

# XG-2500

## *User's Manual*

### 2.4 GHz Digital Spread Spectrum Technology Cordless Telephone

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## 1. FUNCTIONAL SUMMARY

### 1.1. SCOPE

This specification defines the product features and requirements of the 2.4GHz Digital Spread Spectrum Technology (DSST) features.  
40 channels 2.4 GHz Basic Cordless telephone.

### 1.2. FEATURES:

- ⇒ 2.4 GHz Digital Spread Spectrum Technology (DSST)
- ⇒ Mechanical T/P select switch  
Page button on the Base unit
- ⇒ Built in Buzzer on Base unit
- ⇒ Earloop on handset
- ⇒ Any Key Talk
- ⇒ Built in Battery on Handset
- ⇒ Auto ON-HOOK:  
The unit shall automatically be placed on-hook when the handset is placed in the charging cradle, or when the handset has been determined to be Out-of-Range for a sufficient period of time.
- ⇒ # of Channels: 40
- ⇒ # of Memories: N.A
- ⇒ # of digits in the memory: N.A
- ⇒ # of digits in Redial buffer: 32 Digit

### 1.3. UNIT AS RECEIVED -

The package as received shall consist of the following:

#### 1.3.1. Telephone Base unit Model XG-2500 DSST

Pulse/Tone switch setting to the Tone mode

#### 1.3.2. Telephone Handset model XG-2500 DSST

Volume set to Nominal Position  
Consumer-replaceable Earloop installed

#### 1.3.3. Accessory:

Item	Description/Model #	
AC/DC Converter	External	
Telephone Line Cord	Length 6 feet, straight; terminated in USOC RJ11C modular plug.	
Ear loop (Clip)	Accessory Item (included)	

**1.3.4. Printed Materials:**

**1.3.5. Packaging:**

**1.4. APPEARANCE**

**1.5. DATE CODING**

**1.5.1. Location**

**1.5.2. Format**

**1.5.3. Encoding**

**1.6. LABELING:**

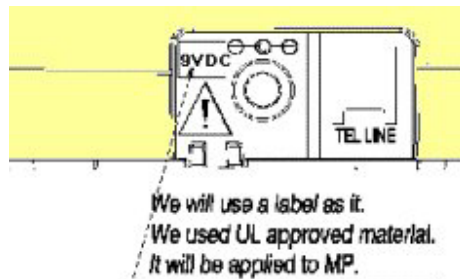
**1.6.1. Base Unit:**

**1.6.2. Handset**

**1.6.3. Other Marking and Labeling:**

**1.6.3.1.AC-DC Adapter Marking**

The following information must appear on the AC-DC Adapter:



**BELCO INTERNATIONL  
CLASS 2 POWER SUPPLY  
MODEL NO. : aaaaaaaa  
INPUT : 120VAC 60HZ 5W/6W  
OUTPUT : 9 VDC 300 mA  
MADE IN aaaaaaaaaa**

Where AAA is Country Of Origin

The **cETLus** symbol with **control number** located near symbol  
**Plug connection symbol.**

In addition, there shall be a caution marking per UL requirement.

**CAUTION : RISK OF ELECTRICAL SHOCK. DRY LOCATION USE ONLY.**

#### **1.6.4. Country Of Origin**

1.6.4.1. Acceptable Phrase

1.6.4.2. AC-DC Adapter Country of Origin

### **1.7. STANDARDS & REFERENCES:**

FCC and UL Rules and Regulations are mandatory. Other documents are reference.

#### **1.7.1. EIA 470B**

Telecommunications - Telephone Terminal Equipment - Performance and Compatibility Requirements for Telephone Sets with Loop Signalling.

#### **1.7.2. FCC Rules and Regulations**

1.7.2.1.47 CFR Part 2

Frequency Allocations and Radio Treaty Matters; General Rules and Regulations

1.7.2.2.47 CFR Part 15

Radio Frequency Devices

1.7.2.3.47 CFR Part 68

Connection of Terminal Equipment to the Telephone Network

#### **1.7.3. Industry Canada (IC) rules and regulations.**

1.7.3.1.CS-03

Standard for Terminal Equipment, Terminal Systems, Network Protection Devices, Connection Arrangements and Hearing Aid Compatibility

#### **1.7.4. Items not Included in Specification**

Any item (measurement parameter or subjective criterion), not included in this product specification shall be subject to the approval of Bellsouth .

### **1.8. REGULATORY APPROVALS REQUIRED**

This product shall be tested for compliance with all applicable regulatory requirements listed below. Testing shall be performed, and reports generated by a certified test facility.

#### **1.8.1. FCC Telephone Network Terminal Equipment Registration**

The product shall be designed and manufactured so that it may be operated in accordance with Parts 2, 15, and 68 of FCC Rules and Regulations. The product shall be filed for FCC registration.

### **1.8.2. ETL / cETL Approval and Listing**

The unit shall be designed and manufactured so that it may be operated in accordance with UL60950-1.

### **1.8.3. Industry Canada Approval (IC)**

The unit shall be designed and manufactured so that it may be operated in accordance with the latest revision of the Industry Canada regulations.

## **1.9. SAFETY**

The unit must meet all specifications as set forth in Bellsouth Safety Practices Manual. The unit must meet any and all applicable UL standards, including UL60950-1. The unit will be examined by the Bell south Safety Department. In the interest of safety, all decisions and recommendations of the Department must be incorporated in the design and manufacture of the unit.

## **1.10. FACTORY OR AFTER SALES SERVICE INTERFACE**

Product service information shall be provided from which Product Field Service Manual will be generated.

The following items are required in a timely manner to assist the Product Service department in creating service data.

- A) Schematic diagram - on mylar. Schematic must show DC voltages in all modes of operation for all active devices - or a separate voltage chart drawing may be submitted.
- B) Conductor pattern for each PCB - on mylar
- C) Component layout for each circuit board - on mylar. 2 drawings, one to show components as viewed from conductor side of PCB and one from component side.
- D) Wiring diagram showing interconnection of PCB's and off PCB components such as LED's, switches, etc.
- E) Complete parts list - mechanical and electrical
- F) Assembly drawing of complete unit showing cabinet sections, knobs, antenna, etc.
- G) Block diagram of circuit
- H) Alignment procedure giving test equipment type, connection information, and tune up procedure.
- I) Pin out drawing of all transistors and IC's.

## **1.11. COMPATIBILITY**

### **1.11.1. Operation With Other Devices**

### **1.11.2. Operation With Central Offices**

This product shall be capable of operating with any FCC/UL approved Central Office without causing any harm to the Central Office.

## **1.12. SECURITY CODE INFORMATION**

We provide a fixed code that is continuously varied among 1,048,576 discrete digital codes as each telephone is manufactured.

**2. USER INTERFACE DESCRIPTION**

**2.1. INITIAL FACTORY SETTINGS:**

Tone / Pulse Switching: Tone  
 Volume Control: Nominal ( FCC HAC compatible)  
 Talk Button: OFF  
 All LEDs: OFF

**2.2. DEFAULT SETTINGS**

**2.3. RINGING AND TONES:**

**2.3.1. Warning tone:**

Low Battery Indicator: The handset shall provide an audible and visual alert when its battery charge will soon be inadequate to continue conversation

Beat	1	2
Time (ms) ON	80	
Time (ms) OFF	4000	
Beep Frequency (Khz)	2.048	

Out of Range Indicator: The handset shall provide an audible and visual alert for 25 seconds when the distance between handset and base does not permit adequate transmission quality. The last beat shall be error beep.

Beat	1	2
Time (ms) ON	80	80
Time (ms) OFF	80	4000
Beep Frequency (kHz)	2.048	2.048

**2.3.2. Ring:**

**2.3.2.1 Base unit**

**2.3.2.1.1 Base Incoming call Ring: Shall meet the para 8.3.3.3.**

**2.3.2.2 Distinctive Ring from CO:**

To support telephone-company-supplied Distinctive Ringing features, the unit ringer(s) shall reproduce ring cadences present on the telephone line, according to detailed requirements referenced by *Distinctive Ring Timing*, in standard specification (para. 8.3.2.3)



### 2.3.2.2 Handset unit

When the base incoming call will be flash LED and heard beep tone on handset.

### 2.3.2.3. Page ring:

This ring will alert the other party to page H/S from B/U for 15seconds. The page function will operate the ringer of H/S only. This ring shall be distinctive from incoming call ring.

In case that the handy is low battery or in the out-of range where the handy is not capable of receiving ID handshake command the base unit sends, The base unit stops sending the paging data only for 2 seconds.

Time (ms) ON	80	80
Time (ms) OFF	80	730
Beep Frequency (kHz)	2048	2048

### 2.3.3. Tone Feedback on Key Press

When the base or handset accepts key inputs, appropriate feedback shall be produced by handset. All feedback tones shall be the same frequency of 2.0 kHz  $\pm$  10%.

Tone feedback shall be heard during temporary tone action in pulse mode.

#### 2.3.3.1. Key Tone:

Shall be produced in response to most accepted key presses.

Cadence

Beat	1
Time (ms) On	80
Time (ms) Off	---

#### 2.3.3.2. Confirmation Tone

Shall be produced when a key press is accepted, completing a complex sequence and altering nonvolatile stored information, such as configuration settings and repertory dialing entries.

Cadence

Beat	1	2
Time (ms) ON	80	80
Time (ms) OFF	80	--

## 2.4 DISPLAY:

### 2.4.2 LED:

The following illumination cadences shall indicate that...

Off Indicate that no action is in progress.

On (Solid) Indicate that a steady action in progress.

Slow Blink Warning for temporary stop action or for some change in progress.

#### a. Low battery:(For the handset)

Blink	1	2
Time (ms) ON	500	
Time (ms) OFF	1500	

#### b. Page: (For the base & handset)

Blink	1	2
Time (ms) ON	250	250
Time (ms) OFF	250	250

#### c. Out-of range

Blink	1	
Time (ms) ON	80	
Time (ms) OFF	2000	

#### d. Operation status of the talk LED on the base and handy unit when incoming call.

Blink	Ring	Pause
Time (ms) ON	80	500
Time (ms) OFF	80	500

### 2.4.3 LEDs on Handset:

Name	Description
In use LED	LED off if the phone is "on-hook". LED on if the phone is "off-hook". LED blinking if Page data is incoming from the baseset. Distinctive and power ring cadence blinking during incoming call ringing.
Low LED	Slow Blinking

#### 2.4.4 LEDs on Base unit:

Name	Description
Talk LED	LED off if the phone is "on-hook". LED on if the phone is "off-hook". Distinctive and power ring cadence blinking during incoming call ringing. LED fast blinking if Page is pressed (hold mode)
Charge/ Page LED	LED off if the handset is out of the cradle. LED on if the handset is on the cradle. LED slow blinking if Page is pressed (on-hook mode) LED slow blinking if Page is pressed (off-hook mode)

#### 2.5 TEST MODE:

Shall have test mode.

#### 2.6 OPERATING PROCEDURES:

##### 2.6.1 Handset:

The unit shall provide audible feedback when keys are depressed.

#	NAME	USER INTERFACE	NOTE
1	TALK	Shall initiate or terminate TALK mode. Toggle between ON and OFF hook.  When incoming call, press TALK key to accept the call.  When line is not in use, press TALK key to initiate a call.  The unit shall establish a RF link between the base and the handset. The base shall seize the line, routing audio to and from the handset. The TALK LED's shall is on for the baseset and become steadily lit for the handset respectively.  Auto ON-HOOK: The unit shall automatically be placed on-hook when the handset is placed in the charging cradle, or when the handset has been determined to be Out-of-Range for a sufficient period of time.	The unit shall be capable of automatically selecting the clearest available channel when initiating TALK mode.  RF link time of 1.5 sec or less is preferable.
2	Redial/Pause	<b>ON hook</b> - Shall insert a pause in memory dialing sequences being stored. Pause time shall be 2 seconds.  <b>OFF hook</b> – Shall redial the most recently dialed number in TALK mode.	During the redial in tone mode DTMF tone will be heard through ear-piece.
3	Channels	Automatic Channel Change – The unit shall be capable of automatically selecting the clearest available channel.	No voice muting.

4	Flash	<b>OFF HOOK</b> - Shall initiate a hook switch flash in TALK mode. <b>ON HOOK</b> - Ring pattern selection: press Flash key and 1 or ,2,3,4 in on-hook mode	600mS +/- 10%
5	0 to 9 digit keys	Pressing TALK key, these buttons can be used for manual dialing.	Each key action will be followed by tone feedback
6	TONE, *	Shall dial or store the '*', in TALK mode respectively. Shall initiate temporary tone dialing if pulse dial mode is set.  The procedure to activate tone dialing temporarily, for the purpose of activating touch-tone services offered by banks, credit card companies, etc. When pulse dialing is selected, press this button. Then tone dialing shall be active until the unit is placed on hook. Pulse dialing shall be reselected when the unit is next taken off hook.	Each key action will be followed by proper tone feedback
7	#	Shall dial or store the '#', in TALK mode respectively.	Each key action will be followed by proper tone feedback
8	Ringer on/off	N.A	
9	Volume up/down	Volume up or down function (Talk Mode)  Each "Selection" of the volume up or down switch shall change 13 dB ± 1 dB of volume level. Total volume change shall be 13 dB ± 1dB.	<b>Shall meet FCC HAC requirement.</b>
10	Talk LED  Hold LED	OFF - the telephone line is not in use, or there is no incoming call detected  Solid on to indicate "IN USE".  Blinking - Where the capacity of battery drops below the threshold, Talk LED is blinking and Alert tone can be heard through the earpiece  <b>Ring Cadence:</b> Shall indicate the cadence of the ring signal, by blinking only when ringing voltage is present on line or page from B/U.	

**2.6.2 Base unit:**

#	Function	User Interface	Note
1	Page	<p>Press PAGE key to page the B/S. Ring the H/S for 15 second. Paging will be terminated by pressing PAGE button on the base again.</p> <p>Pressing the "talk" key on the hand set will establish RF link.</p> <p>If handset is off hook, softer ring on handset will alert paging from Base unit.</p>	
2	T/P Switch	Set Tone or Pulse dialing depending on the position of the switch.	Mechanical 2 position switch.
3	Talk LED	<p>OFF – neither is the telephone line in use, nor is an incoming ring detected</p> <p>Turn on – Telephone is in use</p> <p>Fast blinking – When the unit is receiving an incoming ring.</p> <p><b>Ring Cadence</b> - Shall indicate the cadence of the ring signal, by blinking only when ringing voltage is present on line.</p> <p>Fast blinking followed by off -&gt; When the handy unit is placed on its cradle of base unit for id handshaking, For a normal operation the Talk LED shall be "off" status after fast-blinking</p>	
4	Charge/ Page LED	<p>OFF – No charge</p> <p>ON – Charging of battery in H/S in progress.</p> <p>Fast blinking per ring sound shall occur during paging.</p>	

### 3 ELECTRICAL SPECIFICATIONS

(More detail the specifications refer to attached – refer A)

#### 3.3 TEST CONDITIONS

Unless otherwise noted, all tests are performed under the following conditions:

- 3.3.2.1 Power Supply Voltage:  
120Vac  $\pm 10\%$  for the base 60Hz.  
3.7Vdc  $\pm 0.025$ Vdc for the handset.
- 3.3.2.2 Ambient Temperature: 25°C  $\pm 5^\circ$ C
- 3.3.2.3 Standard measurement as described in EIA standard, and 470B.
- 3.3.2.4 Standard Frequency Modulation: Per vendor's design

#### 3.4 RF: REFER TO STANDARD SPECIFICATION **BELCO** INTERNATIONAL and CONEXANT RF Measurement W138, rev.A.

##### 3.4.2 General

- 3.4.2.1 Operating frequency range : 2.4048GHz ~2.4750 GHz
- 3.4.2.2 Operating channels : 40ch (**channel table refer to attached – refer B**)
- 3.4.2.3 Modulation type : DBPSK
- 3.4.2.4 Channel bandwidth: 1.8 MHz
- 3.4.2.5 Channel frequency : 1ch : 2.4048 GHz  
20ch : 2.4408 GHz  
40ch : 2.4750 GHz
- 3.4.2.6 Receiver sensitivity : -98dBm @ I/Q=220mV  $\pm$  40mV,  
Vagc= 1.5V  $\pm$  0.1V
- 3.4.2.7 Symbol Rate : 1.2M bps
- 3.4.2.8 Speech codec : ADPCM (32 Kbps )

3.4.2.9 Transmitted Power

3.4.2.9.1 Peak Power

Channel		Peak Power level (dBm)		
No Ch	Frequency(GHz)	High	Medium	Low
1	2.4048	16 +/- 2	5 +/- 2	-6.5 +/- 2
20	2.4408			
39	2.4750			
Note: Peak power readings using the HP8990A Peak power analyzer				

3.4.2.9.2 Normal TX Power(High mode) : 14 +/- 3dBm (spectrum analyzer)

3.4.2.10 Radiated emission : see FCC 15.249 for limits

3.4.2.11 Audio distortion : < 5%

3.4.2.12 Audio freq response : 300Hz ± 3dB  
3KHz ± 30dB

3.4.2.13 AM Hum noise & Noise : < 35dB

3.4.2.14 Range test : More than 400ft

### 3.5 LINE INTERFACE:

The set shall meet all items in the Belco. The following items will be tested during the evaluation.

#### 3.5.2 Battery Requirements

- 3.5.2.1 The batteries must supply 2.0 hours (above) of continuous talk time at low power operation or more than 14 days of stand-by service when fully charged.
- 3.5.2.2 The unit must be fully charged within 3.5 hours at 120 Vac from the fully discharged condition. There shall be every precaution in charging circuit design to extend the battery life and reduce adverse battery capacity memory effect of Lithium-ion Polymer battery.
- 3.5.2.3 The external contacts, on the handset used for recharging the battery, must be protected, such that when shorted together the battery is not discharged.
- 3.5.2.4 In the Off-Hook mode, the handset shall beep at 30 second interval to inform the user when the battery voltage has dropped to a level that could impair the quality of the communication link if usage is prolonged without recharging the handset battery.  
The battery voltage shall be considered low when in the range of 3.1V to 3.3VDC (3.2V DC nominal)

#### 3.5.3 Off Hook Time

From the time that the hand set is lifted from the cradle if unit is in Auto Standby, or when the TALK button is pressed if not in Auto Standby, until the base unit goes OFF HOOK shall be less than 1.5 sec.

#### 3.5.4 DTMF and Pulse dialing: Shall meet the para. 8.5.5 to 8.5.21.

#### 3.5.5 Dial Pulse Mute (Para. 8.5.22)

The speaker output due to pulse dialing shall be less than 72 dB SPL  $\pm$  12 dB.

#### 3.5.6 Tone Feedback on Key Depression

In pulse dial, depression of any key shall produce a tone at the ringer buzzer with the following characteristics:

Frequency:	2000Hz $\pm$ 10%
Wave form:	Square Wave
Duration:	80 ms fixed
Output Level:	105 $\pm$ 5db SPL at earpiece

In tone dial, the tone shall be true DTMF feedback. In standby mode the PAGE key on the base unit and TALK key on the handset unit when depressed shall produce the above tone.



### 3.5.7 Tone Ringer (Base unit only)

The ringer shall be of the tone type, meeting the following specifications.

Component	Parameter	Min	Max	Units
	Output level at ringer		110	dB SPL
	Output level at 0.5 meter	68		dB SPL

### 3.5.8 Ring Sensitivity: Shall meet the para. 8.3.2 and 8.3.3.

### 3.5.9 On-Hook DC and AC impedance: Shall meet the para. 8.3.4 and 8.3.5.

### 3.5.10 OFF- hook Impedance: Shall meet the para. 8.3.6.

### 3.5.11 Buffer Size©

The redial buffer shall be capable of holding (and redialing) strings of at least 32digits.

### 3.5.12 Audio:

- 3.5.12.1 Buzz and Static noise: There shall be no buzzing or static sound from the receiver.
- 3.5.12.2 Fading and Drop out: There shall be no audio fading or audio drop out when user turns against a fixed location of the base unit in any direction.
- 3.5.12.3 Objective Loudness Ratings  
**( We need Confirm or specification – This model is earset Type )**

The phone shall meet the following OLR limits over the range of loop condition as following

	0 kft	9 kft	15 kft
TOLR	- 40 to - 53	- 38 to - 51	- 36 to - 49
ROLR	41 to 51	43 to 53	45 to 55
SOLR	14 to -2	16 to -1	17 to 0

Measurement procedures, please refer to EIA-470B standards.

- 3.5.12.4 Volume Control: Shall meet the HAC requirement.  
change volume switch UP key shall increase the volume in 13 dB ± 1dB.

## 4 ENVIRONMENTAL

This product shall comply with BELCO *General Specifications and Procedures for Telephone Products*, with the following exceptions and additions:

### 4.3 PURPOSE OF SPECIFICATION

To assure product can still meet customer expectations after and during exposure to expected environmental use conditions.

### 4.4 TEMPERATURE PERFORMANCE

#### 4.4.2 Operating Range

Base unit and Handset: 0°C to +50°C

#### 4.4.3 FCC Performance (Reference Para 15.233(G) of FCC Rules)

Base unit and Handset: -40°C to +66°C for frequency stability.

### 4.5 ELECTROSTATIC DISCHARGE

Shall meet the Paragraph 6.3.2 of Standard Specification for Communication Products, BELCO.

### 4.6 HUMIDITY:

The D.U.T. will be subjected to a 2 week humidity cycle test as follows:

- 4 days---90% relative humidity @ 40 deg. C then
- 3 days---12% relative humidity @ 50 deg. C then
- 4 days---90% relative humidity @ 40 deg. C then
- 3 days---12% relative humidity @ 50 deg. C

After the humidity cycle above, there must be no functional, performance, or appearance degradation.

## FCC REGULATIONS

**Warning** : Modifying or tampering with the telephone's internal components can cause a malfunction and might invalidate the telephone's warranty and void your FCC authorization to operate it. If the trouble is harming the telephone lines, the telephone company might ask you to disconnect the telephone until you have resolved the problem.

As it complies with Part 68 of the FCC rules and the technical requirements for connection to telephone networks published by ACTA, your unit has been registered with the FCC. The FCC requires us to provide you with the following information :

1. Connection and use with the nationwide telephone network :

The FCC requires that you connect to a nationwide telephone network through a modular telephone outlet which is TIA/EIA-IS-968 compliant. It is USOC jack type RJ11C.

This equipment may not be used on coin service provided by the telephone company. Connection to party lines is subjected to state tariffs. Check with your local telephone company.

2. Notification to the telephone company :

FCC rules require that upon request you provide the following information to the phone company.

A. The line (telephone number) to which you will connect the telephone equipment, and

B. The Registration Number and Ringer Equivalence Number (REN). These numbers are found on the back or bottom of your telephone equipment.

The REN is useful to determine the quantity of devices you may connect to your telephone line and still have all of those devices ring when your telephone number is called. In most, but not all areas, the sum all RENs should be 5 or less. To determine the number of devices permitted in your area, contact your local telephone company.

3. Repair instructions :

If it is determined that your telephone equipment is malfunctioning, the FCC requires that it not be used and be unplugged from the modular outlet until the problem has been corrected.

Repairs to this telephone equipment can be made only by the manufacturer or its authorized agents, or by others who may be authorized by the FCC. Unauthorized repairs void registration and warranty.

4. Rights of the telephone company :

If your product is causing harm to the telephone network, the telephone company may temporarily discontinue your service. If possible, they will notify you in advance. But if advance notice isn't practical, you will be given the opportunity to correct the problem, and you will be informed of your right to file a complaint with the FCC. Your telephone company may make changes in its facilities, equipment, operations or procedures that could affect the proper functioning of your telephone equipment. If such changes are planned, you will be notified in advance.

5. This product is compatible with inductively coupled hearing aids.

Note: This applies only if this product is equipped with a corded or cordless handset.

6. Programming / testing emergency numbers:

When programming emergency numbers and/or making test calls to emergency numbers

A. Remain on the line and briefly explain to the dispatcher the reason for the call before hanging up.

B. Perform such activities in the off-peak hours, such as early morning or late evening.

## **FCC REGULATIONS CONTINUED**

### **INTERFERENCE INFORMATION: PART15 OF FCC RULES**

Some telephone equipment generates and uses radio frequency energy which if not properly installed, may cause interference to radio and television reception.

This unit has been tested and found to comply with the limits for class B computing device in accordance with the specifications in Part 15 of the FCC rules. These specifications are designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause interference to radio or television reception, when it's in use, the user is encouraged to try correct the interference by one or more of the following measures:

- A. Where it can be done safely, reorient the radio or TV receiving antenna.
- B. To the extent possible, relocate the television, radio, or other receiver with respect to the telephone equipment.
- C. If your telephone product runs on AC power, plug your product into an AC outlet that's not on the same circuit as the one used by the radio or television.

This device complies with Part15 of the FCC rules. Operation is subject to the following two conditions : (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undersired operation. Privacy of communications may not be ensured when using this phone.

## IC REGULATIONS

**Notice :** This equipment meets the applicable Industry Canada Terminal Equipment Technical Specifications. This is confirmed by the registration number. The abbreviation, IC, before the registration number signifies that registration was performed based on a Declaration of Conformity indicating that Industry Canada technical specifications were met. It does not imply that Industry Canada approved the equipment.

Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations.

Repairs to certified equipment should be coordinated by a representative designated by the supplier. Any repairs alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment.

Users should ensure for their own protection that the electrical ground connections of the power utility, telephone lines and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas.

**Caution:** Users should not attempt to make such connections themselves, but should contact the appropriate electric inspection authority, or electrician, as appropriate.

**Notice:** The Ringer Equivalence Number (REN) assigned to each terminal device provides an indication of the maximum number of terminals allowed to be connected to a telephone interface. The termination on any interface may consist of Ringer Equivalence Numbers of all the device does not exceed 5.

Privacy of communications may not be ensured when using this telephone.

### **Interference Information**

Operation is subject to the following two conditions : (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may interference, including interference that may cause undesired operation of the device.

## AVIS D'INDUSTRIE CANADA

**Avis :** L'étiquette d'Industrie Canada identifie le matériel homologué. Cette homologation signifie que l'équipement est conforme à certaines exigences de protection, de fonctionnement et de sécurité du réseau de communication qui apparaissent dans les documents appropriés traitant des exigences techniques des équipements de terminaison. Industrie Canada n'atteste pas que l'équipement donnera satisfaction à l'utilisateur.

Avant d'installer cet équipement, l'utilisateur doit s'assurer qu'il lui est permis de le connecter aux installations de son entreprise de téléphone et il doit utiliser une méthode de raccordement acceptable. Le client doit savoir que le fait de se conformer aux conditions ci-dessus ne peut empêcher la dégradation du service dans certaines conditions.

Les réparations de l'équipement homologué doivent être coordonnées par un représentant désigné du fournisseur. Toute réparation ou modification de cet appareil effectuée par l'utilisateur ou tout mauvais fonctionnement de l'équipement peut donner à l'entreprise de téléphone des raisons de demander à l'utilisateur de déconnecter l'équipement.

Pour sa propre protection, l'utilisateur doit s'assurer que les mises à la terre de l'équipement électrique, du système téléphonique et de l'entrée d'eau, le cas échéant, soient connectées ensemble. Cette précaution est particulièrement importante dans les zones rurales.

**Mise en garde :** L'utilisateur ne doit pas essayer d'effectuer lui-même de telles connexions, mais devrait contacter un inspecteur compétent ou un électricien qualifié.

**Avis :** Le numéro d'équivalence sonnerie (NES) attribué à chaque appareil permet de connaître le nombre maximum d'appareils pouvant être raccordés sur une ligne téléphonique. Le total des NES de tous les appareils connectés sur une ligne ne doit pas dépasser 5.

Lorsque cet appareil est utilisé, il est impossible de garantir la confidentialité des conversations.

### **Renseignements concernant les interférences**

L'utilisation de cet appareil est soumise aux deux conditions suivantes : (1) il ne doit pas causer d'interférences et (2) il doit accepter d'interférences, y compris celles qui peuvent nuire à son fonctionnement.

## IMPORTANT SAFETY INSTRUCTIONS

When using this product, basic safety precautions should always be followed to reduce the risk of fire, electrical shock, and injury to persons, including the following:

1. Read and understand all instructions.
2. Follow all warnings and instructions marked on the product.
3. Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners, or aerosol cleaners. Use a damp cloth for cleaning
4. Do not use this product near water, for example near a bathtub, wash bowl, kitchen sink, or laundry tub, in a wet basement, or near a swimming pool.
5. Do not place this product on an unstable cart, stand or table .The product may fall, causing serious damage to the product.
6. Slots and openings in the cabinet back or bottom are provided for ventilation. To protect it from overheating, these openings must not be blocked or covered. The openings should never be blocked by placing the product on the bed, sofa, rug or other similar surface. This product should never be placed near or over a radiator or heat register. This product should not be placed in an enclosed environment unless proper ventilation is provided.
7. Do not allow anything to rest on the power cord. Do not locate this product where the cord will be abused by animals or persons walking on it.
8. Do not overload wall outlets and extension cords as this can result in risk of fire or electrical shock.
9. Never push objects of any kind into this product through cabinet slots as they may touch dangerous voltage points or short out parts that could result in a risk of fire of electrical shock. Never spill liquid of any kind on the product.
10. To reduce the risk of electric shock, do not disassemble this product. Instead take it to a qualified service person when service or repair work is required. Opening or removing covers may expose you to dangerous voltages or other risks. Incorrect re-assembly can cause electrical shock when the appliance is subsequently used.
11. Unplug all cords and refer servicing to qualified service personnel under the following conditions:
  - A. When the power supply cord or plug is damaged or frayed.
  - B. If liquid has been spilled into the product.
  - C. If the product has been exposed to rain or water.
  - D. If the product does not operate normally by following the operating instructions. Adjust only those controls covered in the operating instructions. Improper adjustment of other controls may result in damage and require work by a qualified technician to restore the product to normal operation.
12. Avoid using a telephone (other than a cordless type) during an electrical storm. There may be a remote risk of electrical shock from lightning.
13. Do not use the telephone to report a gas leak in the vicinity of the leak.

## SAVE THESE INSTRUCTIONS

## CONSIGNES DE SÉCURITÉ IMPORTANTES

Pour réduire les risques de blessure, d'incendie et d'électrocution, chaque fois que vous utilisez ce produit, appliquez les règles élémentaires de sécurité, notamment les suivantes :

1. Lisez attentivement toutes les instructions.
2. Respectez tous les avertissements et toutes les instructions apparaissant sur le produit.
3. Avant de nettoyer ce produit, débranchez le prise murale. N'utilisez pas de nettoyant liquide ni en aérosol.  
Pour nettoyer, utilisez simplement un chiffon humide.
4. N'utilisez jamais ce produit près d'un point d'eau (par exemple, près d'une baignoire, d'une cuvette de lavage, d'un évier de cuisine ou d'un lavado), dans un sous-sol humide ou près d'une piscine.
5. Ne placez pas ce produit sur une table, un meuble ou un chariot instable. Si le produit tombe, il risque d'être gravement endommagé
6. Les fentes et les ouvertures qui se trouvent derrière ou dessous l'appareil servent à la ventilation. Pour éviter toute surchauffe, ces ouvertures ne doivent jamais être couvertes ou obstruées. Pour éviter qu'elles soient bloquées, ne placez pas le produit sur un lit, un sofa, une moquette ou une autre surface molle. Ce produit ne devrait jamais être placé près d'un radiateur ou d'un autre appareil de chauffage. Ce produit ne doit jamais être placé dans un endroit confiné sauf si une ventilation adéquate est prévue.
7. Ne laissez jamais d'objet posé sur le cordon d'alimentation. Ne placez pas ce produit à un endroit où le cordon risque d'être abîmé par des animaux de compagnie ou des personnes pouvant l'écraser en marchant.
8. Ne surchargez jamais les prises murales et les rallonges car vous risqueriez alors de provoquer un incendie ou une électrocution.
9. Ne faites jamais entrer des objets par les fentes du boîtier de cet appareil car vous pourriez toucher des points de tension dangereux ou causer un court-circuit pouvant entraîner un incendie ou une électrocution. Il ne faut jamais verser de liquide sur ce produit.
10. Pour réduire les risques d'électrocution, ne tentez pas de démonter ce produit. Lorsqu'une réparation semble nécessaire, apportez-le plutôt chez un technicien qualifié. Si vous ouvrez ou enlevez une pièce du boîtier, vous vous exposez à des tensions électriques dangereuses et à d'autres risques. Si l'appareil est mal assemblé, une électrocution pourrait survenir lors de la prochaine utilisation.
11. Dans les situations suivantes, débranchez tous les cordons d'alimentation et consultez un technicien qualifié.
  - A. Lorsque le cordon d'alimentation est endommagé ou effiloché.
  - B. Lorsqu'un liquide a été renversé sur le produit.
  - C. Lorsque le produit a été exposé à la pluie ou à l'eau.
  - D. Lorsque le produit ne fonctionne pas normalement et que toutes les instructions ont été suivies.  
Ne réglez que les commandes décrites dans le guide d'utilisation. Un mauvais réglage des autres commandes peut causer des dommages, et l'intervention d'un technicien qualifié pourrait être nécessaire pour remettre le produit en état.
12. Évitez d'utiliser un téléphone (sauf un téléphone sans fil) durant un orage électrique. Il existe alors des risques faibles d'électrocution par un éclair.
13. S'il y a une fuite de gaz, n'avisez pas les autorités avec un téléphone situé près de la fuite.



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## Security code information

We provide a fixed code that is continuously varied among 1,048,576 discrete digital codes as each telephone is manufactured.