1 GENERAL

1.1 Terms and Numeric Information

1.1.1 Terms

A-key. A secret, 64-bit pattern stored in the mobile station. It is used to generate/update the mobile station's Shared Secret Data. The A-key is used in the mobile station authentication process.

Abbreviated Alert. An abbreviated alert is used to remind the user that previously selected alternative routing features are still active.

Access Attempt. A sequence of one or more access probe sequences on the Access Channel. The same Access Channel message is transmitted in every access probe of every access probe sequence. See also Access Probe and Access Probe Sequence.

Access Channel. A Reverse CDMA Channel used by mobile stations for communicating to the base station. The Access Channel is used for short signaling message exchanges such as call originations, responses to pages, and registrations. The Access Channel is a slotted random access channel.

Access Channel Message. The information part of an Access Channel transmission consisting of the message body, length field, and CRC.

Access Channel Preamble. The preamble of an Access Channel transmission consisting of an integer number of frames that transmit Walsh symbol zero.

Access Channel Request Message. An Access Channel message that is autonomously generated by the mobile station. See also Access Channel Response Message.

Access Channel Request Transmission. The transmission on the Access Channel of an Access Channel request message.

Access Channel Response Message. A message on the Access Channel generated to reply to a message received from the base station.

Access Channel Response Transmission. The transmission on the Access Channel of an Access Channel response message.

Access Channel Slot. The assigned time interval for an Access Channel message transmission. An Access Channel slot consists of an integer number of frames. The Access Channel transmission is performed within the boundaries of an Access Channel slot.

Access Channel Transmission. A transmission on the Access Channel consisting of a preamble and a message. The transmission is an integer number of frames in length.

Access Probe. One Access Channel transmission. The transmission has a fixed length and transmits one Access Channel message. See also Access Probe Sequence and Access Attempt.

Access Probe Sequence. A sequence of one or more access probes on the Access Channel. The same Access Channel message is transmitted in every probe. See also Access Probe and Access Attempt.

ACK. An abbreviation for acknowledgement.

Acknowledgement (ACK). A layer 2 response by the mobile station or the base station confirming that a signaling message was received correctly.

Action Time. The time at which the action implied by a message should take effect.

Active Set. The set of pilots associated with the CDMA Channels containing Forward Traffic Channels assigned to a particular mobile station.

Aging. A mechanism through which the mobile station maintains in its Neighbor Set the pilots that have been recently sent to it from the base station and the pilots whose handoff drop timers have recently expired.

Analog Access Channel. An analog control channel used by a mobile station to access a system to obtain service.

Analog Color Code. An analog signal (see Supervisory Audio Tone) transmitted by a base station on an analog voice channel and used to detect capture of a mobile station by an interfering base station or the capture of a base station by an interfering mobile station.

Analog Control Channel. A channel used for the transmission of digital control information from a base station to a mobile station or from a mobile station to a base station.

Analog Paging Channel. A forward analog control channel that is used to page mobile stations and send orders.

Analog Voice Channel. A channel on which a voice conversation occurs and on which brief digital messages may be sent from a base station to a mobile station or from a mobile station to a base station.

Analysis-by-Synthesis. A procedure to select speech coder parameters by synthesizing speech using all possible values for the coder parameters and then selecting the parameters which minimize an error measure between the synthesized speech and the original speech.

Authentication. A procedure used by base stations to validate a mobile station's identity.

Authentication Response (AUTHR). An 18-bit output of the authentication algorithm. It is used to validate mobile station registrations, originations and terminations.

Autocorrelation Function. A function showing the relationship of a signal with a time-shifted version of itself.

AWGN. Additive White Gaussian Noise.

Bad Frames. Frames classified as 9600 bps primary traffic with probable bit errors (category 9) or erasures (categories 10). See also Good Frames.

Base Station Authentication Response (AUTHBS). An 18-bit pattern generated by the authentication algorithm. AUTHBS is used to confirm the validity of base station orders to update the Shared Secret Data.

Base Station Random Variable (RANDBS). A 32-bit random number generated by the mobile station for authenticating base station orders to update the Shared Secret Data.

Base Station. A station in the Domestic Public Cellular Radio Telecommunications Service, other than a mobile station, used for communicating with mobile stations. Depending upon the context, the term base station may refer to a cell, a sector within a cell, an MTSO, or other part of the cellular system. See also Sector and MTSO.

BCH Code. See Bose-Chaudhuri-Hocquenghem Code.

Blank-and-Burst. The pre-emption of an entire Traffic Channel frame's primary traffic by signaling traffic or secondary traffic. Blank-and-burst is performed on a frame-by-frame basis.

Bose-Chaudhuri-Hocquenghem Code (BCH Code). A large class of error-correcting cyclic codes. For any positive integers m, m$\geq$3, and t< 2^{m-1}, there is a binary BCH code with a block length n equal to 2^m - 1 and n - k $\leq$ mt parity check bits, where k is the number of information bits. The BCH code has a minimum distance of least 2t + 1.

bps. Bits per second.

Busy-Idle Bits. The portion of the data stream transmitted by a base station on a forward analog control channel that is used to indicate the current busy-idle status of the corresponding reverse analog control channel.

Call Disconnect. The process that releases the system resources handling a particular call. The disconnect process begins either when the mobile station user indicates the end of the call by generating an on-hook condition or when the base station initiates a release.

Candidate Set. The set of pilots that have been received with sufficient strength by the mobile station to be successfully demodulated, but have not been placed in the Active Set by the base station. See also Active Set, Neighbor Set, and Remaining Set.

CDMA. See Code Division Multiple Access.

CDMA Channel. The set of channels transmitted from the base station and the mobile stations on a given frequency. See also Forward CDMA Channel and Reverse CDMA Channel.

CDMA Channel Number. An 11-bit number corresponding to the CDMA frequency assignment. The number specifies the channel number for the CDMA Channel center frequency (see 6.1.1.1).

CDMA Frequency Assignment. A 1.23 MHz segment of spectrum centered on one of the 30 kHz channels of the existing analog system.

CELP. See Code Excited Linear Prediction.

Code Channel. A subchannel of a Forward CDMA Channel. A Forward CDMA Channel contains 64 code channels. Code channel zero is assigned to the Pilot Channel. Code channels 1 through 7 may be assigned to the either Paging Channels or the Traffic Channels. Code channel 32 may be assigned to either a Sync Channel or a Traffic Channel. The remaining code channels may be assigned to Traffic Channels.

1   **Code Division Multiple Access (CDMA).** A technique for spread-spectrum multiple-access
2   digital communications that creates channels through the use of unique code sequences.

3   **Code Excited Linear Prediction (CELP).** A speech coding algorithm. CELP coders use
4   random excitation, a long-term pitch prediction filter, and a short-term formant prediction
5   filter.

6   **Code Symbol.** The output of an error-correcting encoder. Information bits are input to the
7   encoder and code symbols are output from the encoder. See Convolutional Code.

8   **Codebook.** A set of random vectors used by the vocoder in Service Option 1. For each
9   vocoder codebook subframe, one particular vector is chosen and used to excite the
10   vocoder's filters. The codebook vector is chosen to minimize the weighted error between the
11   original and synthesized speech after the pitch and formant filter coefficients have been
12   determined.

13   **Continuous Transmission.** A mode of operation in which Discontinuous Transmission is
14   not permitted.

15   **Control Mobile Attenuation Code (CMAC)**. A 3-bit field in the Control-Filler Message that
16   specifies the maximum authorized power level for a mobile transmitting on an analog
17   reverse control channel.

18   **Convolutional Code.** A type of error-correcting code that is typically formed by passing the
19   data sequence through a shift register. A code symbol is obtained by performing the
20   exclusive-or of a set of taps on the shift register. A rate $1/n$ code with constraint length of
21   K has n sets of taps (producing n code symbols for each information bit) and can have a
22   shift register that is K - 1 bits long.

23   **CRC.** See Cyclic Redundancy Code.

24   **Cyclic Redundancy Code (CRC).** A class of linear error detecting codes which generate
25   parity check bits by finding the remainder of a polynomial division.

26   **Data Burst Randomizer.** The function that determines which power control groups within
27   a frame are transmitted on the Reverse Traffic Channel when the data rate is lower than
28   9600 bps. The data burst randomizer randomizes, for each mobile station, the position of
29   the transmitted power control groups in the frame while guaranteeing that every Walsh
30   symbol is transmitted exactly once.

31   **dBc.** The ratio (in dB) of the sideband power of a signal, measured in a given bandwidth at
32   a given frequency offset from the center frequency of the same signal, to the total inband
33   power of the signal. For CDMA, the total inband power of the signal is measured in a 1.23
34   MHz bandwidth around the center frequency of the CDMA signal.

35   **dB-Hz.** Decibel-Hertz.

36   **dBm.** A measure of power expressed in terms of its ratio (in dB) to one milliwatt.

37   **dBm/Hz.** A measure of power spectral density. dBm/Hz is the power in one Hertz of
38   bandwidth, where power is expressed in units of dBm.

39   **dBW.** A measure of power expressed in terms of its ratio (in dB) to one Watt.

dBμ**.**   A measure of electrical field strength in terms of its ratio (in dB) to one microvolt/meter.

Dedicated Control Channel.   An analog control channel used for the transmission of digital control information from either a base station or a mobile station.

Deinterleaving.   The process of unpermuting the code symbols that were permuted by the interleaver. Deinterleaving is performed on received code symbols prior to decoding.

Digital Color Code (DCC).   A digital signal transmitted by a base station on a forward analog control channel that is used to detect capture of a base station by an interfering mobile station.

Dim-and-Burst.   A frame in which primary traffic is multiplexed with either secondary traffic or signaling traffic.

Discontinuous Transmission (DTX).   A mode of operation in which a mobile station transmitter autonomously switches between two transmitter power levels while the mobile station is in the conversation state on an analog voice channel.

Distance-Based Registration.   A registration method in which the mobile station registers whenever it enters a cell whose distance from the cell in which the mobile station last registered exceeds a given threshold.

DTMF.   See Dual-Tone Multifrequency.

Dual-Tone Multifrequency (DTMF).   Signaling by the simultaneous transmission of two tones, one from a group of low frequencies and another from a group of high frequencies. Each group of frequencies consists of four frequencies.

E_b.   The energy of an information bit.

E_c/I_0.   The ratio in (dB) between the pilot energy accumulated over one PN chip period (E_c) to the total power spectral density in the received bandwith (I_0).

Effective Radiated Power (ERP).   The transmitted power multiplied by the antenna gain referenced to a half-wave dipole.

Electronic Serial Number (ESN).   A 32-bit electronic serial number uniquely identifying the mobile station.

Encoder Tail Bits.   A fixed sequence of bits added to the end of a block of data to reset the convolutional encoder to a known state.

ERP.   See Effective Radiated Power.

ESN.   See Electronic Serial Number.

Extended Protocol.   An optional expansion of the signaling messages between the base station and mobile station to allow for the addition of new system features and operational capabilities.

Fade Timer.   A timer kept by the mobile station as a measure of Forward Traffic Channel continuity. If the fade timer expires, the mobile station drops the call.

FIR Filter. A Finite Impulse Response filter is a filter for which the output, in response to an impulse input, totally dies away after a finite time interval. The term is usually used in reference to a digital filter.

Flash. An indication sent on an analog voice channel or CDMA Traffic Channel indicating that the user directed the mobile station to invoke special processing.

Foreign NID Roamer. A mobile station operating in the same system (SID) but a different network (NID) from the one in which service was subscribed. See also Foreign SID Roamer and Roamer.

Foregin SID Roamer. A mobile station operating in a system (SID) other than the one from which service was subscribed. See also Foreign NID Roamer and Roamer.

Formant. A peak in the speech frequency spectrum caused by the shape of the vocal tract.

Forward Analog Control Channel (FOCC). An analog control channel used from a base station to a mobile station.

Forward Analog Voice Channel (FVC). An analog voice channel used from a base station to a mobile station.

Forward CDMA Channel. A CDMA Channel from a base station to mobile stations. The Forward CDMA Channel contains one or more code channels that are transmitted on a CDMA frequency assignment using a particular pilot PN offset. The code channels are associated with the Pilot Channel, Sync Channel, Paging Channels, and Traffic Channels. The Forward CDMA Channel always carries a Pilot Channel and may carry up to one Sync Channel, up to seven Paging Channels, and up to 63 Traffic Channels, as long as the total number of channels, including the Pilot Channel, is no greater than 64.

Forward Traffic Channel. A code channel used to transport primary traffic, secondary traffic, and signaling traffic from the base station to the mobile station.

Frame. A basic timing interval in the system. For the Access Channel, Paging Channel, and Traffic Channel, a frame is 20 ms long. For the Sync Channel, a frame is 26.666... ms long. For the vocoder used for Service Option 1, a frame is 20 ms long.

Frame Category. A classification of a received Traffic Channel frame based upon transmission data rate, the frame contents (primary traffic, secondary traffic, or signaling traffic), and whether there are detected errors in the frame.

Frame Offset. A time skewing of Traffic Channel frames from System Time in integer multiples of 1.25 ms. The maximum frame offset is 18.75 ms.

Frame Quality Indicator. A measure of the quality of a frame. Frame quality information can be obtained through the CRC check applied to 4800 bps and 9600 bps Traffic Channel frames and through other decoder metrics applicable to all rates. The frame quality indicator is used for classifying frames (i.e., determining the rate of the frame and whether the frame contains errors). See also Good Frames and Bad Frames.

Galois Field. A finite set of p^m elements where p is prime and m is a non-negative integer.

Global Positioning System (GPS). A US government satellite system that provides location and time information to users.

Good Frames. Frames not classified as bad frames. See also Bad Frames.

GPS. See Global Positioning System.

Group Identification. A subset of the most significant bits of the system identification (SID) that is used to identify a group of cellular systems.

Half Frame. A 10 ms interval on the Paging Channel. Two half frames comprise a frame. The first half frame begins at the same time as the frame.

Handoff. The act of transferring communication with a mobile station from one base station to another.

Hard Handoff. A handoff characterized by a temporary disconnection of the Traffic Channel. Hard handoffs occur when the mobile station is transferred between disjoint Active Sets, the CDMA frequency assignment changes, the frame offset changes, or the mobile station is directed from a CDMA Traffic Channel to an analog voice channel. See also Soft Handoff.

Hash Function. A function used by the mobile station to select one out of N available resources. The hash function distributes the available resources uniformly among a random sample of mobile stations.

Home Mobile Station. A mobile station that operates in the cellular system from which service is subscribed.

Home System. The system transmitting a SID which is recognized by the mobile station as the "home" SID.

Idle Handoff. The act of transferring reception of the Paging Channel from one base station to another, when the mobile station is in the *Mobile Station Idle State*.

IIR Filter. An infinite-duration impulse response filter is a filter for which the output, in response to an impulse input, never totally dies away.This term is usually used in reference to digital filters.

Implied Registration. A registration achieved by a successful use of the Access Channel by the mobile station.

Interleaving. The process of permuting code symbols at the output of a coder.

kHz. Kilohertz (1000 Hertz).

ksps. Kilo-symbols per second (1000 symbols per second).

Layer 1. See Physical Layer.

Layer2. Layer 2 provides for the correct transmission and reception of signaling messages, including partial duplicate detection. See also Layering and Layer 3.

Layer3. Layer 3 provides the control of the cellular telephone system. Signaling messages originate and terminate at layer 3. See also Layering and Layer 2.

Layering. A method of organization for communication protocols. A layer is defined in terms of its communication protocol to a peer layer in another entity and the services it offers to the next higher layer in its own entity.

1   **Linear Predictive Coding (LPC).** A method of predicting future samples of a sequence by a
2   linear combination of the previous samples of the same sequency. Linear Predictive Coding
3   is frequently used in reference to a class of speech coders.

4   **Line Spectral Pair (LSP).** A representation of digital filter coefficients in a pseudo-
5   frequency domain. This representation has good quantization and interpolation properties.

6   **Local Control.** An optional mobile station feature used to perform manufacturer-specific
7   functions.

8   **Long Code.** A PN sequence with period 2^{42} -1 that is used for scrambling on the Forward
9   CDMA Channel and spreading on the Reverse CDMA Channel. The long code uniquely
10   identifies a mobile station or a mobile station user (MIN) on both the Reverse Traffic
11   Channel and the Forward Traffic Channel. The long code provides limited privacy and
12   prevents the accidental reception of signals transmitted to another mobile station. The long
13   code also separates multiple Access Channels on the same CDMA channel. See also Public
14   Long Code and Private Long Code.

15   **Long Code Mask.** A 42-bit binary number that contains system and mobile station
16   dependent values such as the mobile station electronic serial number (ESN), mobile station
17   identification number (MIN), Paging Channel number, and Access Channel number. The
18   long code mask creates the unique identities of the long code. See also Public Long Code,
19   Private Long Code, Public Long Code Mask, and Private Long Code Mask.

20   **LPC.** See Linear Predictive Coding.

21   **LSB.** Least significant bit.

22   **LSD.** Least significant digit.

23   **LSP.** See Line Spectral Pair.

24   **Maximal Length Sequence (m-Sequence).** A binary sequence of period 2^{n}-1, n a positive
25   integer, with no internal periodicities. A maximal length sequence can be generated by a
26   tapped n-bit shift register with linear feedback.

27   **Mcps.** Megachips per second (one million chips per second).

28   **Mean Input Power.** The total received calorimetric power measured in a specified
29   bandwidth at the antenna connector, including all internal and external signal and noise
30   sources.

31   **Mean Output Power.** The total transmitted calorimetric power measured in a specified
32   bandwidth at the antenna connector when the transmitter is active.

33   **Message.** A data structure that conveys control, signaling information, or limited
34   application information. A message consists of a length field (MSG_LENGTH), a message
35   body (the part conveying the information), and a CRC.

36   **Message Body.** The part of the message contained between the length field (MSG_LENGTH)
37   and the CRC field.

38   **Message Capsule.** A sequence of bits comprising a single message and padding. The
39   padding always follows the message and may be of zero length.

Message Field. A basic named element in a message. A message field may consist of zero or more bits.

Message Not Requiring Acknowledgement. A message which is not to be acknowledged by the receiving party.

Message Record. An entry in a message consisting of one or more fields that repeats in the message.

Message Requiring Acknowledgement. A message which requires an acknowledgement. This is signaled by setting the ACK_REQ field to '1'.

MHz. Megahertz (one million Hertz).

MIN. See Mobile Station Identification Number.

Mobile Station Identification Number (MIN). The 34-bit number that is a digital representation of the 10-digit directory telephone number assigned to a mobile station.

Mobile Protocol Capability Indicator (MPCI). A 2-bit field used to indicate the mobile station's capabilities.

Mobile Station. A station in the Domestic Public Cellular Radio Telecommunications Service intended to be used while in motion or during halts at unspecified points. Mobile stations include portable units (e.g., hand-held personal units) and units installed in vehicles.

Mobile Station Class. Mobile station classes define mobile station characteristics such as slotted operation and transmission power. See Table 2.3.3-1.

Mobile Station Originated Call. A call originating from a mobile station.

Mobile Station Terminated Call. A call received by a mobile station (not to be confused with a disconnect or call release).

Mobile Switching Center (MSC). An alternate name for Mobile Telephone Switching Office.

Mobile Telephone Switching Office (MTSO). The location that usually contains the telephone switch, the system controller, and the vocoders. Often called the Mobile Switching Center (MSC).

Modulation Symbol. The output of the data modulator before spreading. On the Reverse Traffic Channel, 64-ary orthogonal modulation is used and six code symbols are associated with one modulation symbol. On the Forward Traffic Channel, each code symbol (when the data rate is 9600 bps) or each repeated code symbol (when the data rate is less than 9600 bps) is one modulation symbol.

ms. Millisecond. One thousandth of one second.

MSB. Most significant bit.

MSC. See Mobile Switching Center.

MTSO. See Mobile Telephone Switching Office.

1   **Multiplex Option.**   The ability of the multiplex sublayer and lower layers to be tailored to
2   provide special capabilities.   A multiplex option defines such characteristics as the frame
3   format and the rate decision rules.   See also Multiplex Sublayer.

4   **Multiplex Sublayer.**   One of the conceptual layers of the system that multiplexes and
5   demultiplexes primary traffic, secondary traffic, and signaling traffic.

6   **NAM.**   See Number Assignment Module.

7   **Neighbor Set.**   The set of pilots associated with the CDMA Channels that are probable
8   candidates for handoff.   Normally, the Neighbor Set consists of the pilots associated with
9   CDMA Channels that cover geographical areas near the mobile station.   See also Active Set,
10   Candidate Set, and Remaining Set.

11   **Network.**   A network is a subset of a cellular system, such as an area-wide cellular
12   network, a private group of base stations, or a group of base stations set up to handle a
13   special requirement.   A network can be as small or as large as needed, as long as it is fully
14   contained within a system.   See also System.

15   **Network Identification (NID).**   A 16-bit number that identifies a network within a cellular
16   system.   See *also* System Identification.

17   **NID.**   See Network Identification.

18   **Non-Autonomous Registration.**   A registration method in which the base station initiates
19   registration.   See also Autonomous Registration.

20   **Non-Slotted Mode.**   An operation mode of the mobile station in which the mobile station
21   continuously monitors the Paging Channel when in the *Mobile Station Idle State*.

22   **ns.**   Nanosecond.   One billionth of one second.

23   **Null Traffic Channel Data.**   A frame of 16 '1's followed by eight '0' sent at the 1200 bps
24   rate when the primary service option and the secondary service option are not active, and a
25   signaling message is not being sent.   Null Traffic Channel data acts as a filler for the frame
26   and allows the system to maintain synchronization and power control.

27   **Number Assignment Module (NAM).**   A set of parameters stored in the mobile station (see
28   Appendix F).

29   **Numeric Information.**   Numeric information consists of parameters that appear as
30   numeric fields in messages exchanged by the base station and the mobile station and
31   information used to describe the operation of the mobile station.

32   **Offset Quadrature Phase Shift Keying (OQPSK).**   A form of modulation that applies
33   different data sequences to two carriers separated by 90°.   The two different data sequences
34   are staggered by half a modulation symbol time. See also Quadrature Phase Shift Keying.

35   **OLC.**   See Overload Class (CDMA) or Overload Control (analog).

36   **Optional Field.**   A field defined within a message structure that is optionally transmitted to
37   the message recipient.

38   **OQPSK.**   See Offset Quadrature Phase Shift Keying.

1 **Order.** A type of message that contains control codes for either the mobile station or the
2 base station.

3 **Ordered Registration.** A registration method in which the base station orders the mobile
4 station to send registration related parameters.

5 **Overhead Message.** One of four messages sent by the base station on the Paging Channel.
6 These messages communicate base-station-specific and system-wide information to the
7 mobile station.

8 **Overload Class.** The means used to control system access by mobile stations, typically in
9 emergency or other overloaded conditions. Mobile stations are assigned one (or more) of
10 sixteen overload classes. Access to the CDMA system can then be controlled on a per class
11 basis by persistence values transmitted by the base station.

12 **Overload Control (OLC).** A means to restrict reverse control channel accesses by mobile
13 stations. Mobile stations are assigned one (or more) of sixteen control levels. Access is
14 selectively restricted by a base station setting one or more OLC bits in the Overload Control
15 Global Action Message.

16 **Packet.** The unit of information exchanged between the service option applications and the
17 base station and the mobile station.

18 **Padding.** A sequence of bits used to fill from the end of a message to the end of a message
19 capsule, typically to the end of the frame or half frame. All bits in the padding are '0'.

20 **Paging.** The act of seeking a mobile station when an incoming call has been placed to it.

21 **Paging Channel (Analog).** A forward analog control channel that is used to page mobile
22 stations and send orders.

23 **Paging Channel (CDMA).** A code channel in a Forward CDMA Channel used for
24 transmission of control information and pages from a base station to a mobile station.

25 **Paging Channel Slot.** A 200 ms interval on the Paging Channel. Mobile stations operating
26 in the slotted mode are assigned specific slots in which they monitor messages from the
27 base station.

28 **Parameter-Change Registration.** A registration method in which the mobile station
29 registers if a change occurs in its SCM, active MIN list, or preferred slot cycle index.

30 **Parity Check Bits.** Bits added to a sequence of information bits to provide redundancy.
31 Depending upon the method used to produce the parity check bits, the receiving decoder
32 can detect, correct, or both detect and correct certain errors.

33 **Persistence.** A probability measure used by the mobile station to determine if it should
34 transmit in a given Access Channel Slot.

35 **Physical Layer.** The part of the communication protocol between the mobile station and
36 the base station that is responsible for the transmission and reception of data. The
37 physical layer in the transmitting station is presented a frame by the multiplex sublayer
38 and transforms it into an over-the-air waveform. The physical layer in the receiving station
39 transforms the waveform back into a frame and presents it to the submultiplex layer above
40 it.

Pilot Channel. An unmodulated, direct-sequence spread spectrum signal transmitted continuously by each CDMA base station. The Pilot Channel allows a mobile station to acquire the timing of the Forward CDMA Channel, provides a phase reference for coherent demodulation, and provides a means for signal strength comparisons between base stations for determining when to handoff.

Pilot PN Sequence. A pair of modified maximal length PN sequences with period 2^{15} used to spread the Forward CDMA Channel and the Reverse CDMA Channel. Different base stations are identified by different pilot PN sequence offsets.

Pilot Sequence Offset Index. The PN offset in units of 64 PN chips of a pilot, relative to the zero offset pilot PN sequence.

Pilot Strength. The ratio of received pilot energy to overall received energy. See also E_c/I_0.

Pitch. The fundamental frequency in speech caused by the periodic vibration of the human vocal cords.

PN Chip. The time duration of one binary bit in the PN sequence, which is equal to the reciprocal of the frequency at which the PN sequence generator operates. For example, if the PN generator operates at 1.2288 MHz, then a PN chip is 813.802... ns.

PN Sequence. Literally, "pseudonoise sequence." A periodic binary sequence (with '0' mapped to 1 and '1' mapped to -1). Typically a PN sequence has good autocorrelation which (when normalized) equals 1 for zero shift between the two sequences and $-1/N$, where N is the period, for all other shifts.

Power Control Bit. A bit sent in every 1.25 ms interval on the Forward Traffic Channel to signal the mobile station to increase or decrease its transmit power.

Power Control Group. A 1.25 ms interval on the CDMA Channel. During this interval, the mobile station either transmits six Walsh symbols or transmits nothing. Nothing is transmitted when the data burst randomizer specifies that the power control group is not to be transmitted (this can only occur at data rates lower than 9600 bps) . The base station estimates the received power in a power control group in order to determine the value of a corresponding power control bit.

Power-Down Registration. A registration method in which the mobile station registers whenever it powers down if it has previously registered in the current system (SID).

Power-Up Registration. A registration method in which the mobile station registers whenever it powers up.

PPM. Parts per million.

Preamble. A sequence of frames containing the Walsh symbol zero transmitted by the mobile station at the beginning of an Access Channel slot. The preamble simplifies the task of detecting and demodulating Access Channel transmissions at the base station.

Primary CDMA Channel. A CDMA Channel at a preassigned frequency assignment used by the mobile station for initial acquisition. See also Secondary CDMA Channel.

Primary Paging Channel (CDMA). The default code channel (code channel 1) assigned for paging on a CDMA Channel.

Primary Traffic. The main traffic stream carried between the mobile station and the base station on the Traffic Channel. See also Secondary Traffic and Signaling Traffic.

Private Long Code. The long code characterized by the private long code mask. See also Long Code.

Private Long Code Mask. The long code mask used to form the private long code. The mask is unique for every MIN. See also Public Long Code Mask and Long Code.

PSTN. Public Switched Telephone Network.

Public Long Code. The long code characterized by the public long code mask.

Public Long Code Mask. The long code mask used to form the public long code. The mask contains the ESN of the mobile station. See also Private Long Code Mask and Long Code.

Punctured Code. A rate k/n error-correcting code generated from a rate 1/n error-correcting code by deleting (i.e., puncturing) code symbols from the coder output.

QPSK. See Quadriphase Shift Keying. See also OQPSK.

Quadrature Phse Shift Keying (QPSK). A form of modulation that applies different data sequences to two carriers separated by 90°.

Quick Repeats. Additional transmissions of identical copies of a message within a short interval to increase the probability that the message is received correctly.

Receive Objective Loudness Rating (ROLR). A perceptually weighted transducer gain of telephone receivers relating electrical excitation from a reference generator to sound pressure at the earphone. The receive objective loudness rating is normally specified in dB relative to one Pascal per millivolt. See IEEE Standard 269-1992, IEEE Standard 661-1979, CCITT Recommendation P.76, and CCITT Recommendation P.79.

Registration. The process by which a mobile station identifies its location and parameters to a base station.

Registration Zone. A collection of one or more base stations treated as a unit when determining whether a mobile station should perform zone-based registration.

Release. The process that the mobile station and base station use to inform each other of call disconnect.

Release Request. A message sent from a mobile station to a base station indicating that the user desires to disconnect the call.

Remaining Set. The set of all allowable pilot offsets, excluding the pilot offsets of the pilots in the Active Set, Candidate Set, and Neighbor Set. See also Active Set, Candidate Set, and Neighbor Set.

Request. A layer 3 message generated by either the mobile station or the base station to retrieve information, ask for service, or command an action.

1   **Response.** A layer 3 message generated as a result of another message, typically a request.

2   **Reverse Analog Control Channel (RECC).** The analog control channel used from a mobile
3   station to a base station.

4   **Reverse Analog Voice Channel (RVC).** The analog voice channel used from a mobile
5   station to a base station.

6   **Reverse CDMA Channel.** The CDMA Channel from the mobile station to the base station.
7   From the base station's perspective, the Reverse CDMA Channel is the sum of all mobile
8   station transmissions on a CDMA frequency assignment.

9   **Reverse Traffic Channel.** A Reverse CDMA Channel used to transport primary traffic,
10 secondary traffic, and signaling traffic from a single mobile station to one or more base
11 stations.

12 **Roamer.** A mobile station operating in a cellular system (or network) other than the one
13 from which service was subscribed. See also Foreign NID Roamer and Foreign SID Roamer.
14 bla

15 **ROLR.** See Receive Objective Loudness Rating.

16 **SAT.** See Supervisory Audio Tone.

17 **Scan of Channels.** The procedure by which a mobile station examines the signal strength
18 of each forward analog control channel.

19 **Search Window.** The range of PN sequence offsets that a mobile station searches for a
20 pilot. Search window sizes and search window centers are specified independently for
21 pilots in the Active Set, Candidate Set, Neighbor Set, and Remaining Set.

22 **Secondary CDMA Channel.** A CDMA Channel at a preassigned frequency assignment
23 used by the mobile station for initial acquisition. See also Primary CDMA Channel.

24 **Secondary Traffic.** An additional traffic stream that can be carried between the mobile
25 station and the base station on the Traffic Channel. See also Primary Traffic and Signaling
26 Traffic.

27 **Sector.** A partition of the cell using directional antennas.

28 **Seizure Precursor.** The initial digital sequence transmitted by a mobile station to a base
29 station on a reverse analog control channel.

30 **Service Option.** A service capability of the system. A service option comprises layer 2 and
31 above of the system and connects to the multiplex sublayer. Service options may be
32 applications such as voice, data, or facsimile. Service options are defined in Appendix A.

33 **Shared Secret Data (SSD)**. A 128-bit pattern stored in the mobile station (in semi-
34 permanent memory) and known by the base station. SSD is a concatenation of two 64-bit
35 subsets: SSD-A, which is used to support the authentication procedures, and SSD-B,
36 which serves as one of the inputs to the process generating the private long code. Shared
37 Secret Data is maintained during power-off.

38 **SID.** See System Identification.

Signaling Tone. A 10 kHz tone transmitted by a mobile station on an analog voice channel to: 1) confirm orders, 2) signal flash requests, and 3) signal release requests.

Signaling Traffic. Control messages that are carried between the mobile station and the base station on the Traffic Channel. See also Primary Traffic and Secondary Traffic.

Slot Cycle. A sequence of consecutive slots on the Paging Channel. A slot cycle lasting 2^N seconds consists of 5×2^N slots (5 slots per second times 2^N seconds) where N is an integer from zero through seven. Each mobile station operating in the slotted mode uses one of the eight slot cycles defined by N and monitors a single slot in that cycle.

Slotted Mode. An operation mode of the mobile station in which the mobile station monitors only selected slots on the Paging Channel when in the *Mobile Station Idle State*.

Soft Handoff. A handoff characterized by commencing communications with a new base station before terminating communications with the old base station. See also Hard Handoff.

SOM. Start-of-Message Bit.

SOR. See Service Option Request.

sps. Symbols per second.

Station Class Mark (SCM). An identification of certain characteristics of a mobile station. Classes are defined in Table 2.3.3-1.

Status Information. The following status information is used to describe mobile station operation when using the analog system:

- Serving-System Status. Indicates whether a mobile station is tuned to channels associated with System A or System B.

- First Registration ID Status. A status variable used by the mobile station in association with its processing of received Registration ID messages.

- First Location Area ID Status. A status variable used by the mobile station in association with its processing of received Location Area ID messages.

- Location Registration ID Status. A status variable used by the mobile station in association with its processing of power-up registrations and location-based registrations.

- First Idle ID Status. A status variable used by the mobile station in association with its processing of the Idle Task.

- Local Control Status. Indicates whether a mobile station must respond to local control messages.

- Roam Status. Indicates whether a mobile station is in its home system.

- Termination Status. Indicates whether a mobile station must terminate the call when it is on an analog voice channel.

Supervisory Audio Tone (SAT). One of three tones in the 6 kHz region that is transmitted on the forward analog voice channel by a base station and transponded on the reverse analog voice channel by a mobile station.

Supplementary Digital Color Code (SDCC1, SDCC2). Additional bits assigned to increase the number of color codes from four to sixty four, transmitted on the forward analog control channel.

Symbol. See Code Symbol and Walsh Symbol.

Sync Channel. A channel in the Forward CDMA Channel that provides synchronization to the mobile station.

Sync Channel Superframe. An 80 ms interval consisting of three Sync Channel frames (each 26.666... ms in length).

System Identification (SID). An identification associated with a cellular system.

System. A system is a cellular telephone service that covers a geographic area such as a city, metropolitan region, county, or group of counties. See also Network.

System Time. The time reference used by the system. System Time is synchronous to UTC time (except for leap seconds) and uses the same time origin as GPS time. All base stations use the same System Time (within a small error). Mobile stations use the same System Time, offset by the propagation delay from the base station to the mobile station. See also Universal Coordinated Time.

Time Reference. A reference established by the mobile station that is synchronous with the earliest arriving multipath component used for demodulation. The time reference is used to establish transmit time and the location of zero in PN space.

Timer-Based Registration. A registration method in which the mobile station registers whenever a counter reaches a predetermined value. The counter is incremented an average of once per 200 ms period.

TOLR. See Transmit Objective Loudness Rating.

Traffic Channel. A communication path between a mobile station and a base station used primarily for communicating service-option-related traffic. The term Traffic Channel implies a Forward Traffic Channel and Reverse Traffic Channel pair. See also Forward Traffic Channel and Reverse Traffic Channel.

Traffic Channel Preamble. A sequence of all-zero frames that is sent at the 9600 bps rate by the mobile station on the Reverse Traffic Channel. The Traffic Channel preamble is sent during initialization of the Traffic Channel when the mobile station is in the *Traffic Channel Initialization Substate* of the *Mobile Station Control on the Traffic Channel State.*

Transmit Objective Loudness Rating (TOLR). A perceptually weighted transducer gain of telephone transmitters relating sound pressure at the microphone to voltage at a reference electrical termination. It is normally specified in dB relative to one millivolt per Pascal. See IEEE Standard 269-1992 (draft), IEEE Standard 661-1979, CCITT Recommendation P.76, and CCITT Recommendation P.79.

1 **Unique Challenge-Response Procedure.** An exchange of information between a mobile
2 station and a base station for the purpose of confirming the mobile station's identity. The
3 procedure is initiated by the base station and is characterized by the use of a challenge-
4 specific random number (i.e., RANDU) instead of the random variable broadcast globally
5 (RAND).

6 **Unique Random Variable (RANDU).** A 24-bit random number generated by the base
7 station in support of the Unique Challenge-Response procedure.

8 **Universal Coordinated Time (UTC).** An internationally agreed-upon time scale that has
9 the same rate as atomic time. UTC is corrected by step adjustments of exactly one second
10 as needed to remain within 0.9 seconds of astronomical time.

11 **UTC.** Universal Time Coordinated. See Universal Coordinated Time.

12 **Vocoder.** Voice encoder/decoder.

13 **Voice Channel.** A channel used for voice communications in the analog cellular system.

14 **Voice Mobile Attenuation Code (VMAC).** A 3-bit field in the Extended Address Word
15 commanding the initial mobile power level when assigning a mobile station to an analog
16 voice channel.

17 **Voice Privacy.** The process by which user voice transmitted over a CDMA Traffic Channel
18 is afforded a modest degree protection against eavesdropping over the air.

19 **Walsh Chip.** The shortest identifiable component of a Walsh function. There are 2^N Walsh
20 chips in one Walsh function where N is the order of the Walsh function. On the Forward
21 CDMA Channel, one Walsh chip equals 1/1.2288 MHz, or 813.802...ns. On the Reverse
22 CDMA Channel, one Walsh chip equals 4/1.2288 MHz, or 3.255...μs.

23 **Walsh Cover.** A coding method that uses Walsh functions to create a set of mutually
24 orthogonal CDMA signals. In the CDMA system, a code channel is formed by a Walsh
25 cover.

26 **Walsh Function.** One of 2^N time orthogonal binary functions (note that the functions are
27 orthogonal after mapping '0' to 1 and '1' to -1).

28 **Walsh Symbol.** The time necessary to transmit one Walsh function on the Reverse CDMA
29 Channel.

30 **Zero Input Response (ZIR).** The filter output caused by the non-zero initial state of the
31 filter when no input is present.

32 **Zero Offset Pilot PN Sequence.** A pilot PN sequence aligned with System Time such that
33 the first chip on every even second mark is the '1' following the fifteen consecutive '0's.

34 **ZIR.** See Zero Input Response.

35 **Zone-Based Registration.** A registration method in which the mobile station registers
36 whenever it enters a cell that is not in the mobile station's zone list.

37 μ**s.** Microsecond. One millionth of one second.

1.1.2 Numeric Information

1.1.2.1 Analog Numeric Information

Numeric information is used to describe the operation of the mobile station. The following subscripts are used to clarify the use of the numeric information:

- "s" indicates a value stored in a mobile station's temporary memory.

- "sv" indicates a stored value that varies as a mobile station processes various tasks.

- "sl" indicates the stored limits on values that vary.

- "r" indicates a value received by a mobile station over a forward analog control channel.

- "p" indicates a value set in a mobile station's permanent security and identification memory.

- "s-p" indicates a value stored in a mobile station's semi-permanent security and identification memory.

ACCOLC$_p$ – A four-bit number used to identify which overload class field controls access attempts.

BIS$_s$ – Identifies whether a mobile station must check for an idle-to-busy transition on a reverse analog control channel when accessing a system.

CCLIST$_s$ – The list of analog control channels to be scanned by a mobile station processing the Directed Retry Task (see 2.6.3.14).

CMAX$_s$ – The maximum number of channels to be scanned by a mobile station when accessing a system.

COUNT$_{s-p}$ – A modulo-64 count held in the mobile station. COUNT$_{s-p}$ is maintained during power-off.

CPA$_s$ – Identifies whether the access functions are combined with the paging functions on the same set of analog control channels.

DCC$_s$ – A DCC value stored in a mobile station's temporary memory.

DTX$_s$ – Identifies in what way the mobile station is permitted to use the discontinuous transmission mode on the analog voice channel.

E$_s$ – The stored value of the E field sent on the forward analog control channel. E$_s$ identifies whether a home mobile station must send only MIN1$_p$ or both MIN1$_p$ and MIN2$_p$ when accessing the system.

EX$_p$ – Identifies whether home mobile stations must send MIN1$_p$ or both MIN1$_p$ and MIN2$_p$ when accessing the system. EX$_p$ differs from E$_s$ in that the information is stored in the mobile station's security and identification memory.

FIRSTCHA$_s$ – The number of the first analog control channel used for accessing a system.

FIRSTCHD$_s$ – The number for the first channel used as a dedicated control channel.

1   **FIRSTCHP$_p$** – The number of the first paging channel used as a paging channel in the
2   mobile station's "home" system.

3   **FIRSTCHP$_s$** – The number of the first analog control channel used for paging mobile
4   stations.

5   **HOME_SID$_p$** – Home System Identification. A 15-bit value that identifies the home system
6   for a MIN supported by the mobile station.

7   **LASTCHA$_s$** – The number of the last analog control channel used for accessing a system.

8   **LASTCHD$_s$** – The number for the last channel used as a dedicated control channel.

9   **LASTCHP$_s$** – The number of the last analog control channel used for paging mobile
10 stations.

11 **LOCAID$_{s-p}$** – Identifies the current location area.

12 **LOCAID$_s$** – The received location area identity.

13 **LREG$_s$** – The stored value of the LREG field received in the most recent Location Area
14 Global Action Message.

15 **LT$_s$** – Identifies whether the next access attempt is required to be the last try.

16 **MIN1$_p$** – The 24-bit number that corresponds to the 7-digit directory telephone number
17 assigned to a mobile station.

18 **MAXBUSY$_{sl}$** – The maximum number of busy occurrences allowed on a reverse analog
19 control channel.

20 **MAXSZTR$_{sl}$** – The maximum number of seizure attempts allowed on a reverse analog
21 control channel.

22 **MIN2$_p$** – The 10-bit number that corresponds to the 3-digit area code assigned to a mobile
23 station.

24 **N$_s$** – The number of analog paging channels that a mobile station must scan.

25 **NBUSY$_{sv}$** – The number of times a mobile station attempts to seize a reverse analog control
26 channel and finds the reverse control channel busy.

27 **NSZTR$_{sv}$** – The number of times a mobile station attempts to seize a reverse analog control
28 channel and fails.

29 **NXTREG$_{s-p}$** – Identifies when a mobile station must make its next registration to a system.

30 **PDREG$_s$** – The stored value of the PDREG field received in the most recent Location Area
31 Global Action Message.

32 **PL$_s$** – The mobile station RF power level.

33 **PUREG$_s$** – The stored value of the PUREG field received in the most recent Location Area
34 Global Action Message.

35 **PUREG$_{s-p}$** – The semi-permanent value of PUREG$_s$.

36 **R$_s$** – Indicates whether registration is enabled or not.

1   **RAND$_s$** – The stored value of RAND. See 2.3.12.1.2.

2   **RCF$_s$** – Identifies whether the mobile station must read a Control Filler Message before
3   accessing a system on a reverse analog control channel.

4   **REGID$_s$** – The stored value of the last registration number (REGID$_r$) received on a forward
5   analog control channel.

6   **REGINCR$_s$** – Identifies increments between registrations by a mobile station.

7   **S$_s$** – Identifies whether the mobile station must send its serial number when accessing a
8   system.

9   **SCC$_s$** – A digital number that is stored and used to identify which SAT frequency a mobile
10   station should be receiving.

11   **SCM$_p$** – Station Class Mark. Defines mobile station parameters such as power class. See
12   Table 2.3.3-1.

13   **SDCC1$_s$** – The SDCC value stored in a mobile station's temporary memory.

14   **SDCC2$_s$** – The SDCC value stored in a mobile station's temporary memory.

15   **SID$_p$** – The home system identification stored in the mobile station's permanent security
16   and identification memory.

17   **SID$_{s-p}$** – Identifies the system of current (last successful) registration.

18   **SID$_r$** – The system identification received on a forward analog control channel.

19   **SID$_s$** – The stored system identification.

20   **SSD_A$_{s-p}$** – The 64 most significant bits of the Shared Secret Data. SSD_A$_{s-p}$ is used for
21   support of the authentication procedures.

22   **SSD_B$_{s-p}$** – The 64 least significant bits of the Shared Secret Data. SSD_B$_{s-p}$ is used only
23   in CDMA mode.

24   **WFOM$_s$** – Identifies whether a mobile station must wait for an Overhead Message Train
25   before accessing a system on a reverse analog control channel.

1.1.2.2 CDMA Numeric Information

1.1.2.2.1 Transmitted and Received Numeric Information

The following parameters, which appear as numeric fields in the messages exchanged by the base and mobile stations, control the operation of the CDMA system.

Each parameter definition includes the exact name of the parameter, the name spelled out, the length of the parameter in bits, an explanation of the parameter, and a list of the channel(s) and message(s) that carry the parameter. These definitions are provided for information only. See 6.7 and 7.7 for a description of the parameters for system operation.

ACC_CHAN – Number of Access Channels (5 bits). The number of Access Channels associated with the current Paging Channel is ACC_CHAN + 1. The range of ACC_CHAN is from 0 to 31.

   • Paging Channel: *Access Parameters Message*

ACC_MSG_SEQ – Access parameters message sequence number (6 bits). ACC_MSG_SEQ tells mobile stations if the *Access Parameters Message* sent by a particular base station has changed. In the *Access Parameters Message*, the value of ACC_MSG_SEQ increments by 1 whenever any field in the message changes. In the *Page Message* and the *Slotted Page Message*, ACC_MSG_SEQ equals the value of ACC_MSG_SEQ being transmitted in the current *Access Parameters Message*. If a mobile station receives a *Page Message* or a *Slotted Page Message* with an ACC_MSG_SEQ that does not match the ACC_MSG_SEQ of the last *Access Parameters Message* it received and stored, then the mobile station receives the current message and updates to the new parameters before accessing the system. See CONFIG_MSG_SEQ.

   • Paging Channel: *Access Parameters Message, Page Message,* and *Slotted Page Message*

ACCOLC – Overload class (4 bits). The mobile station sets this field to the access overload class assigned to the mobile station for each MIN.

   • Reverse Traffic Channel: *Status Message* (*MIN Information Record*)

ACC_TMO – Acknowledgement timeout (6 bits). The mobile station waits for ACC_TMO $\times$ 80 ms after the end of an Access Channel transmission before determining that the base station did not receive the transmission. ACC_TMO ranges from 2 through 63.

   • Paging Channel: *Access Parameters Message*

ACK_REQ – Acknowledgement required indicator (1 bit).   One of the layer 2 acknowledgement fields for signaling messages. Indicates if the sender of the message requires an acknowledgement (ACK_REQ set to '1') or not (ACK_REQ set to '0').

   • Paging Channel: *Channel Assignment Message, Mobile Station Directed Order Message, Data Burst Message, Authentication Challenge Message,* and *SSD Update Message*

   • Forward Traffic Channel: *All Messages*

   • Access Channel: *All Messages*

   • Reverse Traffic Channel: *All Messages*

1 **ACK_SEQ** – Acknowledgement sequence number (2 bits on the Paging Channel and the
2 Access Channel; 3 bits on the Traffic Channel). Specifies the most recently received
3 message requiring acknowledgement. On the Paging Channel and the Access Channel, this
4 field is only valid if the VALID_ACK field is set to '1'.

5 • Paging Channel: *Channel Assignment Message, Mobile Station Directed Order Message,*
6   *Data Burst Message, Authentication Challenge Message,* and *SSD Update Message*

7 • Forward Traffic Channel: *All Messages*

8 • Access Channel: *All Messages*

9 • Reverse Traffic Channel: *All Messages*

10 **ACTION_TIME** – Action time (6 bits). Specifies when the order or message will take effect;
11 specifically, beginning with the frame in which System Time, in units of 80 ms, modulo 64,
12 equals ACTION_TIME. Table 7.7.4-1 lists the orders for which ACTION_TIME can be
13 specified. See also USE_TIME.

14 • Forward Traffic Channel: *Order Message, Handoff Direction Message, Analog Handoff*
15   *Direction Message*

16 **ADD_DEL** – Add/Delete indicator (1 bit). Indicates whether the MIN following ADD_DEL in
17 the message is added (ADD_DEL set to '1') or deleted (ADD_DEL set to '0') from the list of
18 active MINs for the specified ESN.

19 • Access Channel: *Initial Registration Message* and *Registration Update Message*

20 **ADD_RECORD_LEN** – Additional record length (3 bits). Specifies the additional length in
21 octets of the order record in the message.

22 • Paging Channel: *Mobile Station Directed Order Message,* and *Channel Assignment*
23   *Message*

24 • Forward Traffic Channel: *Order Message*

25 • Access Channel: *Order Message*

26 • Reverse Traffic Channel: *Order Message*

27 **ALERT_PITCH** – The pitch of the alerting signal (2 bits). If SIGNAL_TYPE is '10'), the base
28 station sets this field as described in Table 7.7.5.5-3.

29 • Forward Traffic Channel: *Flash with Information Message (Signal Information Record)*

30 **ANALOG_CHAN** – Analog voice channel number (11 bits). See 2.1.1.1, Table 2.1.1.1-1.

31 • Paging Channel: *Channel Assignment Message*

32 • Forward Traffic Channel: *Analog Handoff Direction Message*

33 **ASSIGN_MODE** – Assignment mode (3 bits). Used in the *Channel Assignment Message* to
34 assign the mobile station to a Traffic Channel ('000'), to a Paging Channel ('001'), to the
35 Analog System ('010'), or to an Analog Voice Channel ('011'). The remaining fields of the
36 *Channel Assignment Message* vary depending on the value of ASSIGN_MODE and contain
37 only the specific information needed by the mobile station to implement the particular
38 assignment.

39 • Paging Channel: *Channel Assignment Message*

AUTH – Authentication mode (2 bits). If AUTH is equal to '00', authentication is disabled. If AUTH is equal to '01', authentication data are included in access channel messages where appropriate. All other values are reserved.

   • Paging Channel: *Access Parameters Message*

AUTHBS – Challenge response (18 bits). The challenge response computed by the base station.

   • Paging Channel: *Base Station Challenge Confirmation Order*

   • Forward Traffic Channel: *Base Station Challenge Confirmation Order*

AUTH_MIN1 – First part of the mobile identification number (MIN) (24 bits). The mobile station uses the MIN1 value supplied by the base station in the *Authentication Challenge Message*, and repeats it as AUTH_MIN1 in the *Authentication Challenge Response Message*.

   • Access Channel: *Authentication Challenge Response Message*

AUTH_MIN2 – Second part of the mobile identification number (MIN) (10 bits). The mobile station uses the MIN2 value supplied by the base station in the *Authentication Challenge Message*, and repeats it as AUTH_MIN2 in the *Authentication Challenge Response Message*.

   • Access Channel: *Authentication Challenge Response Message*

AUTH_MODE – Authentication mode (2 bits). This field is set to '00' if authentication information is not available or is not required. This field is set to '01' if authentication information is included. All other values are reserved.

   • Access Channel: *Initial Registration Message, Data Burst Message, Origination Message, Page Response Message,* and *Registration Update Message*

   • Reverse Traffic Channel: *Status Message*

AUTHR – Authentication data (18 bits). The standard authentication data value computed by the mobile station or base station.

   • Access Channel: *Initial Registration Message, Data Burst Message, Origination Message, Page Response Message,* and *Registration Update Message*

AUTHU – Authentication challenge response (18 bits). The value computed by the mobile station or base station in response to an authentication challenge.

   • Access Channel: *Authentication Challenge Response Message*

   • Reverse Traffic Channel: *Authentication Challenge Response Message*

BASE_CLASS – Base station class (4 bits). Indicates the type of service provided by the base station.

   • Paging Channel: *System Parameters Message*

BASE_ID – Base station identification (9 bits). Uniquely defines the base station within a registration zone.

   • Paging Channel: *System Parameters Message*

BASE_LAT – Base station latitude (22 bits). Expresses the base station's latitude as a 22-bit two's complement number in units of 1/4 second of North latitude.

   • Paging Channel: *System Parameters Message*

BASE_LONG – Base station longitude (23 bits). Expresses the base station's longitude as a 23-bit two's complement number in units of 1/4 second of East longitude.

  • Paging Channel: *System Parameters Message*

BKOFF – Access Channel backoff (4 bits). Indicates the range for Access Channel backoff between consecutive access probe sequences. The mobile station delays a random number of Access Channel slots ranging from 0 to (BKOFF + 1) before beginning the persistence tests for the following access probe sequence.

  • Paging Channel: *Access Parameters Message*

BKOFF_RSV – Reserved for future access sequence backoff values (4 bits). This field is reserved for future backoff values. The contained bits are set to '0' by the base station and are ignored by the mobile station.

  • Paging Channel: *Access Parameters Message*

BURST_TYPE – Data burst type (5 bits). This field is used to indicate what type of data burst is being transmitted.

  • Paging Channel: *Data Burst Message*

  • Forward Traffic Channel: *Data Burst Message*

  • Access Channel: *Data Burst Message*

  • Reverse Traffic Channel: *Data Burst Message*

CAI_REV – Common Air Interface revision level (8 bits). The CAI revision level supported by the base station. Systems complying with this version of the CAI specifications set this field to '0'.

  • Sync Channel: *Sync Channel Message*

CDMA_FREQ – CDMA Channel frequency assignment (11 bits). Contains the CDMA channel number corresponding to the CDMA frequency assignment for the CDMA Channel.

  • Paging Channel: *CDMA Channel List Message* and *Channel Assignment Message*

  • Forward Traffic Channel: *Handoff Direction Message*

CHARi – Character i (8 bits). An 8-bit data field, typically an ASCII value.

  • Paging Channel: *Data Burst Message*

  • Forward Traffic Channel: *Alert With Information Message*, *Data Burst Message,* and
      Flash With Information Message

  • Access Channel: *Origination Message* and *Data Burst Message*

  • Reverse Traffic Channel: *Flash With Information Message*, *Data Burst Message,* and
      Origination Continuation Message

CODE_CHAN – Code channel (8 bits). Indicates the code channel to use for the Paging Channel or for the Forward Traffic Channel.

  • Paging Channel: *Channel Assignment Message*

  • Forward Traffic Channel: *Handoff Direction Message*

CONFIG_MSG_SEQ – Configuration message sequence number (6 bits). CONFIG_MSG_SEQ tells mobile stations if the *System Parameters Message, Neighbor List*

1   *Message,* or the *CDMA Channel List Message* from a particular base station has changed.
2   In each of these messages, the value of CONFIG_MSG_SEQ increments by 1 when any field
3   in any of the three messages changes. In the *Page Message* and the *Slotted Page Message*,
4   CONFIG_MSG_SEQ equals the value of CONFIG_MSG_SEQ being transmitted in the three
5   current configuration messages. If a mobile station receives a *Page Message* or a *Slotted*
6   *Page Message* with a CONFIG_MSG_SEQ that does not match the CONFIG_MSG_SEQ of
7   the last of these three configuration messages it received and stored, then the mobile
8   station must receive the current messages and update to the new parameters before
9   accessing the system. See ACC_MSG_SEQ.

10   • Paging Channel: *System Parameters Message, Neighbor List Message, CDMA Channel*
11   *List Message, Page Message,* and *Slotted Page Message*

12   **COUNT** – Call history parameter (6 bits). This field is set by the base station.

13   • Access Channel: *Initial Registration Message, Data Burst Message, Origination Message,*
14   *Page Response Message,* and *Registration Update Message*

15   **DAYLT** – Daylight savings time indicator (1 bit). If DAYLT is set to '1', then daylight savings
16   time is in effect.

17   • Sync Channel: *Sync Channel Message*

18   **DIGITi** – DTMF digit i (4 bits or 8 bits). The representation of a dialed digit in a series of
19   dialed digits. The representation may use the 4-bit DTMF code shown in Table 6.7.1.3.2.4-
20   6 (when DIGIT_MODE is '1') or it may use an 8-bit ASCII representation (when
21   DIGIT_MODE is '0').

22   • Forward Traffic Channel: *Send Burst DTMF Message*

23   • Reverse Traffic Channel: *Send Burst DTMF Message*

24   **DIGIT_MODE** – Digit mode indicator (1 bit). This field indicates whether the dialed digits
25   are represented as 4-bit DTMF codes or as 8-bit ASCII characters.

26   • Access Channel: *Origination Message*

27   • Reverse Traffic Channel: *Origination Continuation Message*

28   **DTMF_OFF_LENGTH** – DTMF interdigit interval code (3 bits). The base station sets this
29   field to the DTMF_OFF_LENGTH value corresponding to the requested minimum interdigit
30   interval between DTMF pulses to be generated by the mobile station.

31   • Forward Traffic Channel: *Send Burst DTMF Message*

32   • Reverse Traffic Channel: *Send Burst DTMF Message*

33   **DTMF_ON_LENGTH** – DTMF pulse width code (3 bits). The base station sets this field to
34   the DTMF_ON_LENGTH value corresponding to the requested pulse width of the DTMF
35   pulse to be generated by the mobile station.

36   • Forward Traffic Channel: *Send Burst DTMF Message*

37   • Reverse Traffic Channel: *Send Burst DTMF Message*

38   **ENCRYPTED** – Message encryption indicator (1 bit). If the value of ENCRYPTED is equal to
39   '0', the entire contents of the message are not encrypted. If the value of ENCRYPTED is
40   equal to '1', all the remaining octets of the message body (after the following RESERVED

1 field, but not including the message CRC) are encrypted using the encryption scheme
2 currently enabled for the call.

3   • Forward Traffic Channel: *Order Message, Alert with Information Message, Data Burst*
4   *Message, Send Burst DTMF Message, Retrieve Parameters Message, Set Parameters*
5   *Message,* and *Flash with Information Message*

6   • Reverse Traffic Channel: *Order Message, Flash with Information Message, Data Burst*
7   *Message, Send Burst DTMF Message, Origination Continuation Message,* and
8   *Parameters Response Message*

9 **ENCRYPT_MODE** – Message encryption mode (4 bits). When set to '0000', encryption is
10 disabled, and all messages sent on the Forward and Reverse Traffic Channels are
11 unencrypted. When set to '0001', standard (CMEA) encryption is enabled, and messages
12 are encrypted as specified in 6.3.12.2. All other values are reserved.

13   • Paging Channel: *Channel Assignment Message*

14   • Forward Traffic Channel: *Handoff Direction Message*

15   • Reverse Traffic Channel: *Status Message* (*Security Status Information Record*)

16 **ERRORS_DETECTED** – Number of frame errors detected (5 bits). Total number of Forward
17 Traffic Channel frame quality errors detected in the measurement period.

18   • Reverse Traffic Channel: *Power Measurement Report Message*

19 **ESN** – Mobile station's electronic serial number (32 bits). The mobile station's electronic
20 serial number.

21   • Paging Channel: *Channel Assignment Message, Mobile Station Directed Order Message,*
22   *Data Burst Message, Authentication Challenge Message,* and *SSD Update Message*

23   • Access Channel: *All Messages*

24   • Reverse Traffic Channel: *Status Message*

25 **EXT_ADDR** – Extra address indicator (1 bit). When '1', specifies that both MIN1 and MIN2
26 are contained in the message record. When '0', specifies that only MIN1 is contained in the
27 message record.

28   • Paging Channel: *Page Message, Slotted Page Message*

29   • Forward Traffic Channel: *Order Message*

30 **FEATURE** – Feature identifier (4 bits). This field identifies the supplementary service or
31 feature to be invoked. Definition of the values for this field is left to the manufacturers and
32 system operators.

33   • Reverse Traffic Channel: *Flash With Information Message* (*Feature Indicator Information*
34   *Record*)

35 **FOR_NID_REG** – NID roamer registration indicator (1 bit). Used by the base station to
36 make foreign NID roaming mobile stations register. Setting this field to '1' makes a mobile
37 station enable itself for class C registration if it 1) has a SID entry in a home (SID, NID) pair
38 that matches the current base station's SID, but 2) does not have a home (SID, NID) pair
39 that matches the current base station's (SID, NID) pair.

40   • Paging Channel: *System Parameters Message*

1 **FOR_SID_REG** – SID roamer registration indicator (1 bit). Used by the base station to
2 make foreign SID roaming mobile stations register. Setting this field to '1' makes a mobile
3 station enable itself for class C registration if it does not have a home (SID, NID) pair with a
4 SID that matches the base station's SID.

5   • Paging Channel: *System Parameters Message*

6 **FRAME_OFFSET** – Frame offset (4 bits). Gives the amount that Forward Traffic Channel
7 and Reverse Traffic Channel frames are delayed relative to normal system timing, in units
8 of 1.25 ms.

9   • Paging Channel: *Channel Assignment Message*

10   • Forward Traffic Channel: *Handoff Direction Message*

11 **FREQ_INCL** – Frequency included indicator (1 bit). Indicates if the message includes a
12 CDMA frequency assignment for the mobile station. Setting FREQ_INCL to '0' indicates
13 that the message does not contain a CDMA frequency assignment; setting it to '1' indicates
14 that the message contains a CDMA frequency assignment. FREQ_INCL is set to '0' for
15 assignments that do not change the CDMA frequency assignment.

16   • Paging Channel: *Channel Assignment Message*

17   • Forward Traffic Channel: *Handoff Direction Message*

18 **HDM_SEQ** – *Handoff Direction Message* layer 3 sequence number (2 bits). The mobile
19 station echoes the sequence number from the *Handoff Direction Message* that determined
20 the current Active Set when it transmits a *Power Measurement Message*, to identify the
21 order in which the reported pilot strengths are sent.

22   • Forward Traffic Channel: *Handoff Direction Message*

23 **HOME_REG** – Home registration indicator (1 bit). When this field equals '1', a mobile
24 station that has a SID that matches the received SID is enabled for autonomous
25 registration.

26   • Paging Channel: *System Parameters Message*

27 **HOME_SID** – Home system identification (15 bits). Identifies the home system for a given
28 MIN supported by the mobile station.

29   • Access Channel: *Initial Registration Message* and *Registration Update Message*

30   • Reverse Traffic Channel: *Status Message*

31 **INIT_PWR** – Initial power offset for access (6 bits). Tells the mobile station the initial power
32 offset to use for system access. This correction factor is used in the open loop power
33 estimate for the initial mobile station transmission on an Access Channel (see 6.1.2.3.1).
34 This field is a two's-complement binary encoding. The power offset equals $0.5 \times$ INIT_PWR
35 (dB).

36   • Paging Channel: *Access Parameters Message*

37 **KEEP** – Keep pilot indicator (1 bit). The mobile sets this field to '0' if the pilot's strength has
38 not exceeded T_DROP in the last T_TDROP seconds and to '1' otherwise.

39   • Reverse Traffic Channel: *Pilot Strength Measurement Message*

LAST_HDM_SEQ – *Handoff Direction Message* sequence number (2 bits). If a *Handoff Direction Message* has been received during this call, the mobile station sets this field to the value of the HDM_SEQ field from the *Handoff Direction Message* that determined the current Active Set.   If no *Handoff Direction Message* has been received during this call, the mobile station sets this field to '11'.

  • Reverse Traffic Channel: *Power Measurement Report Message* and *Handoff Completion Message*

LC_STATE – Long code state (42 bits). Tells the mobile station the system long code state four superframes (320 ms) after the end of the last superframe containing the current *Sync Channel Message*, minus the pilot offset.

  • Sync Channel: *Sync Channel Message*

LOCAL_CTRL – Local control indicator (1 bit). If local control is enabled, the mobile station sets this field to '1'. If local control is disabled, the mobile station sets this field to '0'.

  • Reverse Traffic Channel: *Status Message* (*Terminal Information Record*)

LP_SEC – The number of leap seconds that have occurred since the start of System Time (8 bits). Refer to 1.3. The current local time of day is equal to SYS_TIME + LP_SEC + LTM_OFF.

  • Sync Channel: *Sync Channel Message*

LTM_OFF – Offset of local time from System Time (6 bits). Tells the mobile station the two's complement offset of local time from System Time in 30-minute increments.

  • Sync Channel: *Sync Channel Message*

MAX_CAP_SZ – Maximum Access Channel message capsule size (3 bits). The maximum length of an Access Channel message capsule is MAX_CAP_SZ + 3 Access Channel frames (range 3-10).

  • Paging Channel: *Access Parameters Message*

MAX_REQ_SEQ – Maximum number of access probe sequences for an Access Channel request (4 bits). The base station sets this field to the maximum number of access probe sequences the mobile station is to transmit for an Access Channel request. The base station sets this field to a value greater than 0.

  • Paging Channel: *Access Parameters Message*

MAX_RSP_SEQ – Maximum number of access probe sequences for an Access Channel response (4 bits). The base station sets this field to the maximum number of access probe sequences the mobile station is to transmit for an Access Channel request. The base station sets this field to a value greater than 0.

  • Paging Channel: *Access Parameters Message*

MEM – Message encryption mode (1 bit). When set to '0', encryption of messages on the analog voice channels is disabled. When set to '1', analog message encryption is enabled.

  • Paging Channel: *Channel Assignment Message*

  • Forward Traffic Channel: *Analog Handoff Direction Message*

MIN1 – First part of the mobile identification number (MIN) (24 bits). MIN1 is a compact form of the least-significant seven digits of the 10-digit directory telephone number assigned to a mobile station.

   • Paging Channel: *Data Burst Message, Page Message, Slotted Page Message,*
      Authentication Challenge Message, and *SSD Update Message*

   • Forward Traffic Channel: *Data Burst Message* and *Order Message*

   • Access Channel: *Initial Registration Message, Data Burst Message, Origination Message,*
      Page Response Message, and *Registration Update Message*

   • Reverse Traffic Channel: *Data Burst Message* and *Status Message*

MIN2 – Second part of the mobile identification number (MIN) (10 bits). MIN2 is a compact form of the most-significant three digits of the 10-digit directory telephone number assigned to a mobile station.

   • Paging Channel: *Data Burst Message, Page Message, Slotted Page Message,*
      Authentication Challenge Message, and *SSD Update Message*

   • Forward Traffic Channel: *Data Burst Message* and *Order Message*

   • Access Channel: *Initial Registration Message, Data Burst Message, Origination Message,*
      Page Response Message, and *Registration Update Message*

   • Reverse Traffic Channel: *Data Burst Message, Status Message*

MIN_CAI_REV – Minimum Common Air Interface revision level (8 bits).   Gives the minimum CAI revision level that mobile stations must support to access the system.

   • Sync Channel: *Sync Channel Message*

MOB_CAI_REV – Mobile Station Common Air Interface revision level (8 bits). Gives the CAI revision level supported by the mobile station.

   • Access Channel: *Initial Registration Message*

MOB_FIRM_REV – Firmware revision level (16 bits). Gives the version number of the mobile station's firmware (assigned by the manufacturer).

   • Reverse Traffic Channel: *Status Message*

MOB_MFG_CODE – Manufacturer code (8 bits). Manufacturer code identifying the manufacturer of the mobile station.

   • Reverse Traffic Channel: *Status Message (Terminal Information Record)*

MOB_MODEL – Model number (8 bits). Gives the model number of the mobile station (assigned by the manufacturer).

   • Reverse Traffic Channel: *Status Message (Terminal Information Record)*

MOB_TERM – Mobile terminated calls accepted indicator (1 bit). If the mobile station is configured to receive mobile station terminated calls for a given MIN, the mobile station sets this field to '1'. Otherwise, the mobile station sets this field to '0'.

   • Reverse Traffic Channel: *Status Message (Identification Record)*

MOB_TERM_HOME – Home registration enable indicator (1 bit). If the mobile station is configured to receive mobile station terminated calls when using a home (SID, NID) pair, the mobile station sets this field to '1'. Otherwise, the mobile station sets this field to '0'.

1   • Reverse Traffic Channel: *Status Message (MIN Information Record)*

2   **MOB_TERM_FOR_SID** – Foreign SID roaming registration enable indicator (1 bit). If the
3   mobile is configured to receive mobile station terminated calls when it is a foreign SID
4   roamer, the mobile station sets this field to '1'. Otherwise, the mobile station sets this field
5   to '0'.

6   • Reverse Traffic Channel: *Status Message (MIN Information Record)*

7   **MOB_TERM_FOR_NID** – Foreign NID roaming registration enable indicator (1 bit). If the
8   mobile is configured to receive mobile station terminated calls when it is a foreign NID
9   roamer, the mobile station sets this field to '1'. Otherwise, the mobile station sets this field
10   to '0'.

11   • Reverse Traffic Channel: *Status Message (MIN Information Record)*

12   **MORE_FIELDS** – More dialed digits indicator (1 bit). This field indicates whether additional
13   dialed digits will be sent in a later *Origination Continuation Message.* If all dialed digits fit in
14   the *Origination Message*, the mobile station sets this field to '0'. If not, the mobile station
15   sets this field to '1'.

16   • Access Channel: *Origination Message*

17   **MORE_MINS** – More MINs to follow indicator (1 bit). The mobile station sets this field to '1
18   to indicate that it has additional MINs to send in a subsequent *Registration Update*
19   *Message.*

20   • Access Channel: *Initial Registration Message, Registration Update Message*

21   **MORE_PAGES** – More slotted pages to follow indicator (1 bit). Indicates, when set to '1',
22   that additional slotted messages for this Paging Channel slot will follow in this slot.
23   Indicates, when set to '0', that this is the last message to be sent to a mobile station
24   operating in the slotted mode that is active in this Paging Channel slot.

25   • Paging Channel: *Slotted Page Message*

26   **MSG_COUNT** – Number of waiting messages (8 bits). The number of waiting messages.
27   The base station sets this field to the number of messages waiting for this MIN.

28   • Paging Channel: *Message Waiting Order*

29   • Forward Traffic Channel: *Message Waiting Order*

30   **MSG_LENGTH** – Message length (8 bits). Precedes, but does not appear in, every message
31   body. MSG_LENGTH indicates the complete length, in octets, of the entire message,
32   including the MSG_LENGTH field, the message body, and the CRC.

33   • All Channels: *All Messages*

34   **MSG_NUMBER** – Message number (8 bits). Gives the number of the current message in the
35   data burst stream.

36   • Paging Channel: *Data Burst Message*

37   • Forward Traffic Channel: *Data Burst Message*

38   • Access Channel: *Data Burst Message*

39   • Reverse Traffic Channel: *Data Burst Message*

MSG_PSIST – Persistence modifier for Access Channel attempts for message transmissions (3 bits). The mobile station multiplies its transmission probability by $2^{-\text{MSG\_PSIST}}$ for such attempts.

   • Paging Channel: *Access Parameters Message*

MSG_SEQ – Message sequence number (2 bits in the Paging Channel and Access Channel messages; 3 bits in the Forward Traffic Channel and Reverse Traffic Channel messages). Different sequence numbers are used on each channel, and different sequence numbers are used for messages requiring acknowledgement and messages not requiring acknowledgement.

   • Paging Channel: *Channel Assignment Message, Mobile Station Directed Order Message, Data Burst Message, Page Message Slotted Page Message, Authentication Challenge Message,* and *SSD Update Message*
   • Forward Traffic Channel: *All Messages*
   • Access Channel: *All Messages*
   • Reverse Traffic Channel: *All Messages*

MSG_TYPE – Message type (8 bits). Appears as the first field in each message body; identifies the message type to the recipient.

   • Sync Channel: *All Messages*
   • Paging Channel: *All Messages* except *Null Message*
   • Forward Traffic Channel: *All Messages*
   • Access Channel: *All Messages*
   • Reverse Traffic Channel: *All Messages*

MUX_OPTION – Multiplex option for this call (8 bits). Tells the base station the special frame format or set of multiplex rules to use for this call. See SPECIAL_MUX.

   • Access Channel: *Origination Message*

NGHBR_CONFIG – Neighbor configuration (3 bits). This field, repeated for each neighboring base station, specifies the configuration of that neighbor and the action the mobile station takes when performing an idle handoff to that neighbor.

   • Paging Channel: *Neighbor List Message*

NGHBR_MAX_AGE – Neighbor Set maximum age (4 bits). The maximum Neighbor Set member age for retention. A Neighbor Set member whose AGE count exceeds this value will be dropped from the Neighbor Set.

   • Paging Channel: *System Parameters Message*
   • Forward Traffic Channel: *In-Traffic System Parameters Message*

NGHBR_PN – Neighbor pilot PN sequence offset (9 bits). This field, repeated for each neighboring base station, specifies the offset of that neighbor's pilot PN sequence relative to the zero shift pilot. The value is in units of 64 PN chips.

   • Paging Channel: *Neighbor List Message*
   • Forward Traffic Channel: *Neighbor List Update Message*

1   **NID** – Network identification (16 bits). Identifies a subpart of an SID system, defined by the
2   owner of the system. The public cellular system uses a NID of '0'.

3   • Sync Channel: *Sync Channel Message*

4   • Paging Channel: *System Parameters Message*

5   • Forward Traffic Channel: *In-Traffic System Parameters Message*

6   • Reverse Traffic Channel: *Status Message*

7   **NOM_PWR** – Nominal transmit power offset (8 bits). Specifies the nominal transmit power
8   offset for mobile station transmission on a Reverse CDMA Channel, in units of 0.5dB. This
9   correction factor is used in the open loop power estimate (see 6.1.2.3.1). NOM_PWR is a
10   two's complement binary encoding.

11   • Paging Channel: *Access Parameters Message*

12   **NUM_DIGITS** – Number of DTMF digits (8 bits). Indicates the number of digits in the DTMF
13   burst.

14   • Forward Traffic Channel: *Send Burst DTMF Message*

15   • Reverse Traffic Channel: *Send Burst DTMF Message*

16   **NUM_FIELDS** – Number of characters in this message (8 bits). Indicates the number of
17   CHARi fields in the message.

18   • Paging Channel: *Data Burst Message*

19   • Forward Traffic Channel: *Data Burst Message*

20   • Access Channel: *Origination Message* and *Data Burst Message*

21   • Reverse Traffic Channel: *Data Burst Message* and *Origination Continuation Message*

22   **NUM_MSGS** – Number of messages in the data burst stream (8 bits). Indicates the number
23   of messages in the data burst stream.

24   • Paging Channel: *Data Burst Message*

25   • Forward Traffic Channel: *Data Burst Message*

26   • Access Channel: *Data Burst Message*

27   • Reverse Traffic Channel: *Data Burst Message*

28   **NUM_PILOTS** – Number of pilots reported (4 bits). Indicates the number of pilots included
29   in the message.

30   • Reverse Traffic Channel: *Power Measurement Report Message* and *Handoff Completion*
31   *Message*

32   **NUM_STEP** – Number of access probes (4 bits). The maximum number of probes in an
33   access probe sequence is NUM_STEP + 1 (range from 1-16). The mobile station transmits
34   all NUM_STEP +1 access probes in an access probe sequence unless an acknowledgement
35   is received from the base station.

36   • Paging Channel: *Access Parameters Message*

37   **NUMBER_PLAN** – Numbering plan (4 bits). Indicates the numbering plan used for the
38   number, as defined in ANSI T1.607 §4.5.9.

39   • Access Channel: *Origination Message*

1   • Forward Traffic Channel: *Alert With Information Message*, *Origination Message,* and
2   *Flash With Information Message*

3   • Reverse Traffic Channel: *Flash with Information Message*

4 **NUMBER_TYPE** – Type of number (3 bits). Identifies the type of the number as defined in
5 ANSI T1.607 §4.5.9.

6   • Access Channel: *Origination Message*

7   • Forward Traffic Channel: *Alert With Information Message*, *Origination Message,* and
8   *Flash With Information Message*

9   • Reverse Traffic Channel: *Flash with Information Message*

10 **ORDER** – Order code (6 bits). Specifies the type of the order carried in the order message.
11 Table 6.7.3-1 lists the Access Channel and Reverse Traffic Channel orders; Table 7.7.4-1
12 lists the Paging Channel and Forward Traffic Channel orders.

13   • Paging Channel: *Mobile Station Directed Order Message*

14   • Forward Traffic Channel: *Order Message*

15   • Access Channel: *Order Message*

16   • Reverse Traffic Channel: *Order Message*

17 **ORDQ** – Order qualification code (8 bits). Qualifies an order to a specific action. Table
18 6.7.3-1 lists the Access Channel and Reverse Traffic Channel orders and order qualification
19 codes; Table 7.7.4-1 lists the Paging Channel and Forward Traffic Channel orders and order
20 qualification codes.

21   • Paging Channel: *Mobile Station Directed Order Message*

22   • Forward Traffic Channel: *Order Message*

23   • Access Channel: *Order Message*

24   • Reverse Traffic Channel: *Order Message*

25 **ORIG_MODE** – Origination mode indicator (1 bit). If the current call is a mobile-originated
26 call, the mobile station sets this field to '0'. If the current call is a mobile-terminated call,
27 the mobile station sets this field to '1'.

28   • Reverse Traffic Channel: *Status Message (Call Mode Information Record)*

29 **PAGE_CHAN** – Number of Paging Channels (3 bits). Indicates the number of Paging
30 Channels on this CDMA Channel.   This field is never set to '000'.

31   • Paging Channel: *System Parameters Message*

32 **PAM_SZ** – Access Channel preamble length (4 bits). The Access Channel preamble length
33 is 1+PAM_SZ Access Channel frames (range 1-16).

34   • Paging Channel: *Access Parameters Message*

35 **PARAMETER** – Parameter value (PARAMETER_LEN + 1 bits). Gives the value to set the
36 parameter or gives the value of the returned parameter. Table E-1 lists the settable and
37 retrievable parameters.

38   • Forward Traffic Channel: *Set Parameters Message*

39   • Reverse Traffic Channel: *Parameters Response Message*

1 **PARAMETER_ID** – Parameter identification (16 bits). Identifies the parameter to be set, the
2 parameter to be retrieved, or the parameter being returned. Table E-1 lists the settable and
3 retrievable parameters.

4   • Forward Traffic Channel: *Set Parameters Message, Retrieve Parameters Message*

5   • Reverse Traffic Channel: *Parameters Response Message*

6 **PARAMETER_LEN** – Parameter length (10 bits). Gives the length in bits minus 1 of the
7 parameter to be set or the parameter being returned (i.e., the length of the PARAMETER
8 field). Table E-1 lists the lengths of the settable and retrievable parameters.

9   • Forward Traffic Channel: *Set Parameters Message*

10   • Reverse Traffic Channel: *Parameters Response Message*

11 **PARAMETER_REG** – Parameter-change registration indicator (1 bit). Used by the base
12 station to make mobile stations register when they add or delete a MIN, or when they
13 change their SLOT_CYCLE_INDEX, DIG_ONLY preference, or home SID. Setting this field
14 set to '1' makes a mobile station register whenever it changes a parameter.

15   • Paging Channel: *System Parameters Message*

16 **PI** – Presentation indicator (2 bits). This field indicates whether or not the calling number
17 should be displayed as defined in ANSI T1.607 §4.5.9.

18   • Forward Traffic Channel: *Alert with Information Message* and *Flash with Information*
19   *Message (Calling Party Number Information Record)*

20   • Reverse Traffic Channel: *Flash with Information Message*

21 **PILOT_INC** – Pilot index increment (4 bits). Gives the pilot PN sequence spacing between
22 Pilot Channels for the base station's neighbors, in units of 64 PN chips. The mobile station
23 searches for Remaining Set members at multiples of PILOT_INC.

24   • Paging Channel: *Neighbor List Message*

25   • Forward Traffic Channel: *Neighbor List Update Message*

26 **PILOT_PN** – Pilot PN sequence offset index (9 bits). Gives the offset, in units of 64 PN
27 chips, of the pilot PN sequence from the zero offset pilot PN sequence for this base station
28 (see 7.1.3.2.1).

29   • Sync Channel: *Sync Channel Message*

30   • Paging Channel: *System Parameters Message, Access Parameters Message, Neighbor List*
31   *Message,* and *CDMA Channel List Message*

32   • Forward Traffic Channel: *Handoff Direction Message*

33   • Reverse Traffic Channel: *Handoff Completion Message*

34 **PILOT_PN_PHASE** – Pilot measured phase (15 bits). Gives the received phase of a pilot PN
35 sequence relative to the zero offset pilot PN sequence in units of one PN chip (see6.6.6.2.2).

36   • Reverse Traffic Channel: *Pilot Strength Measurement Message*

37 **PILOT_STRENGTH** – Pilot strength (6 bits). The mobile station sets this field to the
38 strength of the pilot used by the mobile station to derive its time reference, expressed as
39 specified in 6.6.6.2.2.

1   • Reverse Traffic Channel: *Pilot Strength Measurement Message* and *Power Measurement*
2   *Report Message.*

3   **POWER_DOWN_REG** – Power-down registration indicator (1 bit). Used by the base station
4   to make mobile stations register before powering down. Setting this field set to '1' makes a
5   mobile station enabled for class C registration register just before it powers down (see
6   6.6.5.1.2).

7   • Paging Channel: *System Parameters Message*

8   **POWER_UP_REG** – Power-up registration indicator (1 bit). Used by the base station to
9   make mobile stations register on power-up. Setting this field to '1' makes a mobile station
10 enabled for class C registration register after it powers on and receives the system overhead
11 messages. In addition, when this field is set to '1' the mobile station enabled for class C
12 registration registers immediately after switching from using the analog system or the
13 alternate serving system (see 6.6.5.1.1).

14   • Paging Channel: *System Parameters Message*

15 **PRAT** – Paging Channel data rate (3 bits). Defines the data rate used on all Paging
16 Channels in this system.

17   • Sync Channel: *Sync Channel Message*

18 **PRIVATE_LCM** – Private long code mask indicator (1 bit). When set to '0', the mobile uses
19 the public long code after handoff. When set to '1', the mobile uses the private long code
20 after handoff. For soft handoffs, this field is set according to the long code mask in use
21 prior to the handoff. For hard handoffs, this field is set according to the mask that will be
22 used by the new base station. The field is never set to '1' unless the mobile station was
23 using the private long code prior to the handoff.

24   • Reverse Traffic Channel: *Status Message*

25   • Forward Traffic Channel: *Handoff Direction Message (Security Status Information Record)*

26 **PRI_SERVICE** – Primary service option (8 bits). The mobile station sets this field to the
27 value corresponding to the current primary service option.

28   • Reverse Traffic Channel: *Status Message (Call Mode Information Record)*

29 **PROBE_BKOFF** – Access Channel probe backoff (4 bits). Indicates the range for Access
30 Channel backoff between consecutive access probe transmissions.   After the
31 acknowledgement timeout has expired, the mobile station delays a random number of
32 Access Channel slots ranging from 0 to (PROBE_BKOFF + 1) before transmitting another
33 Access Channel probe.

34   • Paging Channel: *Access Parameters Message*

35 **PROBE_BKOFF_RSV** – Reserved for future access probe backoff values (4 bits). These bits
36 are set to '0' by the base station and are ignored by the mobile station.

37   • Paging Channel: *Access Parameters Message*

38 **PROBE_PN_RAN** – Time randomization for Access Channel probes (4 bits). Used by the
39 mobile station to calculate the number RN before each Access Channel probe. The mobile
40 station delays its transmission from System Time by RN chips, where RN is a number

determined by hashing between 0 and $2^{PROBE\_PN\_RAN}-1$ chips (see 6.6.7.1). PROBE_PN_RAN ranges from 0 through 9.

• Paging Channel: *Access Parameters Message*

PSIST(0-9), PSIST(10), PSIST(11), PSIST(12), PSIST(13), PSIST(14), PSIST(15) – Persistence value for access overload classes 0 through 9 (6 bits for PSIST[0-9], 3 bits each for all other PSIST fields). The persistence parameters limit the rate of Access Channel request transmissions during overload conditions. (Access Channel response transmissions are not limited by persistence.) The single parameter PSIST(0-9) corresponds to mobile station overload classes 0-9 (normal subscribers), PSIST(10) corresponds to mobile station overload class 10 (test mobile stations), and PSIST(11) to overload class 11 (emergency mobile stations). PSIST(12), PSIST(13), PSIST(14), and PSIST(15) are reserved. Each mobile station calculates the probability of transmitting in a slot by using the appropriate PSIST parameter. Registration request transmissions are further limited by including the registration persistence parameter REG_PSIST in the transmission probability calculation.

• Paging Channel: *Access Parameters Message*

PWR_COMB_IND – Power control symbol combining indicator (1 bit). If the power control bits for this pilot are to be soft combined with those for the previous pilot the base station sets this field to'1'. Otherwise, the base station sets this field to '0'. The base station sets this field of the first pilot to '0'.

• Forward Traffic Channel: *Handoff Direction Message*

PWR_MEAS_FRAMES – The number of Forward Traffic Channel frames in the frame quality error measurement period (10 bits). The mobile station sets this field to the number of Forward Traffic Channel frames in the measurement period. The mobile station sets this field to the number of Forward Traffic Channel frames in the measurement period (see 6.6.4.1.1.*2*).

• Reverse Traffic Channel: *Power Measurement Report Message*

PWR_REP_DELAY – Power report delay (4 bits). Following the transmission of an autonomous *Power Measurement Report Message*, the mobile station disables power control related frame counting for a period of PWR_REP_DELAY $\times$ 4 frames.

• Paging Channel: *System Parameters Message*

• Forward Traffic Channel: *Power Control Parameters Message*

PWR_REP_FRAMES – Number of Forward Traffic Channel frames in a measurement period (4 bits). Used by the mobile station to calculate the number of Forward Traffic Channel frames over which it will count frame quality errors (see 6.6.4.1.1.3).

• Paging Channel: *System Parameters Message*

• Forward Traffic Channel: *Power Control Parameters Message*

PWR_REP_MODE – Power report mode (1 bit). When this field is set to '1', the mobile station issues a periodic *Power Measurement Report Message*. If this field is set to '0' the mobile station issues a *Power Measurement Report Message* only if PWR_REP_THRESH frame errors are detected within the measurement period.

1 • Paging Channel: *System Parameters Message*

2 • Forward Traffic Channel: *Power Control Parameters Message*

3 **PWR_REP_THRESH** – Report frame error threshold (5 bits). The number of Forward Traffic
4 Channel frame errors (see 6.6.4.1.1.3) that the mobile station detects before sending a
5 *Power Measurement Report Message* to the base station. The mobile station does not
6 generate reports if the value is '11111'.

7 • Paging Channel: *System Parameters Message*

8 • Forward Traffic Channel: *Power Control Parameters Message*

9 **PWR_STEP** – Power increment (4 bits). Gives the incremental transmit power increase
10 applied by the mobile station to successive access probes in an access probe sequence, in
11 units of 0.5 dB.

12 • Paging Channel: *Access Parameters Message*

13 **RAND** – Random challenge value (0 or 32 bits). Random challenge memory value to be
14 stored by the mobile station for use in authentication data calculation.

15 • Paging Channel: *Access Parameters Message*

16 **RANDBS** – Random challenge data (32 bits). The random challenge data to be used for the
17 computation of AUTHBS.

18 • Reverse Traffic Channel: *Order Message (Base Station Challenge Order)*

19 **RANDC** – Random challenge value (8 bits). The eight most significant bits of RAND, as
20 used for the computation of AUTHR.

21 • Access Channel: *Initial Registration Message, Data Burst Message, Origination Message,*
22 *Page Response Message,* and *Registration Update Message*

23 **RANDSSD** – Random data for the computation of SSD (56 bits). Random data used for the
24 computation of SSD by the mobile station and HLR.

25 • Paging Channel: *SSD Update Message*

26 • Forward Traffic Channel: *SSD Update Message*

27 **RANDU** – Random challenge data (24 bits). The base station sets this field as specified in
28 6.3.12.

29 • Paging Channel: *Authentication Challenge Message*

30 • Forward Traffic Channel: *Authentication Challenge Message*

31 **RECORD_LEN** – Information record length (6 bits). Set to the number of octets contained
32 in the type-specific fields.

33 • Forward Traffic Channel: *Alert With Information Message* and *Flash With Information*
34 *Message*

35 • Reverse Traffic Channel: *Flash With Information Message* and *Status Message*

36 **RECORD_TYPE** – Information record type (8 bits). Values for information record types
37 transmitted by the mobile station are given in Table 6.7.4-1. Values for information record
38 types transmitted by the base station are given in Table 7.7.5-1.

1   • Forward Traffic Channel: *Alert With Information Message* and *Flash With Information*
2   *Message*

3   • Reverse Traffic Channel: *Flash With Information Message* and *Status Message*

4 **REF_PN** – Time reference offset (9 bits). Gives the offset of the reference pilot PN sequence
5 relative to the zero offset pilot PN sequence in units of 64 chips.

6   • Reverse Traffic Channel: *Pilot Strength Measurement Message*

7 **REG_DIST** – Registration distance (11 bits). Expresses the registration distance as an
8 11-bit unsigned number. A zero value denotes that distance-based registration is disabled.
9 If class C registration is enabled, a mobile station distance registers whenever it moves
10 more than a minimum distance calculated by using the latitude and longitude values of the
11 current base station and the last base station of registration.

12   • Paging Channel: *System Parameters Message*

13 **REG_PRD** – Registration period (7 bits). Indicates the value for mobile station timer-based
14 registration count overflow. When REG_PRD is set to '0', timer-based registration is
15 disabled. Valid values for REG_PRD while timer-based registration is enabled range from
16 decimal 16 to 80. If no other events cause the timer to be reset and REG_PRD is not '0', the
17 interval between timeouts is $\lfloor 2^{\mathrm{REG\_PRD}/4} \rfloor \times 0.2$ second.

18   • Paging Channel: *System Parameters Message*

19 **REG_PSIST** – Persistence modifier for Access Channel attempts for message transmissions
20 (3 bits). Gives an additional persistence value that the mobile station uses when it
21 calculates the transmission probability for a registration access attempt. (See the definition
22 of the PSIST field for more information.)

23   • Paging Channel: *Access Parameters Message*

24 **REG_TYPE** – Registration type (4 bits). Indicates the action (such as power-up, registration
25 zone change, or power down) that prompted the mobile station to register.

26   • Access Channel: *Initial Registration Message* and *Registration Update Message*

27 **REG_ZONE** – Registration zone (12 bits). Identifies the registration zone for the base
28 station.

29   • Paging Channel: *System Parameters Message*

30 **REQUEST_MODE** – Requested mode code (3 bits). Specifies the mode (e.g., CDMA only,
31 analog only, CDMA or analog) requested by the mobile station, as shown in Table
32 6.7.1.3.2.4-1.

33   • Access Channel: *Origination Message*

34 **RESCAN** – Rescan indicator (1 bit). When this field is set to '1' all mobile stations re-
35 initialize and re-acquire the system from the Pilot Channel by entering the *Pilot Channel*
36 *Acquisition Substate* of the *Mobile Initialization State* utilizing the Primary CDMA Channel.

37   • Paging Channel: *System Parameters Message*

38 **RESERVED** – Reserved (0-7 bits). Reserved bits are added as needed to make the length of
39 the entire message equal to an integer number of octets. Reserved bits are also included in

specific places in various messages for purposes of consistency and for future expansion. All reserved bits are set to zero.

  • All Channels (except Pilot): *All Messages*

RESET_L2 – Reset layer 2 indicator (1 bit). If this field is set to '1', the mobile station resets its layer 2 sequence numbers on executing the handoff.

  • Forward Traffic Channel: *Handoff Direction Message*

RESPOND – Respond on analog control channel indicator (1 bit). The base station sets this field to '1' to indicate that the mobile station is to respond on the analog control channel after processing the channel assignment, rather than waiting for an analog page.

  • Paging Channel: *Channel Assignment Message*

SCC – SAT color code (2 bits). Indicates the supervisory audio tone associated with the designated voice channel.

  • Paging Channel: *Channel Assignment Message*

  • Forward Traffic Channel: *Analog Handoff Direction Message*

SCM – Station class mark (8 bits). Gives the SCM of the mobile station. The SCM is defined in 2.3.3.

  • Access Channel: *Initial Registration Message, Page Response Message, Origination*
      Message, and *Registration Update Message*

  • Reverse Traffic Channel: *Status Message (Terminal Information Record)*

SEC_SERVICE – Secondary service option (8 bits). The mobile station sets this field to the corresponding to the current secondary service option. If no secondary service option is active, the mobile station sets this field to '00000000'.

  • Reverse Traffic Channel: *Status Message (Call Mode Information Record)*

SERVICE_OPTION – Service option (16 bits). Specifies the service option the mobile station requests for this call. Also used to inform the base station of service options supported by the mobile station. See SPECIAL_SERVICE.

  • Access Channel: *Origination Message (Terminal Information Record)*

  • Forward Traffic Channel: *Release Order Message (Release Order)*

  • Reverse Traffic Channel: *Status Message (Terminal Information Record)*

SI – Screening indicator (2 bits). This field indicates how the calling number was screened as defined in ANSI T1.607 §4.5.9.

  • Forward Traffic Channel: *Alert with Information Message* and *Flash with Information*
      Message (Calling Party Number Information Record)

  • Reverse Traffic Channel: *Flash with Information Message (Connected Number Information*
      Record and *Calling Party Number Information Record).*

SID – System identification (15 bits). Identifies the cellular system.

  • Sync Channel: *Sync Channel Message*

  • Paging Channel: *System Parameters Message, Channel Assignment Message*

1   • Forward Traffic Channel: *Analog Handoff Direction Message* and *In-Traffic System*
2   *Parameters Message*

3   • Reverse Traffic Channel: *Status Message (MIN Information Record)*

4 **SIGNAL** – Signal code (6 bits). The base station sets this field to the specific signal desired.

5   • Forward Traffic Channel: *Alert with Information Message (Signal Information Record)*

6 **SIGNAL_TYPE** – Signal type (2 bits). The base station sets this field to the signal type value
7 shown in Table 7.7.5.5-1.

8   • Forward Traffic Channel: *Alert with Information Message (Signal Information Record)*

9 **SLOT_CYCLE_INDEX** – Slot cycle index (3 bits). Indicates the prefered slot cycle for mobile
10 station slotted mode operation. The actual slot cycle is given by $2^{\text{SLOT\_CYCLE\_INDEX}}$
11 seconds.

12   • Access Channel: *Initial Registration Message* and *Registration Update Message*

13   • Reverse Traffic Channel: *Status Message*

14 **SLOT_NUM** – Paging Channel slot number (10 bits). Gives the current slot number.

15   • Paging Channel: *Slotted Page Message*

16 **SPECIAL_MUX** – Special multiplex option indicator (1 bit). When set to '1', specifies that
17 the mobile station wants to use other than the default multiplex option, Multiplex Option 1,
18 for this call. The MUX_OPTION field specifies the format or rules required.

19   • Access Channel: *Origination Message*

20 **SPECIAL_SERVICE** – Special service option indicator (1 bit). When set to '1', specifies that
21 the mobile station wants a service option other than default service option, Service Option
22 1, used for this call. The SERVICE_OPTION field specifies the special service required.

23   • Access Channel: *Origination Message*

24 **SRCH_WIN_A** – Search window size for the Active Set and Candidate Set (4 bits). This field
25 defines the range of PN offsets that the mobile station searches for pilots in the Active Set.

26   • Paging Channel: *System Parameters Message*

27   • Forward Traffic Channel: *In-Traffic System Parameters Message*

28 **SRCH_WIN_N** – Search window size for the Neighbor Set (4 bits). This field defines the
29 range of PN offsets that the mobile station searches for pilots in the Neighbor Set.

30   • Paging Channel: *System Parameters Message*

31   • Forward Traffic Channel: *In-Traffic System Parameters Message*

32 **SRCH_WIN_R** – Search window size for the Remaining Set (4 bits). This field defines the
33 range of PN offsets that the mobile station searches for pilots in the Remaining Set.

34   • Paging Channel: *System Parameters Message*

35   • Forward Traffic Channel: *In-Traffic System Parameters Message*

36 **SYS_TIME** – System Time (36 bits). Provides the System Time four Sync Channel
37 superframes (320 ms) after the end of the last superframe containing the current *Sync*
38 *Channel Message*, minus the pilot PN sequence offset. The binary field indicates the
39 number of 80 ms intervals since the start of System Time (see 1.2).

1   • Sync Channel: *Sync Channel Message*

2 **T_ADD** – Pilot detection threshold (6 bits). The mobile station uses this value as a detection
3 threshold for pilots not in its Active Set. If a pilot is found to be stronger than T_ADD, the
4 mobile station transmits a *Pilot Strength Measurement Message,* (see 6.6.6).

5   • Paging Channel: *System Parameters Message*

6   • Forward Traffic Channel: *Handoff Direction Message* and *In-Traffic System Parameters*
7   *Message*

8 **T_COMP** – Active Set versus Candidate Set comparison threshold (4 bits). This value is
9 used by the mobile station to determine the relative pilot strength difference of a Candidate
10 Set member to an Active Set for the purpose of transmitting a *Pilot Strength Measurement*
11 *Message* (see 6.6.6).

12   • Paging Channel: *System Parameters Message*

13   • Forward Traffic Channel: *Handoff Direction Message* and *In-Traffic System Parameters*
14   *Message*

15 **T_DROP** – Pilot drop threshold (6 bits). The mobile station uses this value as a threshold
16 for pilots in its Active Set and Candidate Set. If a pilot is found to be weaker than T_DROP,
17 the mobile station arms a drop timer for the pilot. If the timer expires (the pilot is not
18 detected above T_DROP within the next T_TDROP seconds), the mobile station takes action
19 in regards to the pilot as specified in 6.6.6. The threshold in dB (E_c/I_0) is given by -
20 T_DROP/2 where the 6 bit T_DROP is taken as an unsigned binary integer.

21   • Paging Channel: *System Parameters Message*

22   • Forward Traffic Channel: *Handoff Direction Message* and *In-Traffic System Parameters*
23   *Message*

24 **TOTAL_ZONES** – The number of registration zones to be retained (3 bits). The base station
25 sets this field to the number of registration zones the mobile station is to retain for
26 purposes of zone-based registration. If zone-based registration is to be disabled, the base
27 station sets this field to '000' .

28   • Paging Channel: *System Parameters Message*

29 **T_TDROP** –Drop timer value (4 bits). Timer value after which an action is taken by the
30 mobile station for a pilot that is a member of the Active Set or Candidate Set, and whose
31 strength has not become greater than T_DROP. If the pilot is a member of the Active Set, a
32 *Pilot Strength Measurement Message* is issued. If the pilot is a member of the Candidate
33 Set, it will be moved to the Neighbor Set.

34   • Paging Channel: *System Parameters Message*

35   • Forward Traffic Channel: *Handoff Direction Message* and *In-Traffic System Parameters*
36   *Message*

37 **USE_TIME** – Use action time indicator (1 bit). Specifies whether the mobile station should
38 have the order or message take effect immediately, at the time specified in the text, or at the
39 time specified by ACTION_TIME. A '0' indicates either immediate action or action at the
40 time specified by the text; a '1' indicates execution at the time specified by ACTION_TIME.
41 See also ACTION_TIME.

- Forward Traffic Channel: *Order Message, Handoff Direction Message, Analog Handoff Direction Message*

VALID_ACK – Valid acknowledgement indicator (1 bit). One of the layer 2 acknowledgement fields. A value of '1' specifies that the ACK_SEQ field has a sequence number that acknowledges a message. A value of '0' indicates that the ACK_SEQ field is ignored.

- Paging Channel: *Channel Assignment Message, Mobile Station Directed Order Message, Data Burst Message, Authentication Challenge Message,* and *SSD Update Message*

- Access Channel: *All Messages*

VMAC – Voice mobile station attenuation code field (3 bits). Indicates the mobile station power level associated with the designated analog voice channel (see Table 2.1.2.2-1).

- Paging Channel: *Channel Assignment Message*

- Forward Traffic Channel: *Analog Handoff Direction Message*

ZONE_TIMER – Zone timer length (3 bits). Gives the length of the zone timer the mobile station is to use.

- Paging Channel: *System Parameters Message*

1.1.2.2.2 Internal Numeric Information

The following are internal values stored by the mobile station in temporary memory which are not sent over the air. See Appendix F for values stored by the mobile station in permanent and semi-permanent memory.

ACK_WAITING$_s$[i] – Acknowledgement status indicator for message sequence number i. Set to YES if an acknowledgement is pending for the message.

AGE$_s$ – Neighbor list age. For each pilot in the Neighbor Set, the mobile station increments this counter each time a *Neighbor List Message* is received. When AGE$_s$ exceeds NGBHR_MAX_AGE, the pilot is deleted from the Neighbor Set.

BAD_FRAMES$_s$ – Bad frames count. The number of received bad frames.

CDMACH$_s$ – CDMA Channel number. The CDMA Channel number currently used by the mobile station.

CHAN_LST_MSG_SEQ$_s$ – *CDMA Channel List Message* sequencenumber.

COUNTER_ENABLED$_s$ – Timer-based registration indicator. Set to YES if timer-based registration is enabled.

C_REG_ENABLED – Class C registrations enabled indicator.

CURR_ACC_MSG_SEQ$_s$ – Current *Access Parameter Message* sequence number.

DISTANCE – Distance from registered base station to current base station, used for distance-based registration.

MIN_REG_ENABLED$_s$ – Registration enabled indicator (per MIN). Set to YES if registration is enabled for the MIN.

MSG_SEQ_ACK$_s$ – Next message sequence number for messages requiring acknowledgement.

MSG_SEQ_NOACK$_s$ – Next message sequence number for messages not requiring acknowledgement.

MSG_SEQ_RCVD$_s$[i] – Received message indicator for message sequence number i. Set to YES if message sequence number i has been received. Set to NO when message sequence number (i+4) modulo 8 has been received.

NGHBR_LST_MSG_SEQ$_s$ – *Neighbor List Message* sequence number.

PAGECH$_s$ – Current CDMA Paging Channel number.

PILOT_ARRIVAL – Time of occurrence, as measured at the mobile station antenna connector, of the earliest arriving usable multipath component of the pilot. The arrival time is measured relative to the mobile station's time reference.

RA – Random access channel number. The Access Channel number generated (pseudo-randomly) by the mobile station.

RANDOM_TIME – Random time. A portion of SYS_TIME used to seed the random number generator.

REG_COUNT$_s$ – Timer-based registration count. The timer-based registration counter.

REG_COUNT_MAX$_s$ – Timer-based registration count limit. The timer-based registration counter expiration value computed from REG_PRD$_r$.

RETRY_COUNT$_s$ – Message retransmission count. Counter used to determine when the maximum number of retransmissions has been exceeded for a given message.

RN – PN randomization delay. The delay in PN chips generated (pseudorandomly) by the mobile station prior to performing an access attempt.

RS – Inter-probe sequence backoff. The delay in slots generated (pseudorandomly) by the mobile station following an unsuccessful access probe sequence or prior to the first access probe in a response attempt.

RT – Inter-probe backoff. The delay in slots generated (pseudorandomly) by the mobile station following an unacknowledged access probe.

SERVSYS$_s$ – Selected serving system indicator. Set to SYS_A if the current CDMA Channel is in system A's frequency band. Otherwise set to SYS_B.

SID_NID_LIST$_s$ – Registration SID, NID list. The SID, NID pairs in which the mobile station has registered.

SO_REQ$_s$ – Service option request number. The number of the service option requested by the mobile station.

SYS_PAR_MSG_SEQ$_s$ – *System Parameters Message* sequence number.

TA – Acknowledgement response timeout.

TOT_FRAMES$_s$ – Total frames received. The total number of received frames, counted for Forward Traffic Channel power control.

1   **ZONE_LIST$_s$** – Registration zone list. List of zones in which the mobile station has

2   registered.

1   **1.2 CDMA System Time**

2   All base station digital transmissions are referenced to a common CDMA system-wide time
3   scale that uses the Global Positioning System (GPS) time scale, which is traceable to and
4   synchronous with Universal Coordinated Time (UTC). GPS and UTC differ by an integer
5   number of seconds, specifically the number of leap second corrections added to UTC since
6   January 6, 1980. The start of CDMA System Time is January 6, 1980 0:00:00 UTC, which
7   coincides with the start of GPS time.

8   System Time keeps track of leap second corrections to UTC but does not use these
9   corrections for physical adjustments to the System Time clocks.

10 Figure 1.2-1 shows the relation of System Time at various points in the CDMA system. The
11 long code and the zero offset pilot PN sequences for the I and Q channels (see 6.1.3.1.8,
12 6.1.3.1.9, 7.1.3.1.6, and 7.1.3.1.9) are shown in their initial states at the start of System
13 Time. The initial state of the long code is that state in which the output of the long code
14 generator is the first '1' output following 41 consecutive '0' outputs, with the binary mask
15 consisting of '1' in the MSB followed by 41 '0's. Referring to the shift register in Figure
16 6.1.3.1.8-1, this implies that the 42nd bit in the shift register equals '1' and that all other
17 bits in the shift register are equal to '0'. The initial state of the pilot PN sequence, both I
18 and Q, is that state in which the output of the pilot PN sequence generator is the first '1'
19 output following 15 consecutive '0' outputs. The alignment of the initial states of the long
20 code and the pilot PN sequence does not occur again for more than 37 centuries.

21 From Figure 1.2-1, note that the System Time at various points in the transmission and the
22 reception processes is the absolute time referenced at the base station antenna offset by the
23 one-way or round-trip delay of the transmission, as appropriate. Time measurements are
24 referenced to the transmit and receive antennas of the base station and the RF connector of
25 the mobile station. The precise zero instant of System Time is the midpoint between the
26 last '0' of the 41 consecutive '0' outputs and the succeeding '1' of the long code using the
27 binary mask consisting of '1' in the MSB followed by 41 '0's.

28 **1.3 Tolerances**

29 1.3.1 Analog System Tolerances

30 Unless otherwise specified, all call-processing timers and call-processing timing values have
31 a tolerance of ±10%. Tolerances of other parameters are provided for guidance only. Refer
32 to IS-55, "Recommended Minimum Performance Standards for 800-MHz Dual-Mode Mobile
33 Stations," and IS-56, "Recommended Minimum Performance Standards for 800-MHz Base
34 Stations Supporting Dual-Mode Mobile Stations," for minimum standards, definitions,
35 tolerances, and measurement methods.

1   1.3.2 CDMA Tolerances

2   Unless otherwise specified, all values indicated in Section 6 and Section 7 are exact unless
3   an explicit tolerance is stated. When testing a mobile station or base station to meet these
4   specifications, the tolerance of the measurement equipment shall be subtracted from the
5   measurement results to determine compliance.[1]

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[1]For example, if a time specification is ±100 ms and the accuracy of the measurement equipment is ±10 ms, then the limits for proving successful compliance are ±90 ms.

1
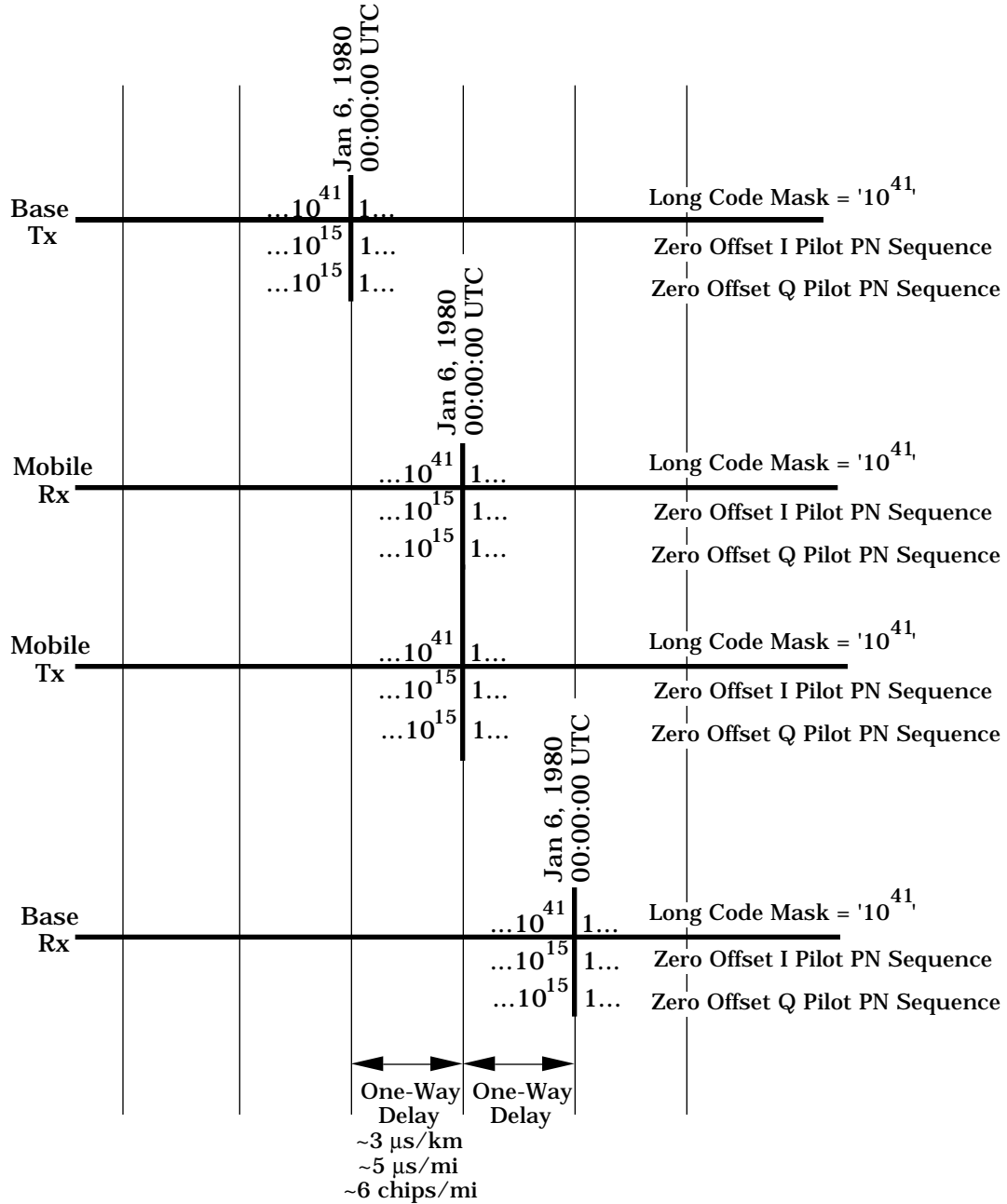
Note: Time measurements are made at the antennas of base stations and the RF connectors of the mobile stations.

0^n denotes a sequence of n consecutive zeroes.

2

3   **Figure 1.2-1. System Time Line**

1

2

3   No text.

4