

CP-100G (GSM/GPRS) For P2P Mode Owner's Manual / www.cuman.co.kr

APPIAN

€ CP-100



I. Getting to Know Your GPS Personal Tracker



1) Device and Accessories



CP-100G



Owner's Manual



Waterproof Case for Pets (Option)



USB Cable



USB Recharger (Option)



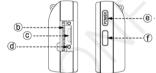


I. Getting to Know Your GPS Personal Tracker



2) Introduction to CP-100G





Part

- a LED Window
- (b) SIM Card Slot
- © USB Slot
- @ Reset Button
- Power Button
- (f) SOS Button

Feature

Displaying status of Device

Inserting GSM SIM Card

Program Update by USB Cable Battery Recharge by USB Cable

Reset your Device

Turn ON & OFF

Send SOS Message



3



I. Getting to Know Your GPS Personal Tracker



3) Charging the Battery

New battery built in CP-100G is shipped partially charged. Before you use CP-100G, you need to charge the battery as described below. Some batteries are performing the best after several full charge/discharge cycles. Before you start charging battery, make sure CP-100G is power off.



- 1. Power off (Press and hold 'Power Button' for 5 seconds)
- 2. Connect CP-100G with your PC or USB Recharger using USB Cable.
- It shall take 4~5 hours to fully recharge battery but it might be a little different depending on the battery condition.
- LED indicator on the top side of USB Cable connector shall be turned on RED while charging battery, and it shall be changed to GREEN when battery is fully charged.
 - CUMAN recommend to keep charging for 4 hours at least although LED indicator changed to GREEN a couple of hours after you start charging.





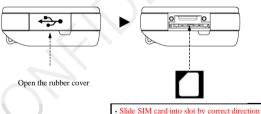




4) Inserting SIM Card

You should make sure CP-100G is POWER OFF before you insert SIM card. If you insert SIM card while CP-100G is POWER ON, it might be not properly working, and in this case, you may remove SIM card from CP-100G and press reset button. Open the rubber cover at the right side and slide the SIM card into the SIM Card Slot beneath USB slot.

* Note: CP-100G shall not work at all without SIM card



as shown above.







1) Features of Location Tracking Device, CP-100G

CP-100G was designed for 2 kinds of Operation Modes. Person to Person (P2P) and Operator to Customer (B2C). This manual shall introduce the features of CP-100G by P2P mode only, and you can track your kids, pets and assets by SMS of pre-assigned simple command sets, using your mobile phone or Smartphone or PC.

- A. Commands to Set Up CP-100G for
 - a). The Control Phone number to receive status of CP-100G
 - b). The time period for location report
 - c). The area to allow moving zone
 - d). The local time where you are using your device by adjusting from GMT
- B. Reporting for
 - a). The Location periodically using GPS
 - b). The Location immediately using GPS
 - c). Zone out as being beyond allowed zone that you can set up by yourself
 - d). My Zone Out as being beyond the point set up by yourself
 - e). SOS / Emergency
 - f). Battery Warning / Low Battery







2) Turning your device ON and OFF

A. Power ON

Press and hold 'Power Button' for 5 seconds, and then, each LED shall be turned on and blink 3 times by one after another. You can release Power Button once LED starts blinking.



B. Power OFF

Press and hold 'Power Button' for 5 seconds, and you shall see all the LED lights shall blink 3 times at the same time. You can release Power Button once LED starts blinking.



7





3) Battery Capacity

The Battery capacity shall depend on operating conditions including mobile network, GPS level and/or reporting period etc. By default, CP-100G is set to wake up every 30 minutes to fix GPS and check up GSM network, automatically updating for the most ideal operating condition.

Below table can be reference when you set up Periodic Report described in page 12 of this manual.

| Reporting Period | Standby & Working Time | Remarks |
|------------------|------------------------|-------------------------------------|
| 1 Minute | 7 Hours | Reporting location every minute |
| 10 Minutes | 35 Hours | Reporting location every 10 minutes |
| 30 Minutes | 70 Hours | Reporting location every 30 minutes |
| 1 Hour | 80 Hours | Reporting location every hour |
| 2 Hours | 90 Hours | Reporting location every 2 hours |
| 4 Hours | 100 Hours | Reporting location every 4 hours |
| 23 Hours | 110 Hours | Reporting location every 23 hours |

(The above standby and working time was measured under normal condition of mobile network and GPS)









4) Your SIM Card to be inserted into Your Device, CP-100G

- A. Some carriers' (Mobile Phone Service companies) SIM Card may require PIN CODE before you start using for the first time or anytime when the power of your device is turned on.
- B. Your Device, CP-100G can only work with SIM Card free from PIN CODE restriction, and you may check up the SIM Card before you insert into CP-100G if it requires PIN CODE.
 - 1. Insert SIM Card into your mobile phone to see if PIN CODE is required.
 - 2. If PIN CODE is required by carriers, you may input PIN CODE given by carriers to activate SIM Card and set PIN CODE function to be "DISABLE" or "OFF". It is various depending on mobile phone manufacturers and models, but you may usually find out PIN CODE function control in the menu of Phone Setting.
- C. You can also check up if SIM card in CP-100G can be workable using CP-100G.
 - 1. Yellow LED shall be turned on if PIN CODE is required or SIM Card is the defected.
 - 2. You can use SIM Card if there is no yellow LED turned on.



D. First GPS Fix of your device, CP-100G

When you start using CP-100G for the first time, CUMAN strongly recommend for you to keep CP-100G out in the widely open sky area for about 10 minutes at least to fix GPS for the first time.

Once CP-100G fix initial GPS data, it shall be working as fast as "Hot Start Condition" whenever it is required to report location information.





All the Commands to use CP-100G should be edited by format of SMS. For more convenient use, CP-100G can be controlled by simple format of Commands. CUMAN recommend for you to save all the Commands described in this manual into Templates Folder of Control Phone (ex. your mobile phone) before you start using the Device.

A. Command to Register Control Phone No. (R)

- You should register your Control Phone No. to communicate with CP-100G, sending command to and getting report from CP-100G.
- You can track and control up to 9 sets of CP-100G with 1 set of your Control Phone Number, and you shall designate identification number of each device in numeric from 1 to 9.
- 3. You can choose any 4 digit of numeric and register your own Password.
 - Default password by Factory was set as "0000" in numeric.
- When you turn on the power of CP-100G for the first time, you shall see Blue LED at the left shall remain turned on as shown at the right.
 Once CP-100G is registered by R command from your Control Phone, Blue LED
 - Once CP-100G is registered by R command from your Control Phone, Blue LED at the left shall be turned off immediately.



- * SMS Command to CP-100G: R1 0000 XXXX
- * Reply from CP-100G : HP=D001=REGISTERED=IMEI-35900803???????
 - * IMEI No. of your device shall appear by 15 digits as above.
- * Notes for Command: "1" is a sequence ID of your device, CP-100G.
 - "0000" is a default password set by factory.
 - "XXXX" is your own password to be created by yourself.
- ** You should allow space between command letter and each password as shown above.









B. Command to Set Up Local Time (T)

 By Factory Default, Local Time of CP-100G is set up as GMT and you should change it to be your local time where you use your device as below.

Ex) Local Time Zone for each country shall be as per the below from GMT.;

```
-08 : US West Coast,
.
-03 : Brazil ...
+01 : Western Europe .... Germany, France, Italy......
+02 : Finland ...
.
+09 : Korean, Japan
```

2. You shall send Local Time Setting Command (T) by following format.

```
* SMS Command to CP-100G : T+1 (In case of Western Europe)
```

- * Reply from CP-100G : HP=D001=SET TIME
- * Notes for Command : You should allow space between T and +.





C. Command to Set Up Periodic Location Report (P)

- 1. By default set-up of factory, your device shall wake up from sleep mode every 30 minutes to figure out current location by itself but shall not report the location. Period of wake up of your device can be changed by this command as per your setting for periodic report. You can set up a period of location report by every 1 minute as frequently as you want to get Location Report.
- 2. You shall send Periodic Location Report Command by following format.
 - * SMS Command to CP-100G : **PY 9** (In case of reporting every 9 minutes)
 - * Reply from CP-100G : HP=D001=SET POINT SEND TIME OK
 - * Notes for Command: You should allow space between P and Y, and also allow space after Y.

You can designate period from 1 minute to 1380 minutes.

- According to your set up period, CP-100G shall report the location by the format described in page 17 of this manual.
- When you do not want to get Periodic Report from CP-100G, you can cancel this Command by sending following format of SMS command, and CP-100G shall stop sending Periodic Report.
 - * SMS Command to CP-100G : PN (Period of time is not required.)
 - * Reply from CP-100G : HP=D001=SET POINT SEND TIME OK
 - * Notes for Command : You should allow space between P and N.
- Period of wake up is changed from default of every 30 minutes to your designated report period as above, and once you send the command to cancel Periodic Report, it shall be back to default period of waking up every 30 minutes.







- D. Command to Request Immediate Report of Current Location (C)
- You can check up current location of CP-100G whenever you want by sending a SMS command by following format.
- * SMS Command to CP-100G : C
- * Reply from CP-100G :

HP=D001=LOCATION=<u>DATE-06/09/2009</u>=<u>TIME-23:59:59</u>=<u>SPD-110</u>=<u>DIR-359</u>=<u>.</u>

Date Time Speed(Km/h) Direction

http://mapsgoogle.com/maps?q=+22.36600+114.11977&%z=14 Google Map URL

- * Notes for Reply: You can see detailed description in chapter IV.
- Connect to http://maps.google.com through internet or run Google Earth program on your PC or Smartphone, and type the received coordinates, and you shall see current location of CP-100G.





E. Command to Set Up the Safe Zone area (S)

- By setting up of Safe Zone area, you shall get ZONE OUT Report whenever Your Device is out of designated Safe Zone area.
- 2. You shall set up the area as wide as you want by radius of every 10 meters.
- Before setting up Safe Zone, CUMAN recommend for you to let Your Device stay within Safe Zone area and make it report current location, using C command and make sure of CP-100G gets GPS data.
- You may have to get coordinates of the location where you want set up as Safe Zone area. If you do not know of coordinates, you shall get them from Google Earth.
- 5. Run Google Earth program on your PC or Smartphone, and find out the location by inputting name of street or brief address, and you shall see the map or pictures of the area. When you drag and point on exact location where you want to start Safe Zone, you shall see Latitude and Longitude information at the bottom of the window of Google Earth.
- If you are using PC, input the above coordinates into your mobile phone when you send below command, and if you are using Smartphone, you may just copy the coordinates and paste them into your command format.
- 7. In order to activate Safe Zone function, at first, your device, CP100G must be awake while it is located in Safe Zone area so that CP-100G can recognize it is within Safe Zone Area, and it can figure out and report later whenever it is out of Safe Zone area, which is why CUMAN recommend as above clause 3.







- 8. You can set up Safe Zone area by SMS command as followings.
 - * SMS Command to CP-100G : S Y 100 +22.36600 +114.11977
 - * Reply from CP-100G

HP=D001=SET SAFE ZONE=DATE-00/00/2000=TIME-00:00:00=SPD-110=DIR-359= http://maps.google.com/maps?q=+22.36600+114.11977&%z=14

- * Notes for Command : You should allow space between each letter and number, and also allow space between latitude and longitude.
 - * 1 digit to be 10 meters / 100 equals to 1 Km.
- * Notes for Reply : CP-100G shall immediately reply no matter it gets GPS data or not, and reply
 - can be without date and time information if GPS is not fixed.
- 9. If you want to cancel Safe Zone setting, you may send following SMS command to CP-100G.
 - * SMS Command to CP-100G: SN
 - * Reply from CP-100G

HP=D001=SET SAFE ZONE=DATE-00/00/2000=TIME-00:00:00=SPD-110=DIR-359= http://maps.google.com/maps?q=+22.36600+114.11977&%z=14

* Notes for Reply : To be same as above reply for setting up Safe Zone.





F. How to set up My Zone, using Your Device, CP-100G

- CP-100G can make My Zone area as a temporal boundary, which would be very useful for you to take
 care of your kids or pets outdoor such as at park area. It is not necessary for you to send any SMS
 command but press the buttons of POWER and SOS of CP-100G at the same time. By default, radius of
 My Zone was set to be 300 meters, and the default radius can not be changed.
- 2. As mentioned in page 12 of this manual, CP-100G shall wake up every 30 minutes by default, and CUMAN strongly recommend for you to make, before setting up MY ZONE, wake up period be shortened by sending "P" command as described in page 12 so that CP-100G can wake up and check up if it is out of MY ZONE as frequently as you wish and set up.
- 3. To set up MY ZONE, press and hold Power Button and SOS button on CP-100G at the same time for 3 Seconds when you are at the point where you want to set up as MY ZONE, and you shall see Blue LED at the left shall blink 2 times while CP-100G is working out to get GPS data and sending below report to your Control Phone.

HP=D000=START MY ZONE=DATE-03/09/2009=TIME-23:59:59=SPD-110=DIR-359=

Date

Time Speed(Km/h) Direction

http://maps.google.com/maps?q=+22.36600+114.11977&%z=14

Google Map URL







- Your Device, CP-100G shall send ZONE OUT Report by SMS message to your mobile phone when your kids or pets are moving out of MY ZONE area.
- 5. If you want to cancel My Zone setting, you shall repeat the same way as you have done when you set up My Zone. You can cancel My Zone setting either at the same location as you set up or at any location whenever you want. Press and hold Power Button and SOS Button at the same time for 3 seconds, and you shall see Blue LED at the left blink 2 times while CP-100G is working out to get GPS Data and sending below report to your mobile phone.
- When you cancel MY ZONE setting, CUMAN recommend for you to cancel any Periodic Report that you have set up as recommended in page 16 so that CP-100G can be back to default wake up period.

HP=D000=FINISH MY ZONE=DATE-03/09/2009=TIME-23:59:59=SPD-110=DIR-359=

Date

Time

Speed(Km/h) Direction

http://maps.google.com/maps?q=+22.28797+114.21578&%z=14

Google Map URL

14 means rate of zoom in

* Notes for Report : You can see detailed description in Chapter IV.

The coordinates shall be for the location where you cancel My Zone setting.





- A. Report for "Periodic Location Information "
 - You shall get Periodic Location Report from CP-100G according to time period set by your Command described in Chapter III & C.
 - * Periodic Report from CP-100G

HP=D001=LOCATION=<u>DATE-06/09/2009</u>=<u>TIME-23:59:59</u>=<u>SPD-110</u>=<u>DIR-359</u>=.

Date Time Speed(Km/h) Direction

 $\label{eq:http://mapsgoogle.com/maps} $$ \frac{\text{http://mapsgoogle.com/maps}?q=+22,36600+114.11977\&\%z=14}{\text{Google Map URL}}$$$

- 2. Reply from CP-100G is composed as per below format.
 - Header: HP
 - Your Device ID: D001 ~ D009 as you designated
 - Reply Command : LOCATION
 - Date: "DATE-MM/DD/YYYY" * MM: month, DD: day, YYYY: Year

 - Direction: "DIR-ooo" * ooo : Direction by ° (000° ~ 359°)
 - Google Earth Position URL: http://maps.google.com/maps?q=+22.36600+114.11977&% z=14





B. Report for "Zone Out "

 You shall get Zone Out Report from CP-100G when your device is out of Safe Zone Area set by your Command described in Chapter III & E.

```
* Zone Out Report from CP-100G :
```

HP=D001=ZONE OUT=<u>DATE-06/09/2009</u>=<u>TIME-23:59:59</u>=<u>SPD-110</u>=<u>DIR-359</u>=<u>.</u>

Date Time

Speed(Km/h) Direction

 $\frac{\text{http://mapsgoogle.com/maps?q=+22,36600+114.11977\&\%z=14}}{\text{Google Map URL}}$

2. Reply from CP-100G is composed as per below format.

- Header : HP

- Your Device ID: D001 ~ D009 as you designated

- Reply Command : ZONE OUT

- Date : "DATE-MM/DD/YYYY" * MM : month , DD : day , YYYY : Year - Time : "TIME-HH:MM:SS" * HH : hour , MM : minute, SS : second - Speed : "SPD-xxx" * xxx : Speed by Km/h (000 ~ 255)

- Direction : "DIR-000" * 000 : Direction by ° (000° ~ 359°)

- Google Earth Position URL: http://maps.google.com/maps?q=+22.36600+114.11977&%z=14





C. Report for "My Zone Out "

 You shall get My Zone Out Report from CP-100G when your device is out of My Zone Area set by yourself, using your device as described in Chapter III & F.

```
    My Zone Out Report from CP-100G
```

HP=D001=MY ZONE OUT=<u>DATE-06/09/2009</u>=<u>TIME-23:59:59</u>=<u>SPD-110</u>=<u>DIR-359</u>=<u>.</u>

Date

Time

Speed(Km/h) Direction

http://mapsgoogle.com/maps?q=+22.36600+114.11977&%z=14

2. Reply from CP-100G is composed as per below format.

- Header: HP

- Your Device ID: D001 ~ D009 as you designated

- Reply Command : MY ZONE OUT

- Direction : "DIR-ooo" * ooo : Direction by $^{\circ}$ (000° ~ 359°)

- Google Earth Position URL: http://maps.google.com/maps?q=+22.36600+114.11977&%z=14





D. Report for "SOS"

- You shall get SOS Report from CP-100G when SOS Button is pressed by anyone for 3 seconds. Blue & Yellow LED at the left shall blink for 30 seconds while CP-100G is working out to get GPS Data and sending SOS report to your Control Phone.
 - * SOS Report from CP-100G

HP=D001=SOS!=<u>DATE-06/09/2009</u>=<u>TIME-23:59:59</u>=<u>SPD-110</u>=<u>DIR-359</u>=<u>.</u>

Date

Time Speed(Km/h) Direction

http://mapsgoogle.com/maps?q=+22.36600+114.11977&%z=14 Google Map URL

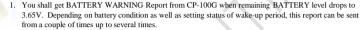
- 2. Reply from CP-100G is composed as per below format.
 - Header: HP
 - Your Device ID: D001 ~ D009 as you designated
 - Reply Command : SOS!

- Google Earth Position URL: http://maps.google.com/maps?q=+22,36600+114,11977&%z=14





E. Report for "BATTERY WARNING"



2. CUMAN recommend for you to recharge CP-100G as soon as you receive Battery Warning report.

```
* BATTERY WARNING Report from CP-100G
```

 $HP = D001 = BATTERY \; WARNING = \underline{DATE-06/09/2009} = \underline{TIME-23:59:59} = \underline{SPD-110} = \underline{DIR-359} = \underline{PD-110} = \underline{PD-1$

Date Time

Speed(Km/h) Direction

http://maps.google.com/maps?q=+22.36600+114.11977&% z=14 Google Map URL

3. Reply from CP-100G is composed as per below format.

- Header: HP

- Your Device ID: D001 ~ D009 as you designated

- Reply Command : BATTERY WARNING

- Google Earth Position URL : http://maps.google.com/maps?q=+22.36600+114.11977&%z=14





F. Report for "LOW BATTERY"



 You shall get LOW BATTERY Report from CP-100G when remaining BATTERY level drops to 3.2V. CP-100G can send LOW BATTERY report only when it can, fix GPS and get GSM network at the same time, and the battery should remain at potential level to send this report. If battery level quickly drops to lower than 3.2V due to weak signal of GSM network, you may not receive this report from CP-100G.

* LOW BATTERY Report from CP-100G

HP=D001=LOWBATTERY=<u>DATE-06/09/2009</u>=<u>TIME-23:59:59</u>=<u>SPD-110</u>=<u>DIR-359</u>=

Date Time Speed(Km/h) Direction

http://maps.google.com/maps?q=+22,36600+114,11977&%z=14 Google Map URL

3. Reply from CP-100G is composed as per below format.

- Header: HP

- Your Device ID: D001 ~ D009 as you designated

- Reply Command: LOWBATTERY

- Google Earth Position URL: http://maps.google.com/maps?q=+22.36600+114.11977&%z=14





| A. Default Status by Factory before registration by R command as described in Page 9 of this r | nanual |
|--|---------------|
| 1. Service Ready Indication: Blue LED at the left shall be turned on until receiving R Command. | |
| (Registration of Control Phone No. and Ready for Service) | |
| 2. PIN CODE or Error of SIM Card: Yellow light at the left shall be turned on if PIN CODE is | |
| required or SIM Card is defected as described in Page 8 of this manual. | |
| B. Status After registration by R command as described in Page 9 of this manual | |
| 1. Operating Indication: Blue LED at the left shall blink 1 or 2 times when CP100 is operating. | $\overline{}$ |
| Blinking 1 time: Wake Up by quick press of any button or by getting any SMS command | or |
| for reporting any event by pre-set command such as Periodic Report, | \sim |
| Safe Zone Out and, My Zone Out. | |
| Blinking 2 times: When you start or cancel My Zone function. | |
| 2. GSM Error Indication: Yellow LED at the left side shall blink 1 time in case of GSM network | |
| error (SMS error / GPRS error / No Network Signal) | |
| 3. Sleep Mode : No LED shall be on | \rightarrow |
| | |
| C. Default Status | _ |
| Low battery : Red LED at the right shall be turned on when battery level is low. | |
| 2. SOS Indication: Blue LED and Yellow LED at the left shall blink for 30 seconds when you | |
| press SOS button for a few seconds. | |





VI. Description for Error Message

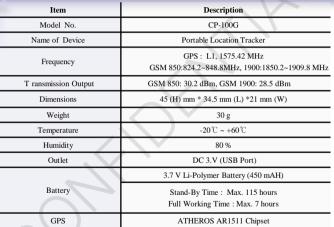
| Error Code | Description | Error Message by SMS | The reason why |
|---------------|--|--|---|
| 02 | Header was wrong | HP=D001=COMMAND HEADER NOT MATCHED (02) | A, B Y 9999, Z 0 0000 0000 |
| 03 | Field number in command was over limit | HP=D001=TOO MANY FIELD WAS DEFINED (03) | P Y 9999 0 |
| 04 | Field number in command can not be recognized due to input by wrong format | HP=D001=NOT ENOUGH FIELD NUMBER (04) | P Y9999 |
| 22 | Field length was over limit | HP=D001=FIELD LENGTH WAS OVER (22) | P YY 9999, P Y 9999 <mark>099,</mark> S Y 99999 +37.12345678 +127.12345678 |
| 24 | Filed length was not completely filled | HP=D001=FIELD LENGTH WAS EMPTY (24) | P Y 9999 -> P 9999, S Y 5 +37.0 +127.5 -> S Y 5 +127.5 |
| 27 | Invalid field value was input | HP=D001=INVALID VALUE WAS INPUT (27) | P X 9999, P Y 99X9, S Y 5 +370.0 +12700.0, S Y 50 +37.0asd0 +12a, S Y 50 +120 +127.0 |
| 29 | Sign of + or - of LONGITUTE for SAFE ZONE was omitted or too many dots in LONGITUE for SAFE ZONE | HP=D001=WRONG COORDINATE TO LONGITUTE (29) | S Y 50 +37.0 +127.0, S Y 50 +37.0 +127.0.0.0, S Y 50 +37 127 |
| 30 | Sign of + or - of LATITUTE for SAFE ZONE was omitted or too many dots in LATITUTE for SAFE ZONE | HP=D001=WRONG COORDINATE TO LATITUTE (30) | S Y 50 +370 +127.0, S Y 50 +37.0.0.0 +127.0, S Y 50 37 +127 |
| 31 | Time range to set up local time was over limit which is between +/- 1 and +/- 12 | HP=D001=TIME RANGE WAS INCORRECT (31) | T +14, T +20 |
| 62 | Value for Longitude was not correct | HP=D001=LONGITUDE RANGE WAS INCORRECT (62) | S Y 50 +37.0 +390.0, S Y 50 +37.0 +377 |
| 63 | Value for Latitude was not correct | HP=D001=LATITUDE RANGE WAS INCORRECT (63) | S Y 50 +98.0 +127.0, S Y 50 +91 +127.0 |
| 65 | If you try to cancel SAFE ZONE setting when there was not any pre-designated SAFE ZONE by yourself. Factory default is without pre-designated SAFE ZONE. | HP=D001=DO NOT OFF THE SAFE ZONE (65) | Right case : Wrong case : Factory status Send -> R 1 0000 0 Send -> S Y 50 +37 +127 Send -> S N |
| 72 | Incorrect Password was being input | HP=D001=WRONG PASSWORD (72) | Password was incorrect |







VII. Specification





FCC ID: X3HCP100G

This device complies with part 15 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 undesired operation.

Any changes or modifications (including the antennas) made to this device that are not expressly approved by the manufacturer may void the user's authority to operate the equipment.

RF Exposure Statement FCC RF Radiation Exposure Statement:

This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This device and its antenna must not be co-located or operating in conjunction with any other antenna or transmitter.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not install edand used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occurin a particular installation. If this equipment does cause harmful interference toradio or television reception, which can be determined by turning the equipment off andon, the user is encour aged to try to correct the interference by one or more of the followingmeasures:

- —Reorient or relocate the receiving antenna.
- —Increase the separation between the equipment and receiver.
- —Connect the equipment into an outlet on a circuit different from that to which the receiveris connected.
- —Consult the dealer or an experienced radio/ TV technician for help