	U.S. Fire Administration
UWB	ultra wideband
VCO	voltage-controlled oscillator
VHF	very high frequency
VLF	very low frequency
WAP	Wireless Application Protocol
WLAN	wireless local area network
WPAN	wireless personal area network
WPI	Worcester Polytechnic Institute