



GLOSSARY FOR COMMONLY USED

TELECOMMUNICATION INDUSTRY, 9-1-1 AND RADIO RELATED TERMINOLOGY

9-1-1 Related Definitions and Acronyms

9-1-1 – A three digit telephone number to facilitate the reporting of an emergency requiring response by a public safety agency.

9-1-1 COUNTY COORDINATOR – An individual in each of the 58 counties, within California, designated with the primary role of coordinating activities that effectively facilitate accurate 9-1-1 call routing throughout their county by maintaining information in the Master Street Address Guide (MSAG). The 9-1-1 county coordinator is the one central contact in their respective county for Emergency Service Number (ESN) assignment and 9-1-1 services coordination

9-1-1 DATABASE – The California 9-1-1 Database is a system made up of two separate elements. The Automatic Location Information (ALI) database, the repository that stores and provides ALI; and, the database management system (DBMS), the database engine that is used to manage and combine adds, moves, and changes to the 9-1-1 database.

ABANDONED CALL – A call placed to 9-1-1 in which the caller disconnects before the call can be answered by the Public Safety Answering Point (PSAP).

ADVANCED MOBILE PHONE SERVICE (AMPS) – AMPS allocates frequency ranges within the 800 and 900 Megahertz (MHz) spectrum to cellular telephone.

ALTERNATE ANSWER – A feature that allows California 9-1-1 Network calls to be redirected to a preselected alternate PSAP at a different location in the event of an equipment or network failure. The alternate PSAP would be advised that calls need to be redirected to their PSAP and the alternate PSAP would then activate the feature.

ALTERNATIVE LOCAL EXCHANGE CARRIER (ALEC) – See *Local Exchange Carrier (LEC)*

AMERICANS WITH DISABILITIES ACT (ADA) – Federal Legislation, passed into law July 26, 1990, that prohibits discrimination on the basis of disability.

ANSWERING POSITION – A telephone station or console within a PSAP that answers incoming 9-1-1 calls.

AUTOMATIC CALL DISTRIBUTOR (ACD) – Equipment that automatically distributes incoming calls to available PSAP answering positions in the order they are received; then queues calls, if necessary, until an answering position becomes available.

AUTOMATIC CALL ROUTING – See *SELECTIVE ROUTING*



AUTOMATIC COLLISION NOTIFICATION (ACN) – The process of identifying that a motor vehicle has been involved in a collision, collecting data from sensors in the vehicle, and communicating that data to an ACN Call Center or PSAP.

AUTOMATIC LOCATION IDENTIFICATION (ALI) – The automatic display at the PSAP of the 9-1-1 caller's telephone number, the address/location of the telephone device, and supplementary emergency services information of the location from which a call originates.

AUTOMATIC NUMBER IDENTIFICATION (ANI) – The automatic display of the telephone number associated with the access line from which a call originates.

BUSY HOUR – The hour each day with the greatest call volume.

CALIFORNIA 9-1-1 ADVISORY BOARD – This board was established, effective January of 2004. Senate Bill 911, as chartered, directs the CalOES to consult regularly with specified agencies, officials, and entities, including local representatives from cities and counties to accomplish its responsibilities with regard to management of the delivery of 9-1-1 calls throughout the State.

CALIFORNIA 9-1-1 EMERGENCY COMMUNICATIONS Branch (9-1-1 Branch) – The 9-1-1 Branch is directed to administer funding for equipment and services related to the delivery of 9-1-1 calls in California based upon laws passed by the State Legislature, as defined in California Government Code, Section 53100 et seq.; and, the California Revenue and Taxation Code, Section 41001 - 41019 et seq., Emergency Telephone Users Surcharge Act. (See CalOES)

CALIFORNIA 9-1-1 NETWORK – Provides an enhanced infrastructure to carry 9-1-1 calls from the 9-1-1 caller's location in the Public Switched Telephone Network (PSTN) to the appropriate PSAP via wireline (landline), wireless, VoIP, and TSPs.

CALIFORNIA PUBLIC UTILITIES COMMISSION (CPUC) – The CPUC regulates privately owned telecommunications, electric, natural gas, water, railroad, rail transit, and passenger transportation companies, in addition to authorizing video franchises, within California.

CALL DETAIL RECORD (CDR) – The data information (record of incoming call, ANI, trunk number, time of call seizure, time of answer, time of transfer and time of termination) sent to the ALI computer by a remote identifying device; and, may be set up to send to a PSAP printer.

CALL TAKER – An agent of a PSAP who answers 9-1-1 emergency calls.

CALNENA – Title of the California Chapter of the National Emergency Number Association.

CELL SECTOR – One face of a cell antenna system (typically 3-sided) that operates independently of the other sectors to form a cell. Each antenna covers a 120 degree operational area of the cell.

CELL SITE – The antenna array, base station equipment, and supporting structure (usually a tower) that is the local point of interface between a wireless phone device and a wireless network. Most cell sites have 3 sectors (or antennas). Cell sites having only one antenna providing 360 degree coverage are referred to as omni-directional sites.



CELLULAR SERVICE – See *WIRELESS SERVICES*

CENTRALIZED AUTOMATIC MESSAGE ACCOUNTING (CAMA) – An in-band multi-frequency signaling protocol used throughout 9-1-1 networks in the United States to deliver the ANI of the 9-1-1 caller from the local central office to the selective router and/or PSAP.

CENTRAL OFFICE (CO) – The smallest subdivision within the telephone switching system, the Central Office is the Local Exchange Carrier facility where access lines are connected to switching equipment for connection to the Public Switched Telephone Network. A Central Office is sometimes called a "wire center".

CHP – California Highway Patrol

CLEC – See *LOCAL EXCHANGE CARRIER* in this glossary

COMMERCIAL MOBILE RADIO SERVICE (CMRS) – A category of wireless telephone service regulated by the FCC that includes both cellular and PCS telephone service. See *Wireless Services*.

COMPETITIVE LOCAL EXCHANGE CARRIER – See *Local Exchange Carrier*

COMPUTER-AIDED DISPATCH (CAD) – A computer based system which aids PSAP 9-1-1 call takers by automating selected call taking, dispatching, and record keeping activities.

CONSOLIDATED PSAP – A PSAP where one or more public safety agency PSAPs choose to operate as a single PSAP.

CONTIGUOUS AGENCY – A public agency whose area of responsibility shares a common jurisdiction boundary.

COUNTY COORDINATOR – See *9-1-1 County Coordinator*

CUSTOMER PREMISE EQUIPMENT (CPE) – Equipment supplied by an equipment service provider and resides at the customer site.

DIAL BACKUP – PSAP dial-up phone lines designed for use as a backup in the event of an ALLI failure to the PSAP via the 9-1-1 Network.

DIRECT DISPATCH METHOD – An operational procedure where 9-1-1 call answering and dispatching are done by the 9-1-1 call takers at a single PSAP.

DIRECT ROUTING – Refers to wireless carriers routing their subscriber's 9-1-1 call directly to the appropriate local PSAP for emergency response. This is an alternative to the historical practice of sending all calls to the CHP, where calls may not be answered due to call volume or the 9-1-1 caller may wait in queue, then the CHP transfers the 9-1-1 caller to the appropriate local PSAP.

E9-1-1 – See *ENHANCED 9-1-1*

EMERGENCY MEDICAL SERVICE (EMS) – Response centers for fire, hospital, poison control, etc.

EMERGENCY SERVICE NUMBER (ESN) – Numeric routing code assigned by the 9-1-1 County Coordinator that describes a particular combination of teltales (law enforcement, fire,



medical). ESNs are used by selective routers direct 9-1-1 calls to the appropriate PSAP for that jurisdiction.

EMERGENCY SERVICES QUERY KEY (ESQK) – See *PSEUDO AUTOMATIC NUMBER IDENTIFICATION*

EMERGENCY SERVICES ROUTING KEY (ESRK) – A 10-digit number correlated to a wireless ESN that is used to route wireless emergency calls through the California 9-1-1 Network to the appropriate PSAP using non-call associated signaling (NCAS) format. The ESRK is used to retrieve the associated ALI data with the wireless call. These numbers are non-dialable. Also known in California as pANI, configured with NPA-511-XXXX.

EMERGENCY SERVICE ZONE (ESZ) – An area of a city, town, or county where the emergency services providers (law enforcement, fire, and medical) are the same throughout. ESZs are established by LECs working conjunction with 9-1-1 County Coordinators. ESZs are associated with ESNs for routing purposes.

EMERGING TECHNOLOGIES – New products and services to deliver network, business, and personal communications.

ENHANCED 9-1-1 (E9-1-1) – An emergency 9-1-1 network which includes network switching, database and PSAP premise elements capable of providing automatic location identification, caller routing, fixed transfer, selective routing, selective transfer, speed calling, and call back number. (*The successor system to what was known as “Basic 9-1-1” which is no longer deployed in California.*)

FEDERAL COMMUNICATIONS COMMISSION (FCC) – The FCC is an independent United States government agency. The FCC is charged with regulating interstate and international communications by radio, television, wire, satellite, and cable.

FORMAT 04 – A standard format to display ALI at the PSAP that adds the latitude, longitude, uncertainty and confidence fields for wireless service providers to send additional location information.

GEOGRAPHIC INFORMATION SYSTEM (GIS) – A computer software system that enables one to visualize geographic aspects (electronic maps and data sets). It contains the ability to translate implicit geographic data (such as a street address) into an explicit map location. It has the ability to query and analyze data in order to receive the results in the form of a map. It also can be used to graphically display coordinates on a map, i.e. Latitude/Longitude, from a wireless 9-1-1 call.

GLOBAL POSITIONING SYSTEM (GPS) – A system that uses various satellites to ascertain the location of a subject with a high degree of accuracy.

GRADE OF SERVICE – P.01 is the minimum recommended Grade of Service for 9-1-1 trunk groups. The probability (P), expressed as a decimal fraction, of a telephone call being blocked.



P.01 is the grade of service reflecting the probability that one call out of one hundred during the busy hour will be blocked. (P.01 = one busy signal per 100 attempts.)

ILEC – See *LOCAL EXCHANGE CARRIER*

INCUMBENT LOCAL EXCHANGE CARRIER (ILEC) – See *LOCAL EXCHANGE CARRIER*

INTERNET PROTOCOL (IP) - A method by which data is sent from one computer to another on the Internet or other networks. See also Voice Over Internet Protocol.

INTELLIGENT WORKSTATION (IWS) – Computer based 9-1-1 answering position equipment that includes computer telephony integration.

LANDLINE – Informal term for the Public Switched Telephone Network (PSTN) access via an actual copper or fiber optic transmission line that travels underground or on telephone poles. Used to differentiate the “wireless” connectivity of a cellular or PCS system.

LOCAL EXCHANGE CARRIER (LEC) - A telecommunications carrier under the state/local Public Utilities Act that provide local exchange telecommunications services. Also known as Incumbent Local Exchange Carriers (ILECs), Alternate Local Exchange Carriers (ALECs), Competitive Local Exchange Carriers (CLECs), Competitive Access Providers (CAPs), Certified Local Exchange Carriers (CLECs), and Local Service Providers (LSPs).

LOGGING RECORDER – A voice-band audio and data recorder which records to and plays from a permanent storage media such as tape or disk. Logging recorders are typically multi-channel so as to simultaneously record from several sources.

MANAGEMENT INFORMATION SYSTEM (MIS) – A program that collects, stores, and collates data into reports enabling interpretation and evaluation of performance, trends, traffic capacities, etc.

MASTER STREET ADDRESS GUIDE (MSAG) – A table oriented database of street names and “house” number ranges within their associated communities defining Emergency Service Zones (ESZs) and their associated Emergency Service Numbers (ESNs) to enable proper routing of 9-1-1 calls.

MOBILE POSITION CENTER (MPC) – The MPC serves as the point of interface to the wireless network for the emergency services network. The MPC serves as entity which retrieves, forwards, stores and controls position data within the location network.

MOBILE SWITCHING CENTER (MSC) – The wireless equivalent of a Central Office, which provides switching functions from wireless calls and connects to the selective router.

NATIONAL EMERGENCY NUMBER ASSOCIATION (NENA) – The NENA is a not-for-profit corporation established in 1982 to further the goal of “One Nation, One Number”. NENA is a networking source and promotes research, planning and training.

NEXT GENERATION 9-1-1 NETWORK (NG9-1-1) – A system comprised of managed IP-based networks and elements that augment current E9-1-1 features, the next evolutionary step in the



development of the 9-1-1 emergency communications system. In stages, NG9-1-1 will provide multimedia data capabilities for PSAPs and other emergency service organizations.

NON-CALL ASSOCIATED SIGNALING (NCAS) – A methodology of delivering wireless E9-1-1 service over existing E9-1-1 networks without making major modifications to either the network or the CPE. NCAS solutions encode the wireless caller’s callback number, location, and routing information into a 10-digit ESRK to be delivered with the call, and use the existing ALI circuits for the PSAP to retrieve location information.

NONPUBLISHED NUMBER – A telephone number which is not listed in any telephone directory or in Directory Assistance records available to the general public.

NXX – A three digit code in which N is any digit 2 through 9 and X is any digit 0 through 9. Typically used in describing the “Exchange Code” (commonly referred to as a “prefix”) fields of a North American Numbering Plan telephone number. The full numbering system is in the format of “Area Code” + “Exchange Code” + “Line Number” or NPA-NXX-XXXX.

P.01 GRADE OF SERVICE – See *GRADE OF SERVICE*

PACKET – Term used in this glossary of VoIP as “packetized”. Logical grouping of information that includes a header containing control information and (usually) user data. Packets are most often used to refer to network layer units of data. In telecommunications, packet-switching these units of information carriage are individually routed between nodes over data links which might be shared by many other nodes. In packet switched networks, such as the Internet, the data is split up into packets, each labeled with the complete destination address and routed individually.

PERSONAL COMMUNICATIONS SERVICES (PCS) – See *WIRELESS SERVICES*

PRIMARY PSAP – The initial public safety answering point destination to which 9-1-1 calls are directed to through the California 9-1-1 Network.

PRIVATE BRANCH EXCHANGE (PBX) – A private telephone switch that is connected to the Public Switched Telephone Network (PSTN).

PROTOCOL – A set of rules or conventions that govern the format and relative timing of data in a communications network.

PSEUDO AUTOMATIC NUMBER IDENTIFICATION (pANI) – A 10-digit non-dialable number used for routing wireless and VoIP 9-1-1 calls. The pANI is also used for retrieving location information from third party database providers. See *EMERGENCY SERVICES QUERY KEY (ESQK)* and *EMERGENCY SERVICES ROUTING KEY (ESRK)*

PUBLIC AGENCY – As used in this manual and as defined in California Government Code, Section 53101: “Public agency as used in this article, means the State, and any city, county, city and county, municipal corporation, public district, or public authority located in whole or in part within this State which provides or has authority to provide firefighting, law enforcement, ambulance, medical, or other emergency services”.



PUBLIC SAFETY AGENCY – See *PUBLIC AGENCY*

PUBLIC SAFETY ANSWERING POINT (PSAP) – A Public Agency facility equipped and staffed with call takers operating under a common management which receives 9-1-1 calls and emergency event notifications for a defined geographic area and processes those calls and events according to a specified operational policy.

PUBLIC SWITCHED TELEPHONE NETWORK (PSTN) – The network of equipment, lines, and controls assembled to establish communication paths between calling and called parties in North America.

REDUNDANCY – Duplication of components, running in parallel, to increase reliability; a backup system (either a device or a connection) that serves in the event of primary system failure.

REFERRAL METHOD – A procedural method by which a PSAP refers a caller to a secondary telephone number in non-emergency cases.

RELAY METHOD – A procedural method by which a PSAP gathers information from a 9-1-1 caller and then verbally relays that information to the appropriate public agency for action.

RESPONSE AGENCY – The public safety agency having legal or consensual obligation to respond to a call for service.

SECONDARY PSAP – A public safety answering point to which 9-1-1 calls are transferred from a primary PSAP.

SELECTIVE ROUTER (S/R) – 9-1-1 S/Rs, sometimes referred to as 9-1-1 tandems. In addition to the usual dialtone and telephone features (such as call waiting, 3-way calling, etc.) to telephone service subscribers, these switches have been provisioned with specialized 9-1-1 software that provide features such as: automatic number identification; manual transfer; selective transfer; tandem-to-tandem capability; and, selective routing.

SELECTIVE ROUTING – The process by which a 9-1-1 call is directed to the appropriate PSAP based upon the caller's location information.

SELECTIVE TRANSFER – The capability to transfer a 9-1-1 call to a response agency by operation of one of several buttons typically designated as law enforcement, fire, and emergency medical; based on the ESN of the caller.

SERVICE PROVIDER – As used in this manual, a Service Provider is an entity providing one or more of the following 9-1-1 elements: network, CPE, or database service.

SIGNALING SYSTEM SEVEN (SS7) – An out-of-band digital signaling system used to provide routing information, call set-up, and other termination functions. SS7 is used extensively in both landline and wireless telephone networks.

STAR CODE – Star codes are pre-programmed in the selective router and allow PSAPs to transfer E9-1-1 calls to predetermined PSAPs with a single key or digit, while keeping the complete original ANI/ALI data retrieved with the original 9-1-1 call.



STATE EMERGENCY TELEPHONE NUMBER ACCOUNT (SETNA) – Pursuant to California Government Code and Revenue and Taxation Code a surcharge is collected by service providers from California service users for intrastate communication services, remitted to the California Board of Equalization, then transmitted to the State Treasurer to be deposited in the SETNA. The CA 9-1-1 Branch administers the SETNA funding of equipment and services related to the delivery of 9-1-1 calls in California.

STEERING – As used in this manual, when ALI information is required by a PSAP for wireless and VoIP communications services, the two incumbent ALI providers must “steer” the ALI query to the appropriate third party database provider to do a look-up based on the Pseudo Automatic Number Identification (pANI) sent by the PSAP.

SWITCHED NETWORK – A system that automatically routes communications between the calling and called person or between data equipment.

TELECOMMUNICATIONS DEVICE FOR THE DEAF (TDD) – Term used to describe communications devices (see Teletypewriter) used by the hearing impaired and/or speech impaired in order to communicate via the telephone network.

TELECOMMUNICATIONS RELAY SERVICES (TRS) – A federally mandated service provided by states that provide communication relay between TTY users and voice telephone users, via a third party, for communications assistance. See *VIDEO RELAY SERVICE (VRS)*

TELEMATICS – The system of components that supports two-way communication with a motor vehicle for the collection or transmission of information and commands.

TELEMATIC SERVICE PROVIDER (TSP) – A business that provides voice or data transmission services. These services are provided over a telecommunications network that transmits any combination of voice, video, and/or data between users. A TSP could be, but is not limited to, a Local Exchange Carrier (LEC), a wireless telecommunications provider, a Commercial Mobile Radio Service provider, or a PBX service provider.

TELETYPEWRITER (TTY) – A device capable of information interchange between compatible units using a dial up or private-line telephone network connection as the transmission medium. See *TELECOMMUNICATIONS DEVICES FOR THE DEAF (TDD)*

TIME DIFFERENCE OF ARRIVAL (TDOA) - A network-based wireless location technology that determines a mobile caller’s location by measuring and comparing the differences in a caller’s signal arrival times received at various cell sites.

TRANSFER METHOD – A procedural method where the PSAP redirects or transfers a 9-1-1 call to the appropriate responding agency. Important ANI/ALI information will be delivered with the 9-1-1 call when the call is transferred via a Star Code or preprogrammed speed dial button on a trunk through the California 9-1-1 Network. Calls transferred to a PSAP’s seven digit number do not include valuable ANI/ALI information.



TRUNK – Typically, a communication path between central office switches, or between the 9-1-1 Central Office and the PSAP.

UNLISTED NUMBER – See *NONPUBLISHED NUMBER*

VIDEO RELAY SERVICE (VRS) – A service provided by common carriers and other vendors that provide third party communication relay between video telephone users using Internet connections and videophone or webcam and voice telephone users. Such services are located in call centers around the country.

VOICE over INTERNET PROTOCOL (VoIP) - Provides distinct packetized voice information in digital format using the Internet Protocol. The IP address assigned to the user's telephone number may be static (commonly used in home or business office) or nomadic (mobile).

WIRE CENTER – A telephone company building that contains one or more central offices.

WIRELESS SERVICE PROVIDER (WSP) – Cellular, satellite or other radio based telephony or data transport commercial entity.

WIRELESS SERVICES – The family of telecommunications services under the heading of Commercial Mobile Radio Service. Includes Cellular Services, Personal Communications Services (PCS), and Commercial Mobile Radio Services (CMRS).

Radio Related Definitions and Acronyms

Analog radio – radio technologies which transmit information by altering the amplitude (AM) or frequency (FM) of a given frequency channel. These technologies have been used for radio transmissions since the late 1800's

AVL – Automatic Vehicle Location; the technique of using a navigation system, such as GPS, to determine a vehicle's position

CalSCIP – California Statewide Communications Interoperability Plan prepared by CalSIEC

CalSIEC – California Statewide Interoperability Executive Committee; it is tasked with managing the state and federally designated interoperability spectrum on behalf of public safety first responders in California. The committee has also adopted responsibility for coordinating interoperability plans and processes in California

Caltrans – California Department of Transportation

Cal EMA – California Emergency Management Agency

CAL FIRE – California Department of Forestry and Fire Protection



CDCR – California Department of Corrections and Rehabilitation

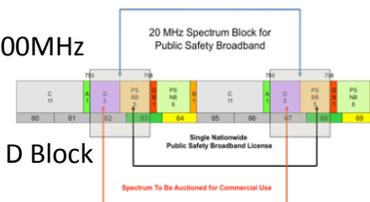
CDPH – California Department of Public Health

CMD – California Military Department

CHP – California Highway Patrol

CMARS – California Multi-Agency Radio System; a series of non-interconnected radio sites that transmit and receive in the 800 MHz frequency range. The system is a subscription service maintained by CalOES-PSC

D-Block – The D Block is a 10 MHz piece of spectrum in the upper 700MHz spectral band. It sits adjacent to the spectrum currently licensed to public safety. As the only remaining portion of unlicensed 700 MHz spectrum on a nationwide basis, public safety must be allocated the D Block in order to build out a 20 MHz broadband network.



DFG – California Department of Fish and Game

Digital radio – Radio technologies which carry information by sending and receiving discrete packets of data over radio waves

EMSA – Emergency Medical Services Authority

FCC – Federal Communications Commission

DOJ – California Department of Justice

DPR – California Department of Parks and Recreation

DWR – California Department of Water Resources

FIRESCOPE – Firefighting Resources of California Organized for Potential Emergencies was originally founded in 1972. It consists of all local, State and Federal firefighting organizations within California and is designed to deal with mutual aid, cooperative agreements, and fire/rescue regional policy issues and to advise the Secretary of Cal EMA in matters of statewide importance

GHz – Gigahertz; a measure of frequency. One GHz is equal to 1 billion cycles per second, 1 billion Hertz, or 1,000 MHz



GPS – Global Positioning System; a navigational system involving satellites and computers that can determine the latitude and longitude of a receiver on Earth by computing the time difference for signals from different satellites to reach the receiver

Interoperability –The ability for personnel to communicate and coordinate with the personnel operating on other radio systems or in other agencies

IT – Information Technology

kHz – Kilohertz; a measure of frequency. One kHz is equal to 1,000 cycles per second, or 1,000 Hertz

LMR – Land Mobile Radio

MHz – Megahertz; a measure of frequency. One MHz is equal to 1,000,000 cycles per second, 1 million Hertz, or 1,000 kHz

Multiband radio – a radio that can operate on more than one band (e.g. UHF and VHF)

National Broadband Plan – The FCC was directed by Congress in early 2009 to develop a National Broadband Plan (NBP). Its intent is to ensure every American has “access to broadband capability.” Another requirement was that the NBP “...include a detailed strategy for achieving affordability and maximizing use of broadband to advance consumer welfare, civic participation, public safety and homeland security, community development, health care delivery, energy independence and efficiency, education, employee training, private sector investment, entrepreneurial activity, job creation and economic growth, and other national purposes.¹³”

Operability – In this document, the ability for personnel to communicate with one another via radio, often used to mean communications within one agency (intra-agency)

OTAP – Over-The-Air Programming; methods of distributing new software updates such as frequency lists to mobile devices, including mobile and portable radios, wirelessly

OTAR – Over-The-Air Rekeying; methods of changing encryption keys in a two-way radio system over the radio channel

PC – Personal Computer

Project 25 (P25) – A suite of standards for digital radio communications for use by federal, state/province and local public safety agencies in North America to enable them to communicate with personnel utilizing disparate systems



P25 Phase 1 – Phase 1 radio systems operate in 12.5 kHz analog, digital or mixed mode using a C4FM modulation. Phase 1 equipment will be backwards compatible with legacy systems

P25 Phase 2 – Phase 2 is currently under development. It aims to achieve 6.25 kHz efficiency. Concurrent work is being done on 2-slot TDMA and FDMA (CQPSK) modulation schemes.

PSC – The Public Safety Communications

UHF – Ultra High Frequency; Radio spectrum between 300 MHz and 3 GHz. Also refers to bands of public safety spectrum between 421 and 512 MHz

VHF – Very High Frequency; Radio spectrum between 30 MHz and 300 MHz. Also refers to two bands of spectrum: VHF low band or “low band” with public safety frequencies licensed within the 25 and 50 MHz range, and VHF high band with public safety frequencies licensed within the 148-174 MHz range

700 MHz – A portion of the radio spectrum from 698 to 806 MHz within which there are two 12 MHz-wide public safety blocks. In this document the term refers to only the public safety blocks unless otherwise specified

800 MHz – A portion of the radio spectrum between 800 and 900 MHz. In this document, it specifically refers to the public safety spectrum between 806 and 824 MHz paired with spectrum between 851 and 869 MHz