WHS

World Health Survey

Test and Use of the GPS in the Field

Test and Use of the GPS in the Field

Geneva, Switzerland

This document was prepared by F. Naville et S. Ebener

1. Introduction

This document is a complement to the GPS Field guide and GPS Data Collection Protocol. It describes the steps to be followed just after the presentation in order to test the GPS devices before going into the field and the steps to be followed in the field for collecting the geographic location of the selected households.

This document makes reference to the GPS Field Guide, the GPS Data Collection Protocol and the Country Information Form that you will therefore need to have with you as well as the GPS device that has been given to you for the survey in order to follow the steps described.

2. Test of the GPS unit

2.1)

Once the training is finished you can start to prepare the eTrex and check that it is functioning properly.

2.2)

First **install the batteries**:
Remove the battery cover by turning the D-ring at the back of the unit ¼ turn anti-clockwise. Insert the batteries into position **observing proper polarity**. Attach the battery cover by turning the D-ring ¼ turn clockwise.

2.3)

Then find a large **open area** close to the training site with a clear view of the sky.

2.4)

Make sure that you are in an open area without obstacles hiding the view of the sky and not in the middle of structures like buildings.

2.5)

2.6)

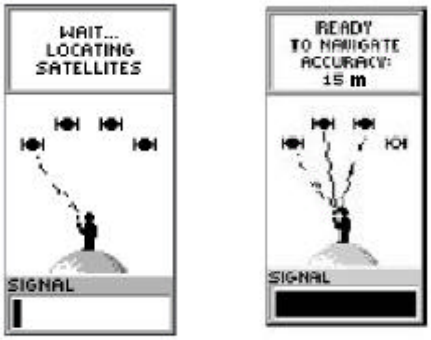
Hold the eTrex unit **parallel to the ground** and the screen **facing upwards**.
Always use the unit in this position.

2.7)

The 'WELCOME' page

Press and hold the **POWER** button to turn on the unit. The 'WELCOME' page will display followed by the 'SATELLITE' page.
(For the description of the different buttons and pages please refer to chapter 2, section 1 and 2 of the 'GPS Field Guide').

2.8)



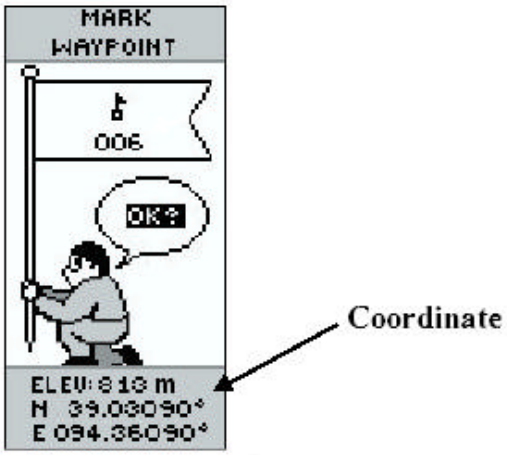
The 'SATELLITE' page

Wait until the message 'READY TO NAVIGATE' appears. If this message does not appear and/or another one appears, refer to chapter 4 section 4.1 to 4.4 of the 'GPS Field Guide'.
Then make sure the accuracy is lower than 20m. If this is not the case, please refer to chapter 4 section 4.4 of the 'GPS Field Guide'.

2.9)

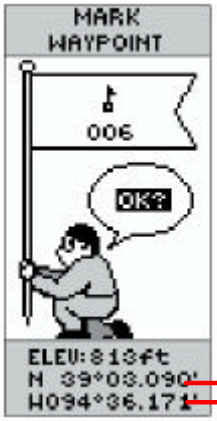
Before using the eTrex, **set-up the working units** as shown on the picture. To do so refer to page 20 of the 'GPS Field Guide'.
If the lighting conditions make it hard for you to see the screen you can refer to page 16 of the 'GPS Field Guide'.

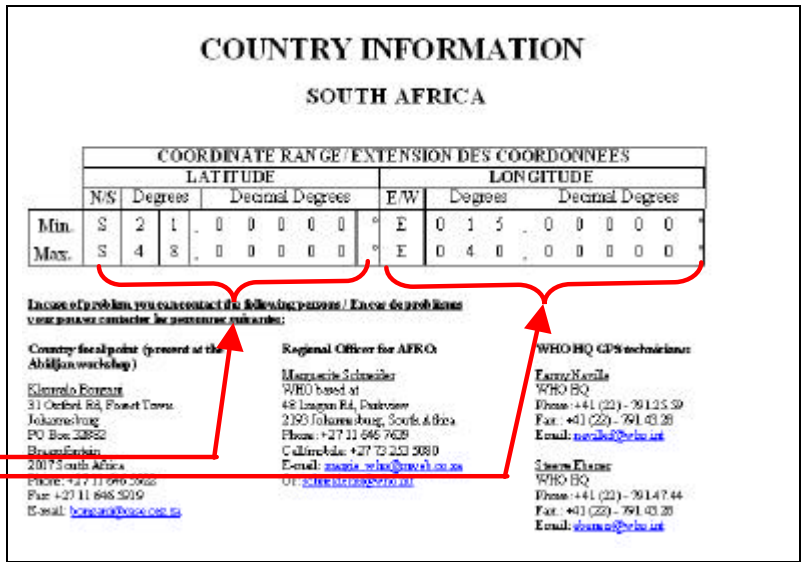
2.10)



Press and hold the **ENTER** button in order to directly access the 'MARK WAYPOINT' page on which the coordinates are displayed.
Verify that the units displayed are the same as on the figure.

2.11)





COUNTRY INFORMATION

SOUTH AFRICA

COORDINATE RANGE / EXTENSION DES COORDONNEES																	
	LATITUDE								LONGITUDE								
	N/S	Degrees		Decimal Degrees					E/W	Degrees			Decimal Degrees				
Min.	S	2	1	.	0	0	0	0	° E	0	1	5	.	0	0	0	0
Max.	S	4	8	.	0	0	0	0	° E	0	4	0	.	0	0	0	0

In case of problem you can contact the following persons / En cas de problème vous pouvez contacter les personnes suivantes:

Country focal point (present at the Abidjan workshop)
Kleanela Forrest
31 Oxford Rd, Forest Town
Johannesburg
PO Box 32852
Braamfontein
2017 South Africa
Phone: +27 11 646 2022
Fax: +27 11 646 5019
E-mail: forrestk@wpa.co.za

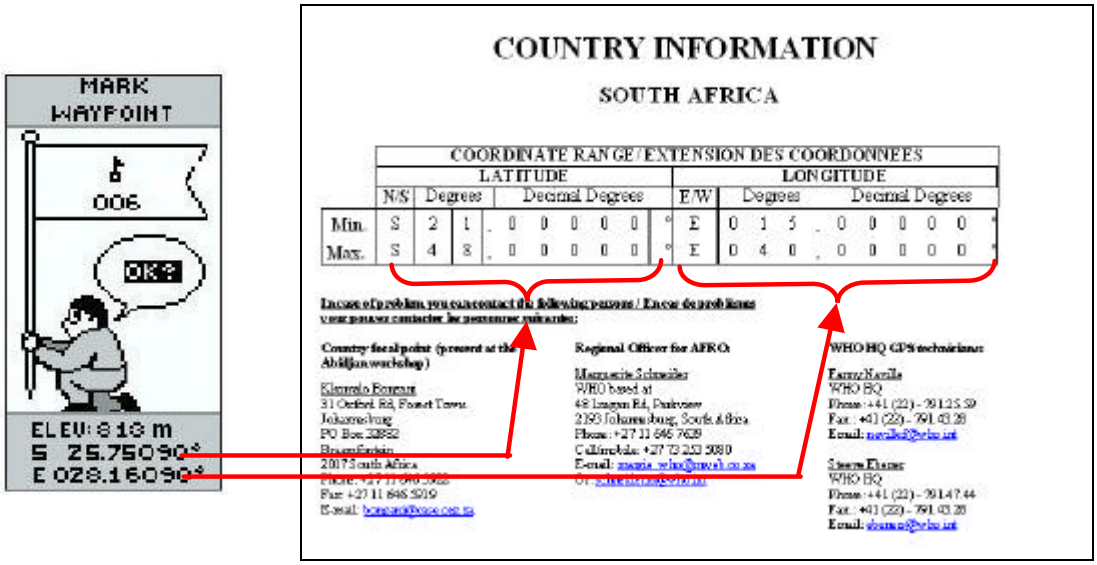
Regional Officer for AFRO:
Marguerite Schneider
WHO based at
48 Imagan Rd, Parktown
2193 Johannesburg, South Africa
Phone: +27 11 646 7639
Cellular/tele: +27 73 253 5080
E-mail: marguerite_schneider@mweb.co.za
Or: schneiderm@who.int

WHO HQ GPS technicians:
Fanny Karvile
WHO HQ
Phone: +41 (22) - 791 25 59
Fax: +41 (22) - 791 03 28
E-mail: karvilef@who.int

Steven Flemer
WHO HQ
Phone: +41 (22) - 791 47 44
Fax: +41 (22) - 791 03 28
E-mail: flemers@who.int

Now make sure that the coordinates displayed are within the range of the 'Country Information' form (that you received with the whole set of GPS training documents). **If this is not the case**, please refer to chapter 4, section 4.7 of the 'GPS Field Guide'.

2.12)



If the coordinates displayed **are within the range** of the 'Country Information' form, then your eTrex is initialised properly.

2.13)

Your eTrex is now ready to be used in the survey.
You should **go to the field with**:
- The eTrex device
- The 'GPS Data Collection Protocol'
- This present document : 'Test and use of the GPS in the field'
- The 'Country Information' form
- Batteries **(full set)**

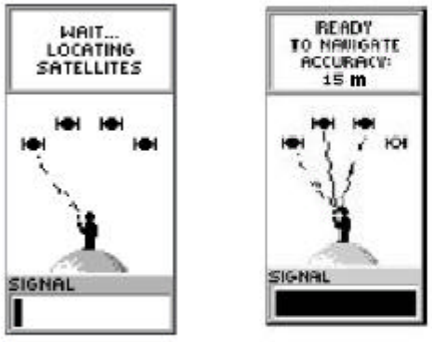
You can now go to the selected cluster.

3. Use of the GPS in the field

3.1)

Once you have reached the cluster and before starting collecting the geographic information of the selected households, it is very important to follow the same procedure as during the test as the unit may need to be initialised again due to the travelling distance. So find a large open area with a clear view of the sky.

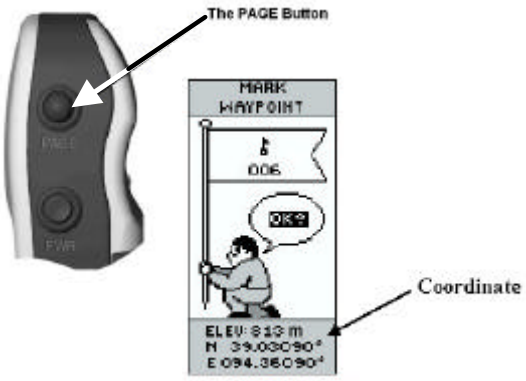
3.2)



The 'SATELLITE' page

Turn on the unit and wait until the message 'READY TO NAVIGATE' appears. If this message does not appear and/or another one appears, refer to chapter 4 section 4.1 to 4.3 of the 'GPS Field Guide'.
Then make sure the accuracy is lower than 20m. If this is not the case, please refer to chapter 4 section 4.4 of the 'GPS Field Guide'.

3.3)



Press and hold the **ENTER** button in order to access the 'MARK WAYPOINT' page. If the coordinates are not in the desired units refer to page 20 of the 'GPS Field Guide'. Then make sure the coordinates are within the range of the 'Country Information' form.

3.4)

Your eTrex is now ready and you can start to collect geographic readings.
Move to the first selected household in the cluster.

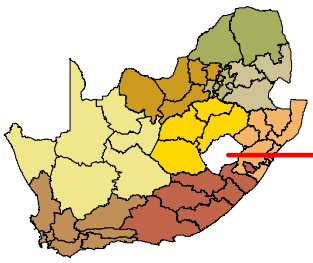
3.5)

0100. Sampling Information (To be filled in by the supervisor)

	Sampling	
Q0100	Primary Sampling Unit (PSU) Name/Code	
Q0101	Secondary Sampling Unit (SSU) Name/Code	
Q0102	Tertiary Sampling Unit (TSU) Name/Code	
Q0103	Quarternary Sampling Unit (QSU) Name/Code	
	Additional Information	
Q0104	Setting	Urban 1 / Peri-urbain / Semi-urbain 2 / Rural 3
		Other 4 Specify: _____

Once in front of the household, fill in section 0100 of the questionnaire, "**Sampling Information**", concerning the household as follows:

3.6)

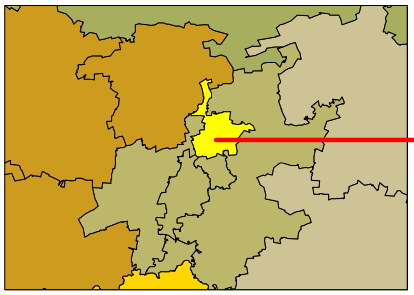


0100. Sampling Information (To be filled in by the supervisor)

	Sampling	
Q0100	Primary Sampling Unit (PSU) Name/Code	*Province of Gauteng / ZN003*
Q0101	Secondary Sampling Unit (SSU) Name/Code	
Q0102	Tertiary Sampling Unit (TSU) Name/Code	
Q0103	Quarternary Sampling Unit (QSU) Name/Code	
	Additional Information	
Q0104	Setting	Urban 1 / Peri-urbain / Semi-urbain 2 / Rural 3
		Other 4 Specify: _____

Q0100-Q0103: Sampling. Fill in the name and/or code of each sampling level.
Here is an example in South Africa: Imagine that one of the cluster is part of the Gauteng Province which corresponds to the **Primary Sampling Unit**.

3.7)

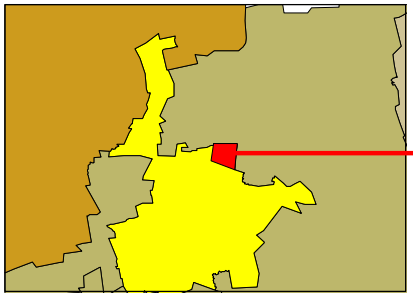


0100. Sampling Information (To be filled in by the supervisor)

	Sampling	
Q0100	Primary Sampling Unit (PSU) Name/Code	*Province of Gauteng / ZAF003*
Q0101	Secondary Sampling Unit (SSU) Name/Code	*Pretoria Metropolitan Council / ZAF003005*
Q0102	Tertiary Sampling Unit (TSU) Name/Code	
Q0103	Quartemary Sampling Unit (QSU) Name/Code	
	Additional Information	
Q0104	Setting	Urban 1 / Peri-urbain / Semi-urbain 2 / Rural 3 / Other 4 / Specify: _____

Inside this Province the cluster is situated in the Pretoria Metropolitan Council (**Secondary Sampling unit (SSU)**).

3.8)



0100. Sampling Information (To be filled in by the supervisor)

	Sampling	
Q0100	Primary Sampling Unit (PSU) Name/Code	*Province of Gauteng / ZAF003*
Q0101	Secondary Sampling Unit (SSU) Name/Code	*Pretoria Metropolitan Council / ZAF003005*
Q0102	Tertiary Sampling Unit (TSU) Name/Code	*Cluster n° 001*
Q0103	Quartemary Sampling Unit (QSU) Name/Code	
	Additional Information	
Q0104	Setting	Urban 1 / Peri-urbain / Semi-urbain 2 / Rural 3 / Other 4 / Specify: _____

And we named this cluster n° 001 (**Tertiary Sampling Unit (TSU)**).

3.9.1)

0100. Sampling Information (To be filled in by the supervisor)

	Sampling	
Q0100	Primary Sampling Unit (PSU) Name/Code	*Province of Gauteng / ZAF003*
Q0101	Secondary Sampling Unit (SSU) Name/Code	*Pretoria Metropolitan Council / ZAF003005*
Q0102	Tertiary Sampling Unit (TSU) Name/Code	*Cluster n° 001*
Q0103	Quartemary Sampling Unit (QSU) Name/Code	
	Additional Information	
Q0104	Setting	Urban 1 **X** / Peri-urbain / Semi-urbain 2 / Rural 3 / Other 4 Specify: _____

Q0104 Setting: Indicate the **urbanisation level** observed around the household.
You can refer to table 1, page 2 of the 'GPS Data Collection Protocol'.
In this picture the urbanisation level corresponds for example to the "Urban" type.

or

3.9.2

0100. Sampling Information (To be filled in by the supervisor)

	Sampling	
Q0100	Primary Sampling Unit (PSU) Name/Code	*Province of Gauteng / ZAF003*
Q0101	Secondary Sampling Unit (SSU) Name/Code	*Pretoria Metropolitan Council / ZAF003005*
Q0102	Tertiary Sampling Unit (TSU) Name/Code	*Cluster n° 001*
Q0103	Quartemary Sampling Unit (QSU) Name/Code	
	Additional Information	
Q0104	Setting	Urban 1 / Peri-urbain / Semi-urbain 2 / Rural 3 **X** / Other 4 Specify: _____

In this other example the urbanisation level observed around the household corresponds to "Rural" type.

3.10)

You are now ready to **measure the coordinates** of this first selected household: Stand in front of the household, making sure that you have an open view of the sky. Hold the eTrex parallel to the ground, facing upwards.

3.11)

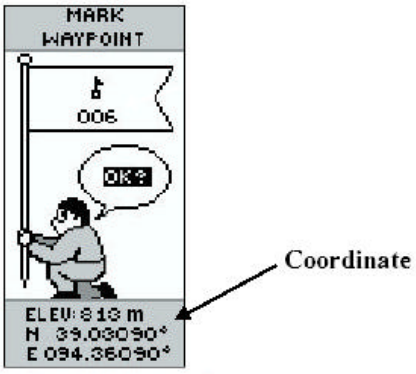
Be sure you have an open view of the sky, and no obstacles above you.
Then to collect the coordinates it is once more crucial to follow each step of the procedure as follows:

3.12)

The 'SATELLITE' page

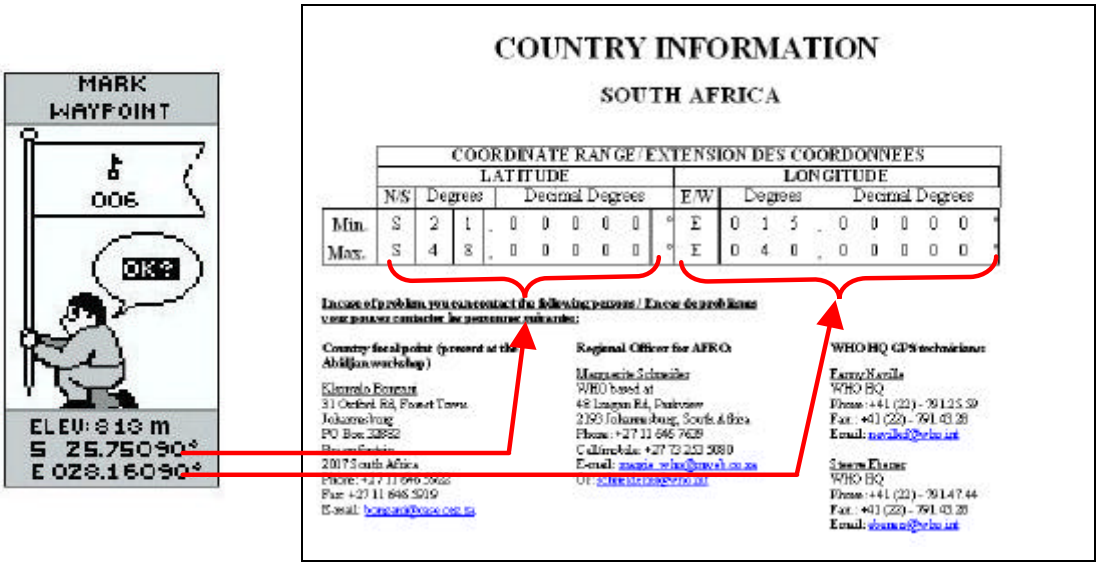
Press the **PAGE** button until the SATELLITE page appears. Wait for the message 'READY TO NAVIGATE' and make sure the accuracy is lower than 20m.

3.13)



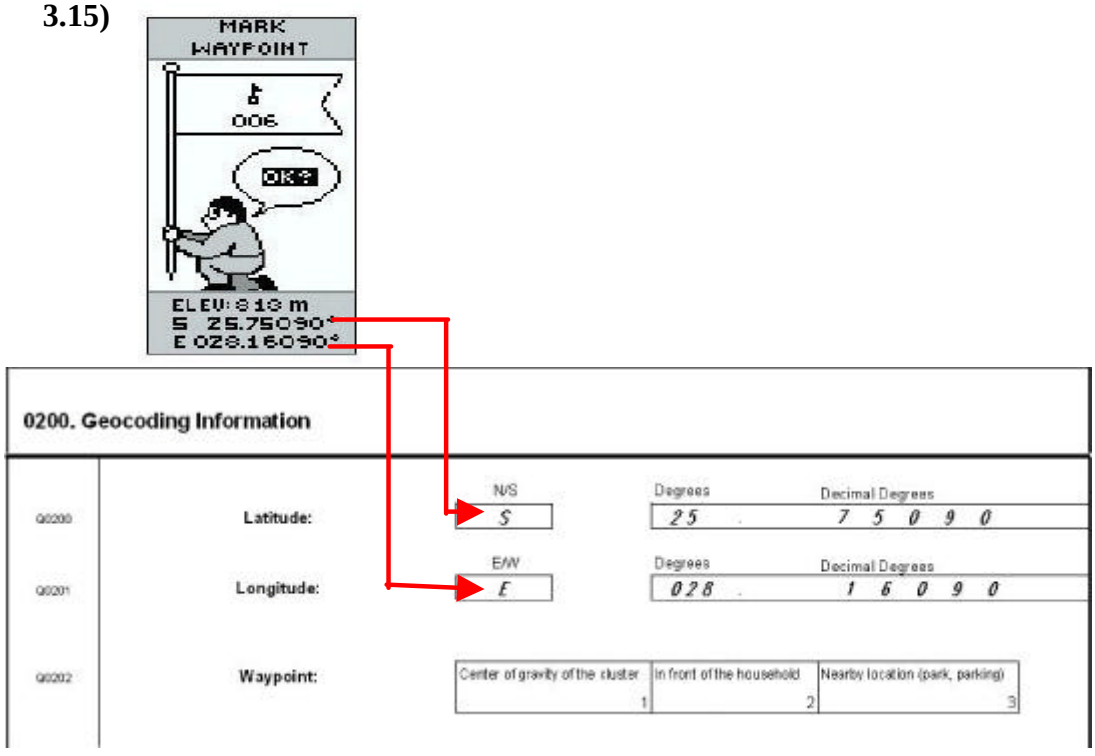
Press and hold the **ENTER** button in order to directly access the 'MARK WAYPOINT' page and read the coordinates.

3.14)



Verify that the **coordinates** are **within the range of the 'Country Information' form**. If this is not the case please refer to chapter 4, section 4.7 of the 'GPS Field Guide'.

3.15)



You can now enter the coordinates in the section 0200 of the questionnaire: "**Geocoding Information**".

3.16)

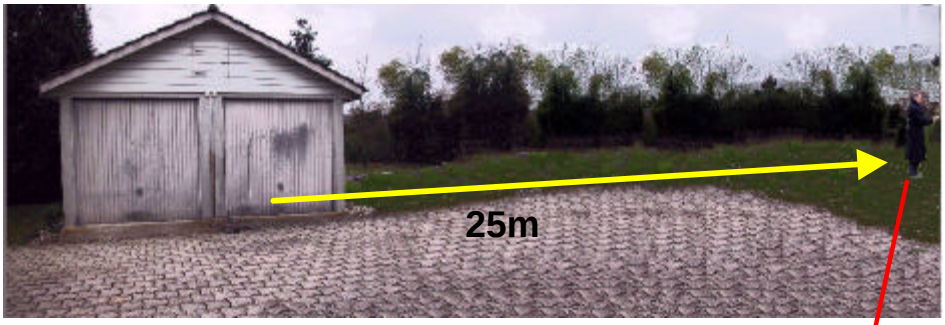
0200. Geocoding Information

		N/S	Degrees	Decimal Degrees
Q0200	Latitude:	S	25	7 5 0 9 0
		E/W	Degrees	Decimal Degrees
Q0201	Longitude:	E	028	1 6 0 9 0

		Center of gravity of the cluster	In front of the household	Nearby location (park, parking)
Q0202	Waypoint:	1	✗ 2	3

Then fill in the fields "**Waypoint**" information (your location when you took the measure). You only have two options:
-You took the measure **in front of or around the household** then mark the field 2 as shown on the figure.

3.17)



0200. Geocoding Information

		N/S	Degrees	Decimal Degrees
Q0200	Latitude:	S	25	7 5 0 9 0
		E/W	Degrees	Decimal Degrees
Q0201	Longitude:	E	028	1 6 0 9 0

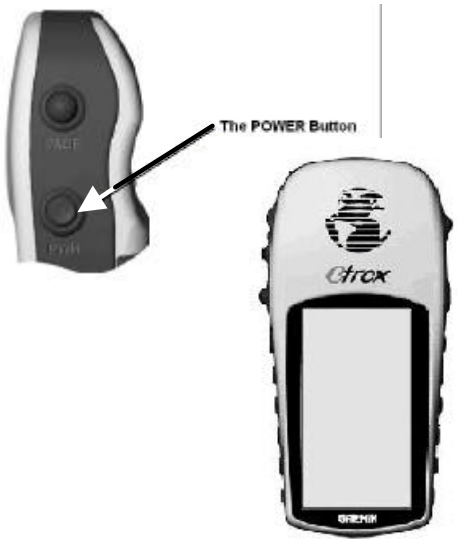
		Center of gravity of the cluster	In front of the household	Nearby location (park, parking)
Q0202	Waypoint:	1	2	✗ 25m

- You had to move to a **nearby location** (more than 20m from the household) in order to have a clear view of the sky and obtain a good reading, then mark the field 3 and indicate the approximate distance between the household and your point of measurement. **You must not consider the field 1.**

3.18)

Once the measure has been taken and the questionnaire filled, you can move to the next household that has been selected, and **start again from figure 3.3**.

3.19)



Once you have finished collecting all the households coordinates for this cluster, **switch off** the eTrex. To do so, press and hold the **POWER** button. Then you can go to the next cluster and **start again from figure 3.1**.