TELULAR CORPORATION

Product Specification

Phonecell SX6P CDMA
300 Series

Distribution Date: December 3, 2004

File Name: 90020001

Table of Contents

List of Tables

1.0 Overview

1.1. Purpose and Scope

This document contains specifications for the Phonecell SX6P cdma2000-1XRTT series 300 fixed wireless phones. The scope of this document is to specify the unit's top-level features and functions.

1.2. Introduction

The Phonecell SX6P cdma2000-1XRTT phone is an integrated unit comprised of an attached handset, keypad, LCD display, and a CDMA cellular radio. Its appearance is similar to that of a standard phone.

1.3. Summary of Capabilities

- Supports call-waiting, three-way calling, call-forwarding and call-transfer as defined in IS-2000A
- SMS text messaging via multi-tap keypad
- Call Logs – Missed, Received and Dialed
- Speed dial function
- Data and Fax support
- 20 digit address dial buffer, 36 digit supplementary service dial buffer
- Automatic End-of-Dialing
- 99 entry phone book
- Caller Identification (if available on the network)
- Supports single-key voice mail access
- Feature programming with nonvolatile memory to store parameters
- Integrated handset, keypad and LCD display
- Full duplex hands-free speaker phone feature
- R-UIM
- 1XRTT high speed packet data

1.4. Cellular Network Usage

The Phonecell SX6P phone operates on a standard cdma2000-1X network in the 800 or 1900 MHz frequency bands depending on the configuration selected. An EVRC vocoder is supported. Over-the-air activation (OTASP/OTAPA) is supported. The unit is fully compliant with CDG1 and CDG2.

1.5. Power Supply

The phone is powered by a remote external power supply. An optional internal battery is available for operation of the unit during conditions of primary AC power failure.

1.6. R-UIM

A Removable User Identity Module is supported as a factory configuration option.

2.0 User Interface

In the paragraphs below, some of the parameters are programmable. For a detailed description of how to program the parameters, refer to "Product Operation Requirements, SX6P cdma2000-1X, Fixed Wireless Phone" (POR), Telular document number 90020801.

2.1. Hook Operations

2.1.1. Recognition of Seizure (Off-Hook)

The phone recognizes an off-hook by the handset as a request for service. The phone will return dial tone to the handset or speaker when it is ready to accept address signals. To avoid the effects of hook-switch bounce, the off-hook condition will not be recognized for a minimum duration of 200 ms.

2.1.2. Recognition of Release of Seizure (On-Hook)

The phone recognizes release of line seizure after the amount of time for the maximum duration of a hookflash has elapsed (see paragraph 2.4).

2.2. Tone Generation

Tones are composed of one or two superimposed single frequency tones. Tones and cadences set as defaults in the phone are consistent (where possible) with those commonly used on landlines in North America. A menu selection provides dial tone commonly used in Latin America, Eastern Europe, China, Nicaragua, or India.

2.2.1. Service Dial Tone

When the phone finds service on a cellular carrier network that the phone is registered with, standard dial tone is generated within 100 ms of recognition of line seizure.

2.2.2. Non-Registered Dial Tone

A non-registered dial tone is generated when service is found on a foreign network .

2.2.3. No-Service Tone

A no-service tone is generated when the phone has not detected cellular service.

2.2.4. Other Tones and Announcements

The phone maintains an open audio path when in a call or call setup in order to receive progress tones and/or announcements provided by the cellular carrier or Telephone Company when connected. Typical indications from the network may include:

Subscriber-not-available announcement

Audible ring tone (ring tone heard by calling party)

Subscriber-busy tone

System-busy tone (also known as reorder tone and congestion tone)

Special Information Tone (SIT)

Call-waiting tone

Action-acknowledgment tone

2.2.5. Reorder Tone

In the event of an outgoing call setup failure, the phone presents the current dial tone to the user

when it recognizes the failure. The outgoing call can be retried immediately by the user upon hearing the dial tone.

2.2.6. Receiver Off Hook (ROH) Tone

If the handset is left off hook for a programmed period of time with no dialing or call activity, an ROH tone is presented to notify the user to hang up the phone. The ROH tone is quite loud and is applied such that the full amplitude is not presented immediately, but steps up to full amplitude over a 10 to 20 second time period.

2.2.7. Post Receiver Off-Hook Operation

After the ROH tone duration has elapsed, the phone can stop or continue the ROH tone, depending on the setting of the post ROH option. If post ROH is enabled, the phone checks periodically to see if the handset is on-hook. If the handset is on-hook, the phone returns to its normal operation. If post ROH is disabled, the ROH tone continues until the handset is returned to on-hook status.

2.2.8. Error Alert Tone

As a response to certain incorrect user actions, the phone generates an error alert tone.

Table 1 - Default Error Alert Tone Configuration

Frequency	Default: 950/1400/1800 sequential (three tones)
Audio Gain	Default: -6 dB *
Cadence	Tone 1 on T1, off
	Followed by tone 2 on T2, off
	Followed by tone 3 on T3, off
	All tones off
	Default: T1= T2 = T3 = 340 ms

* relative to Rx Audio Gain setting

2.2.9. DTMF Tones

When the phone handset or speaker is off-hook, DTMF tones corresponding to the keypad key pressed will be generated. For compatibility with ANSI T1.401-1988, the minimum inter-digit interval shall be 45msec, the minimum pulse duration shall be 50msec, and the minimum duty cycle shall be 100msec.

2.3. Dialing

2.3.1. Dialing Buffer

The phone has a 20-digit buffer for address dialing.

2.3.2. Recognition of Address Signaling

The phone removes dial tone within 100 ms after the start of the first address signal.

2.3.3. End of Address Signaling

The phone originates the call after the first of any of the following conditions is satisfied:

Recognition of a previously dialed phone number (zero-delay dialing).

The recognition of previously dialed telephone numbers is a heuristic algorithm that will build a list of the most frequently dialed numbers over a period of time. This list is not permanent; it is erased if the phone loses power. If erased, the list is rebuilt based upon the user's current dialing activity when the phone is powered on.

This feature is enabled by default, but can be programmed to be disabled.

A programmable time has elapsed after last address signaling activity (auto send delay). The default value is set to 3 seconds.

Hookflash (see paragraph 2.4).

Redial

Speed Dial

Phone Book Dial

2.4. Hookflash

During a dialing sequence (before a call is connected), a hookflash will initiate the call immediately. While in a call, the phone transmits a "SEND" command to the cellular carrier equipment after a hookflash. If the handset is off-hook and an incoming call alert is received, the phone answers the incoming call when a hookflash is performed.

Table 2 - Hookflash Recognition Duration

Duration minimum	240 ms
Duration maximum	1000 ms

2.5. In-Call DTMF Signaling

While in a call, the phone performs out-of-band DTMF signaling, which will convey to the cellular carrier infrastructure any use of the following dialed digits:

1, 2, 3, 4, 5, 6, 7, 8, 9, 0, *, #

The phone transmits over-the-air messages that the cellular infrastructure uses to create the tones.

2.6. Alerts

2.6.1. On-Hook Call Alert (Ring Type)

When the phone receives a call and the handset is on-hook, the LCD displays the incoming call, and a ring signal is produced using the built-in speaker. The ring signal may be disabled.

When a call is answered by either the handset going off-hook, or by using the speakerphone, the phone ceases the ringing signal within 100 ms.

2.6.2. Off-Hook Call Alert (Ring Tone)

The phone provides an off-hook call alert to the speaker or handset if there is an incoming call while the phone is in a call or is dialing a call.

When the phone is in a call or dialing a call, the off-hook call alert ceases within 100 ms of the

end of a hookflash.

2.6.3. Ring Volume
The volume of the ring signal is adjustable in approximately 3dB steps over a four step range. The ring signal may also be silenced.

2.6.4. One-Minute Alert
A short beep tone alerts the user after every minute of a call. This alert may be disabled.

2.6.5. Service Alert
An alert sounds when the phone loses or gains service, including entering or leaving a service area when the phone is on a mobile platform. This alert may be disabled.

2.6.6. Alarm Tone
The alarm tone may be selected from a list of available tones.

2.6.7. Voicemail and Text Message Alert
An audible alert will be generated when a message is waiting and the Phone is on-hook. If the Phone is off-hook, or there are no messages, the alert will not sound. The volume is field programmable. Note that availability of this feature is network dependent.

Table 3 - Voicemail Alert Configuration Table

Frequency	1 kHz
Cadence	T1 = 250 ms on, T2 = 100 ms off, T3 = 100 ms on, T4 = 250ms off. This cadence is presented twice per period.
Period	Every 5 seconds
Volume	High: 0 dB *
	Low: -6 dB *
	Off

* relative to nominal volume setting

2.7. Vertical Service Codes
The Deskphone will transmit Vertical Service Codes (usually in the format of "*XX") to the network as described in TIA/EIA-664. These are used for advance calling features such as call forwarding and three party conference calling. Note that each carrier will decide on which codes it will support in its network.

2.8. Speakerphone Feature
The phone has a speakerphone feature. A short press (< 2 sec) of the Speakerphone key (when dial tone is not present) will toggle the speakerphone feature. Activation of this feature will mute the handset earpiece and send the output audio to a speaker in the phone base. The handset microphone will also be disabled and input audio will be received from a hands-free microphone in the phone base. All dialing features, including redial, will operate normally, except the audio will use the speaker and hands-free microphone instead of the handset. The speakerphone works in full-duplex configuration, where both users may speak at the same time.

While connected in an active call, the phone allows the user to switch between handset operation and

speakerphone operation. If the user is using the handset, a single press of the Speakerphone button will enable the speakerphone speaker and hands-free microphone while disabling the handset earpiece and microphone. The user can then replace the handset into the cradle without terminating the call, but that is not required to use the speakerphone feature. If the user presses the Speakerphone button again while the handset is in the cradle, the call will be disconnected and the speaker and the microphone will be disabled. If the handset is not in the cradle when the Speakerphone button is pressed again, the speakerphone speaker and hands-free microphone will be disabled but the handset earpiece and microphone will again be enabled and the call can continue.

2.9. Phone Book

The phone has memory available to store up to 99 names and associated directory numbers. While in the phone book, pressing the star (*) key will enter a backspace, the pound (#) key will enter a blank space, and the MSG key will toggle between upper and lower case letters. Multiple presses of a key will cycle through its several letters and number.

Instructions to view, add to, and edit the phone book entries are given in the Product Operation Requirements document and the User's Manual. Instructions to dial from the phone book are also given.

2.9.1. Speed or Memory Dialing

The phone provides a speed or memory-dialing feature. This allows automatic dialing of a phone number by simply pressing a single key or two keys. Any entry in the phone book can be used.

Instructions for speed dialing are given in the Product Operation Requirements document and the User's Manual.

2.10. Call Logs

The phone has three call logs: Missed calls, Outgoing calls and Incoming calls. Each log will store a maximum of ten numbers. The phone must remain on-hook to enable display of the logs. Taking the handset off-hook, or not entering a key for one minute will cancel the operation.

The call logs may be viewed or erased. Calls may be dialed from the log entries.

The length of the last call may be displayed, as well as total air time that the phone has used since the last air time calculation was cleared. (Note that this air time may not agree with air time calculated by the carrier.)

2.11. Multiple Language Support

The SX6P-300C Deskphone supports the following languages: English, French, Portuguese, and Spanish. The SX6P-380C Deskphone supports English and Simplified Chinese, using the Tegic T9 text entry system.

2.12. Backlighting

The keypad and display of the Deskphone can be backlit. The backlighting can be set to stay on for 15 seconds after a key is pressed or stay on continuously. The user also has the option to turn the backlighting off completely.

2.13. Time/Alarm Functions

An alarm may be set, one time or repeating daily. The date and time format may be changed.

2.14. Panel Display and Controls

2.14.1. LCD Display

The phone contains a display that is pixilated. The display resolution will be 64 pixels high by 132 pixels long. The display will contain a top row of icons and three additional character rows below the icons. The icon row will contain the following from left to right: antenna with bars, roam indicator, alarm bell, message envelope, speaker, off hook, and battery charge level indicator. All icons will have the ability to flash along with all other characters on the other three rows. The rows below the icon row will be 16 characters wide and will be able to display alphanumeric and special characters. The display will also have adjustable contrast. The date and time may be displayed in the middle character row. A reverse contrast "P" shown at the end of the first character row indicates that the enhanced privacy mode is enabled.

2.14.2. Panel Controls

2.14.2.1. MENU

The Menu key accesses the Deskphone's menus.

2.14.2.2. MSG

The Message key is used to access voicemail or to send an SMS message. It is also used to toggle between upper and lower case letters when writing to the address book or SMS text.

2.14.2.3. CLR

The Clear key will clear an entry, erase a digit during entry, or go back one menu level.

2.14.2.4. STO

The Store key is used to store (or otherwise complete) an entry.

2.14.2.5. Keypad

The keypad has the digits 0 through 9 and special characters hash/pound (#) and star (*). It is used for all data entry.

2.14.2.6. Flash

The flash key can be used instead of the hook switch to produce a hookflash.

2.14.2.7. Redial

Pressing the redial key will cause the last dialed number entered to be dialed.

2.14.2.8. Up/Down Keys

When off-hook, the Up/Down keys control the volume of the earpiece in the handset or the speaker. The available range is ±6 dB of the nominal output level. Each adjustment is 2 dB.

2.14.2.9. Mute

Pressing the mute key will cause the audio at the handset or speaker (whichever is active) to be muted.

2.14.2.10. Speaker Phone

Pressing this key will activate/deactivate the speaker phone function.

2.14.2.11. Power On/Off

Pressing this key will turn the SX6 on/off.

2.14.2.12. Hold

While in an active call, the user can press this button to place the call on hold. The display will change from Active to Hold. To reactivate the call, press the HOLD button again and the display will change from Hold to Active.

3.0 Additional Information

3.1. Audio Performance

The audio performance specifications apply to both the handset and the speaker.

3.1.1. Noise

The phone has idle channel noise no greater than 30 dBrnC.

3.1.2. Frequency Response

The frequency response of the phone is 300 – 3400 Hz at –3 dB points.

3.1.3. Output Level

The audio output level can be programmed by the user to be Low, Normal, or High. The factory default setting Normal.

The analog output circuitry should not cause clipping.

3.1.4. Input Level

The input level is not adjustable by the user.

3.2. Wireless Number Portability

The Deskphone supports Wireless Number Portability as described in TIA/EIA-41-D-PH3. Both the Mobile Directory Number and the Mobile Station Identifier are programmable.

3.3. Service Options

The Deskphone supports the following service options.

Table 4 – Supported Service Options

Service Option Class	Supported
Voice Service Options	3, 17, 32768
CSD Data Service Options	4, 4100, 5, 4101, 12, 13
Packet Data Service Option	22, 25, 33
8Kbps Markov	32798
13Kbps Markov	32799
8Kbps loopback	2
13Kbps loopback	9

4.0 Serial Interface

This section describes the interface used to provide fax and data functions to a connected computer via a serial data port. This interface is implemented via a DB-9 connector.

4.1. Serial Port Protocol

The DB-9 port operates at a default baud rate of 115,000. Note that this rate only applies to the serial interface; the over-the-air data rate is independent. The format is one start bit, 8 data bits, one stop bit, and no parity. The interface supports the necessary V.24 (RS-232) signals (see paragraph **8.4**).

4.2. AT Commands

This section lists the AT commands and responses that are currently supported as standard in the Deskphone. All commands are from IS-707.

Table 5 - Basic AT Parameters

Command	Description
ATE	Set command echo mode
ATL	Set monitor speaker loudness
ATM	Set monitor speaker mode
ATP	Select pulse dialing (accepted, not relevant)
ATQ	Set result code presentation mode
ATT	Select tone dialing (accepted, not relevant)
ATV	Set result code format mode
ATX	Set connect result code format and call monitoring
ATZ	Set all current parameters to default configuration
AT&C	Set DCD function mode
AT&D	Set DTR function mode
AT&F0	Same behavior as ATZ

Table 6 - Basic S-Registers

Command	Description
ATS0	Set ring time before auto-answering (default = no auto-answer)
ATS3	Set command line termination character (CR)
ATS4	Set response formatting character (LF)
ATS5	Set command line editing character (BSp)
ATS6	Set pause before blind dialing
ATS7	Set number of seconds to wait for connection completion
ATS8	Set number of seconds to wait when comma dial modifier used
ATS9	Set carrier detect threshold
ATS10	Set disconnect delay after indicating the absence of data carrier
ATS11	Set DTMF tone duration and spacing

Table 7 - Extended AT Configuration Commands

Command	Description
AT+DR	V.42bis data compression reporting control
AT+DS	V.42bis data compression control
AT+EB	Set Break handling in error control operation

AT+EFCS	SetV.42 frame check sequence control
AT+ER	Error control reporting
AT+ES	Error control selection
AT+ESR	Selective repeat option control
AT+ETBM	Handling of remaining buffer data when service is terminated
AT+GCAP	Request complete capabilities list
AT+GMI	Request manufacturer identification (Qualcomm)
AT+GMM	Request model identification (NAM & Phone number)
AT+GMR	Request revision identification (SW rev)
AT+GOI	Request global object identification (no text)
AT+GSN	Request serial number identification (ESN hex)
AT+ICF	Set control character framing (8 bits, NP, 1 SB only)
AT+IFC	Set local data flow control (HW & SW)
AT+ILRR	Set local rate reporting mode (accepts only OFF)
AT+IPR	Set fixed local command data rate (19200 only)
AT+MA	Modulation automode control
AT+MR	Modulation reporting control
AT+MS	Modulation Selection
AT+MV18R	V.18 reporting control
AT+MV18S	V.18 selection

Table 8 - FAX Parameters

Command	Description
AT+FAA	Adaptive answer
AT+FAP	Addressing and polling capabilities
AT+FBO	Phase-C data bit order
AT+FBS	Read local buffer size
AT+FBU	HDLC frame reporting
AT+FCC	DCE capabilities
AT+FCLASS	Service class selection (class-1 support not available)
AT+FCQ	Copy quality checking
AT+FCR	Capability to receive
AT+FCS	Current session results
AT+FCT	DTE Phase-C timeout
AT+FEA	Phase-C received EOL alignment
AT+FFC	Format conversion
AT+FHS	Call termination status
AT+FIE	Procedure interrupt enable
AT+FIS	Current session negotiation
AT+FLI	Local ID string (TSI or CSI)
AT+FLO	Local flow control select
AT+FLP	Indicate document to poll
AT+FMI	Request DCE manufacturer identification
AT+FMM	Request DCE model
AT+FMR	Request DCE revision
AT+FMS	Minimum Phase-C speed
AT+FNR	Negotiation message reporting control

AT+FNS	Non-standard frame FIF
AT+FPA	Selective polling address
AT+FPI	Local polling ID string
AT+FPR	Serial port rate control
AT+FPS	Page status
AT+FPW	Password (sending or polling)
AT+FRQ	Receive quality threshold
AT+FRY	ECM retry value
AT+FSA	Subaddress
AT+FSP	Request to poll

Table 9 - FAX Action Commands

Command	Description
AT+FDR	Receive Phase-C data
AT+FDT	Transmit Phase-C data
AT+FIP	Initialize facsimile parameters
AT+FKS	Terminate session

Table 10 - CDMA AT Parameter Commands

Command	Description
AT+CXT=	0=Pass/1=not pass unrecognized commands to the IWF
AT+CFG=	Configuration string (up to 248 characters)
AT+CAD?	Query analog or digital service availability (0=no/1=CDMA only)
AT+CDR	U_m interface data compression reporting
AT+CDS	U_m interface data compression (only 0=v.42bis not supported)
AT+CRM=	Set R_m interface control
AT+CBC?	Request battery charge status
AT+CQD=	Command state inactivity timer
AT+CRC=	Cellular result codes
AT+CMIP?	Read mobile station IP address
AT+CBIP	Read base-station IP address
AT+CSS?	Read serving system band class, band, SID
AT+CSQ	Query received signal quality (SQM and FER)
AT+CMUX=	Select multiplex option 1 or 2
AT+CFC=	U_m interface FAX compression (only 0=v.42bis not supported)

Table 11 - Cellular AT Command Extensions in Support of Voice Services

Command	Description
AT+CHV0	Hang up voice call
AT+CDV<ds>	Dial command for voice calls (ds = dial string)

Table 12 - Cellular Identification AT Command Extensions

Command	Description
AT+CGCAP	IWF returns additional capabilities information text
AT+CGMI	IWF returns manufacturer identification information text

AT+CGMM	IWF returns model information text
AT+CGMR	IWF returns version information text
AT+CGOI	IWF returns ISO device identity information text
AT+CGSN	IWF returns individual device identity information text

Table 13 - Cellular AT Commands for Packet Data Services

Command	Description
AT+CTA=	Set/Read/Test U_m packet data inactivity timer

Table 14 - Cellular Result Codes

Command	Description
AT+CERROR: INIT FAILED <failed command>	Initialization string has failed
AT+CPROG: ANSWER	Indicates remote DCE has answered
AT+CPROG: BONGTONE	Billing tone was detected
AT+CPROG: DIALING <number>	Indicates PSTN dialing
AT+CPROG: DIAL TONE	Dial tone was detected
AT+CPROG: QUIET ANSWER	Indicates quiet answer
AT+CPROG: RINGING	Indicates PSTN ringing
AT+CPROG: VOICE	Voice detected on the PSTN connection
ATRING <service option>	Specify active service option (“ASYNC”, “FAX”, or “STU-III”

5.0 Air Interface Specifications

The Deskphone operates on a cdma2000-1X or IS-95 network per 3GPP2 specifications. The unit will operate on either Band Class 0 or Band Class 1, depending on the Deskphone configuration..

5.1. Band Class 0 Configuration

5.1.1. Operational Frequencies

Deskphone-to-base operational frequency range: 824 to 849 MHz.

Base-to-Deskphone operational frequency range: 869 to 894 MHz.

5.1.2. RF Power Output

The Deskphone complies with 3GPP2 C.S0011-0 (TIA-98-E) Band Class 0 Mobile Station Class III equipment. The nominal transmitter power output at the antenna connector is <0.2 W (23 dBm).

5.1.3. Receiver Sensitivity

Receiver sensitivity (0.5% Frame Error rate) measured at the antenna connector is equal to or better than -109 dBm across the receive band.

5.2. Band Class 1 Configuration

5.2.1. Operational Frequencies

Phone-to-base operational frequency range: 1850 to 1910 MHz.

Base-to-phone operational frequency range: 1930 to 1990 MHz.

5.2.2. RF Power Output

The Deskphone complies with 3GPP2 C.S0011-0 (TIA-98-E) Band Class 1 Mobile Station Class III equipment. The nominal transmitter power output at the antenna connector is <0.2 W (23 dBm).

5.2.3. Receiver Sensitivity

Receiver sensitivity (0.5% Frame Error rate) measured at the antenna connector is better than -107 dBm from channel 1 to approximately channel 300 and better than –109 dBm for the rest of the receive band.

5.3. Over-the-Air Activation

The Deskphone supports Over-The-Air Service Programming (OTASP) and Over-The-Air Parameter Administration (OTAPA) as per TIA/EIA/IS-683A.

5.4. Vocoders

The Deskphone supports the 8K EVRC (Service Option 3) and 13K QCELP (Service Option 32768) vocoders.

6.0 Power Specifications

6.1. Electrical Requirement

6.1.1. Power Dissipation

The maximum pulse input power of the Deskphone with full RF power is ≤ 9 W.

Average DC power input in standby (idle) state: ≤ 0.2 W at a DC input voltage of 5 volts

Average DC power input in call active state: ≤ 2.9 W at a DC input voltage of 5 volts.

6.1.2. DC Input Voltage

The Deskphone operates with a DC input voltage range of 5.0 volts nominal.

6.2. Recommended Power Supply

An external power supply is included with the Deskphone. Telular recommends that no other power supply be substituted for the one supplied with the Deskphone.

6.3. Battery

The Deskphone can accept an optional 1500 ma/H, NiMH battery, provided solely by Telular. This will provide a nominal 3-hour talk time, or a nominal 120 hours of standby time. With the optional battery installed, the Deskphone will automatically switch to battery operation when the loss of AC power is detected. When AC power is available, the battery will automatically recharge itself.

6.4. DC Input Voltage Interrupts

The Deskphone resets itself automatically if the DC input voltage is interrupted. There is no loss of programming information or features.

Environmental Specifications and Regulatory Requirements

6.5. Environmental Requirements

6.5.1. Operating Temperature

–10º C (14º F) to +50º C (122º F)
Up to 95% relative humidity (non-condensing)

6.5.2. Storage Temperature

–40º C (-40º F) to +60º C (140º F)
Up to 95% relative humidity (non-condensing)

6.6. EMC Requirements

6.6.1. RF Emissions

The Deskphone meets the requirements of 47 CFR Part 15, Class B, for conducted and radiated emissions.

6.7. FCC Requirements

The Deskphone complies with 47 CFR, Part 22 (Band Class 0) or Part 24 (Band Class 1).

6.8. CDMA Development Group (CDG) Requirements

The Deskphone complies with CDG Stage 1 and CDG Stage 2 tests on Lucent, Motorola, and Nortel infrastructure.

7.0 Mechanical Specifications

7.1. Physical Dimensions

The phone measures 2.81" (71.3 mm) in height, 7.11" (180.5 mm) in width, and 8.54" (217.0 mm) in depth.

7.2. Weight

The phone weight (without external power supply components and internal batteries) does not exceed 1.6 pounds (0.73 kg).

7.3. Enclosure

The enclosure is pictured below. It is made of ABS plastic that meets the UL 94-V2 flammability specification. The color of the enclosure is charcoal gray.

7.4. Mounting

The phone is normally set horizontally on a flat surface. If desired, it may be mounted vertically on a wall by means of two wall screws (not included). The antenna elements must be vertical while in use.

8.0 External Connectors

8.1. Power Supply Connection

The Deskphone has 7-pin mini-DIN power supply connection. The table below shows the mini-DIN connector pinout.

Table 15 – Mini-DIN Pinout

Pin Number	Description
1	Debug RXD
2	Do Not Connect
3	Do Not Connect
4	Do Not Connect
5	Debug TXD
6	+5V DC
7	External Configuration
8	Signal Ground

8.2. Antenna

The Deskphone has a female 50-ohm TNC connector to connect an antenna. A dipole antenna must point directly upward while the unit is in use. Any antenna must be in a vertical polarization configuration for proper operation. An antenna cable, if used, should be kept as short as possible.

8.3. R-UIM Card

The phone has a compartment accessible to the user for a 3/5-volt miniature Removable User Identity Module. The R-UIM holder is marked to indicate proper orientation for insertion of the card.

8.4. Data Connector

The Deskphone has a DB-9 data connector, conforming to RS-232 (V.24) DCE. The table below shows contact numbering.

Table 16 - DB-9 Pinout

Pin Number	Description
1	DCD
2	RXD
3	TXD
4	DTR
5	Signal Ground
6	DSR
7	RTS
8	CTS
9	Do Not Connect

9.0 Series 380 Special Features

9.1. Expanded Dialing

In order to provide localized service, some operators have required expanded dialing capabilities. One requirement is to translate user dialed prefixes into other dialed strings used by the network (Prefix Translation). Another requirement is to prevent calls from being placed to certain numbers (Barred Numbers). A third requirement is to provide for a rapid means of dialing specially selected numbers, such as those for emergency services (Exception Numbers).

The Exception Numbers should be checked first to avoid wasted time in placing the call. The Prefix Translation should be checked second to expedite the call being initiated. The Barred Numbers should be checked last, since a call cannot be made to a Barred Number.

9.1.1. Exception Number Requirements

Exception number prefixes are up to 8 digits in length. Dialed numbers that begin with exception number prefixes are dialed directly without translation. Up to 500 exception numbers can be entered and stored.

9.1.2. Barred Number Requirements

Barred number prefixes are up to 8 digits in length. Up to 50 barred number prefixes can be entered and stored. If a number with a barred prefix is dialed, the display shall indicate "Invalid Number" in Chinese and a warning tone beeps twice. If the handset is left off hook for a period of time with no dialing or call activity, an ROH tone is presented to notify the user to hang up the phone.

9.1.3. Prefix Translation Requirements

Prefix translation numbers are up to 8 digits in length. Up to 50 prefix translation numbers can be entered and stored. The table consists of two columns. Column 1 is the dialed digit entered by the user. Column 2 is the digit string that replaces the matched digits at the beginning of the dialed string entered by the user.

Prefix translation table		
From	**To**	Call numbers that begin with these prefixes are translated accordingly.
0	179110	
2	443	
3		
4	4	
5	5	
6	6	
7	7	
8	8	

For example, in the table above, when a "0" is followed by a string of numbers, the unit appends 179110 in front of the remaining numbers, becoming 179110xxxxxxxx.

If a "2" through "8" is entered, the corresponding prefix from Column 2 becomes the digit string that precedes the remainder of the dialed string.

In the table above then, if 2 387 1111 4230 is entered, the resulting string transmitted over the air is 443 387 1111 4230.

If a "3" is entered and there is no corresponding prefix translation, i.e., the space is blank in the table, the default prefix is just the "3".

The Deskphone compares the first 8 digits 8 times. Pass 1 would look for an 8-digit matching Column 1. If it doesn't find a match, then it looks for 7 digits, then 6 digits, all the way down to 1 digit for a match. If the software finds a match, it replaces the matched digit string with the corresponding string in column 2. If there is no match, there is no prefix translation.

9.2. Auto SIM PIN

This feature will "bond" a Deskphone to a SIM. The bonding process involves generating a secret PIN (CHV1) using the unit's IMEI and a Telular proprietary algorithm and storing CHV1 in the Deskphone's non-volatile memory (NVRAM) and the SIM. When a new SIM is inserted into the unit, its default pin (1234) will be changed automatically and stored. This SIM can only be unlocked by the same unit and is inoperative in other mobile devices without correct pin entry. During the start up process, the Deskphone will know if it had been bonded before, and, if so, will attempt to verify CHV1 using CHV1. If the verification fails, the user can only place emergency calls and all incoming calls will be rejected.

If a non-matching SIM is put into the Deskphone, the display reads "Please Enter PIN". If the user inputs the correct 4 digit PIN (which shows the entered digits an '*'), then the display reads "PIN Accepted." If the PIN does not match, the display reads "Please Enter PIN." The user is allowed 3 tries to enter the correct PIN. After 3 failed attempts, the display reads, "Invalid PIN, Please call customer service."

After 3 unsuccessful attempts with a "non-matching SIM", the SIM will be locked up. However, if the Deskphone has been bonded before, and if the next inserted SIM is the matching or bonded SIM, then it shall be accepted and the Deskphone shall provide normal service. If an unbonded SIM is inserted, then the Deskphone shall determine the disposition. If the Deskphone has bonded before, the unbonded SIM will not be accepted and only emergency calls will be allowed. If the Deskphone has not bonded before, then it will accept the unbonded SIM and start the bonding procedure described above.