SURVEY OF THE MATERA SITE (JANUARY 2009)

Documento E-GEOS_RPT_I001070_2200_0366
Edizione: 1
Data: 19/11/09

Autore:	F. Ambrico, R. Lanotte	Francesco Ambrico
Verificato da:	F. Schiavone	
Approvato e Autorizzato:	V. Luceri	

USO INTERNO
Riproduzione vietata. Tutti i diritti sono riservati. Nessuna parte del presente documento può essere riprodotta o diffusa con un mezzo qualsiasi, senza il consenso scritto della e-GEOS.

STORIA DEL DOCUMENTO

ED.	DATA	AUTORE	VERIFIC.	APPROV. ED AUTOR.	DESCRIZIONE PRINCIPALI MODIFICHE
1	30/09/2009	F. Ambrico, R. Lanotte	F. Schiavone	V. Luceri	prima emissione

STORIA DELLE MODIFICHE

ED.VER.	PAG.	SEZ.	CAMBIO(I)
1			

LISTA DI DISTRIBUZIONE

NOME	ENTE/AZIENDA
G. Bianco	ASI
A. Chisena	e-GEOS
G. Colucci	e-GEOS
D. Donvito	e-GEOS
C. Marzo	ASI
V. Luceri	e-GEOS

Riproduzione vietata. Tutti i diritti sono riservati. Nessuna parte del presente documento può essere riprodotta o diffusa con un mezzo qualsiasi, senza il consenso scritto della e-GEOS.

SOMMARIO

Introduction 4
1. Document Purpose 5
2. Reference Document 6
2.1. Applicable documents 6
2.2. Reference Documents 6
3. Activities Carried 7
3.1. Site Description 7
4. Survey Measurements Procedures 15
5. Survey Data Processing 16
6. Survey Data Results 18
7. Comparison with survey 2004 26
8. Astronomical Azimuth Orientation 28
9. Appendix “A” Reanalysis of the 2004 survey 30

USO INTERNO
Riproduzione vietata. Tutti i diritti sono riservati. Nessuna parte del presente documento può essere riprodotta o diffusa con un mezzo qualsiasi, senza il consenso scritto della e-GEOS.

INTRODUCTION

.

USO INTERNO
Riproduzione vietata. Tutti i diritti sono riservati. Nessuna parte del presente documento può essere riprodotta o diffusa con un mezzo qualsiasi, senza il consenso scritto della e-GEOS.

1. DOCUMENT PURPOSE

This document describes the operation activities performed during the Survey measurements. The survey at Matera site was completed during January 2009.

USO INTERNO
Riproduzione vietata. Tutti i diritti sono riservati. Nessuna parte del presente documento può essere riprodotta o diffusa con un mezzo qualsiasi, senza il consenso scritto della e-GEOS.

2. REFERENCE DOCUMENT

2.1. APPLICABLE DOCUMENTS

[DA1] D. DEL ROSSO, F. AMBRICO *SURVEY OF MATERA SITE 1994* Telespazio, Sep. 1994

[DA2] D. DEL ROSSO, F. AMBRICO SURVEY OF MATERA SITE 1996 Telespazio, July. 1996.

[DA3] F. AMBRICO SURVEY OF MATERA SITE 2000 Telespazio, March. 2000.

[DA4] D. DEL ROSSO, F. AMBRICO SURVEY OF MATERA SITE 2004 Telespazio March 2004.

2.2. REFERENCE DOCUMENTS

[DR1] Contratto ASI e GEOS N° I/001/07/0 – "Attività di Osservazione della Terra presso il CGS di Matera", 17 gennaio 2007.

[DR2] Attività di Osservazione della Terra presso il CGS Matera, DC-OST-2006-100, rev. A, 20/10/2006.

[DR3] Atto Aggiuntivo N. 1 N. I/001/07/1 al Contratto tra ASI E e-GEOS S.p.A. N. I/001/07/0, 30 giugno 2008.

[DR4] Atto Aggiuntivo N. 2 N. I/001/07/2 al Contratto tra ASI E e-GEOS S.p.A. N. I/001/07/0, 30 aprile 2009.

[DR5] Atto Aggiuntivo N. 3 N. I/001/07/3 al Contratto tra ASI E e-GEOS S.p.A. N. I/001/07/0, 31 luglio 2009.

USO INTERNO
Riproduzione vietata. Tutti i diritti sono riservati. Nessuna parte del presente documento può essere riprodotta o diffusa con un mezzo qualsiasi, senza il consenso scritto della e-GEOS.

3. ACTIVITIES CARRIED

In the January 2009 a Geodetic Survey was completed at Centro di Geodesia Spaziale (CGS) of Italian Space Agency (ASI) located near Matera (Italy).

This site hosts a complete set of space geodetic techniques that are routinely used: a SLR station, a VLBI station, a fixed GPS receiver.

The Geodetic Survey controlled the Matera Laser Ranging Observatory (MLRO) telescope reference point and the MLRO calibration piers as parts of the local survey control network.

The measurements were performed by F. Ambrico with the support of the Matera CGS operational team. The data analysis were performed by R. Lanotte.

3.1. SITE DESCRIPTION

The CGS site is situated at about 15 km east of Matera town.

Geographic Region:	MEDITERRANEAN
Tectonic Plate:	EURASIAN
Geological Province:	SOUTHERN APPENNINES
Local Geology:	UPPER CRETACEOUS SEDIMENTS
Site Name; IGS Number:	MATERA; 850
Domes Number IERS :	12734

Fig 1 shows the lay-out of the station site, including the SLR-MLRO System, two SLR universal pads, the VLBI antenna, the GPS Antenna.

The reference point "M" is the intersection of the azimuth and elevation axis of the fixed MLRO telescope.

USO INTERNO
Riproduzione vietata. Tutti i diritti sono riservati. Nessuna parte del presente documento può essere riprodotta o diffusa con un mezzo qualsiasi, senza il consenso scritto della e-GEOS.

The old SLR-SAO System (marker “O”) was closed at the end of 2000 and it is not considered in this survey.

Domes Number IERS	CDP n.	Description
12734-S001	7939 (4101)	SLR SAO (old system)
-S008	7941 (7701)	SLR-MLRO System "M"
-S005	7243	Fixed VLBI antenna
-M008		GPS MATE reference Marker "R"
-M009		GPS/Glonass MAT1 reference Marker "N"
-M004	7541	Marker SLR 7541 "C"
-M005	7540	Marker SLR 7540 "B"

M1, M2, M3, M4 and M5 are the external calibration piers for the MLRO system.

The markers H and K are located on the basement of the VLBI antenna.

The marker "P" is the IGM (Istituto Geografico Militare) reference point.

The marker “V” is the gravimeter reference point located in ASI Main Building room N° 34, on the gravimeter basement.

The points "A", "E", "G", "L", "U", "X", "Y", "Z", are additional reference points for reconstruction of all previous markers.

Fig. 2 shows the telescope and the corner cube mounted on the pedestal.

Fig. 3 , shows the GPS antenna and its reference point.

Fig. 4 shows the calibration pillar "T".

Fig. 5 shows the calibration pillars M1, M2, M3, M4, M5.

Fig. 6 shows the IGM pillar "P".

Fig. 7 shows the corner cube mounted respectively on M, M1, M2, M3, M4, M5,T used as target for measure

USO INTERNO
Riproduzione vietata. Tutti i diritti sono riservati. Nessuna parte del presente documento può essere riprodotta o diffusa con un mezzo qualsiasi, senza il consenso scritto della e-GEOS.

LAY-OUT OF MATERA SITE

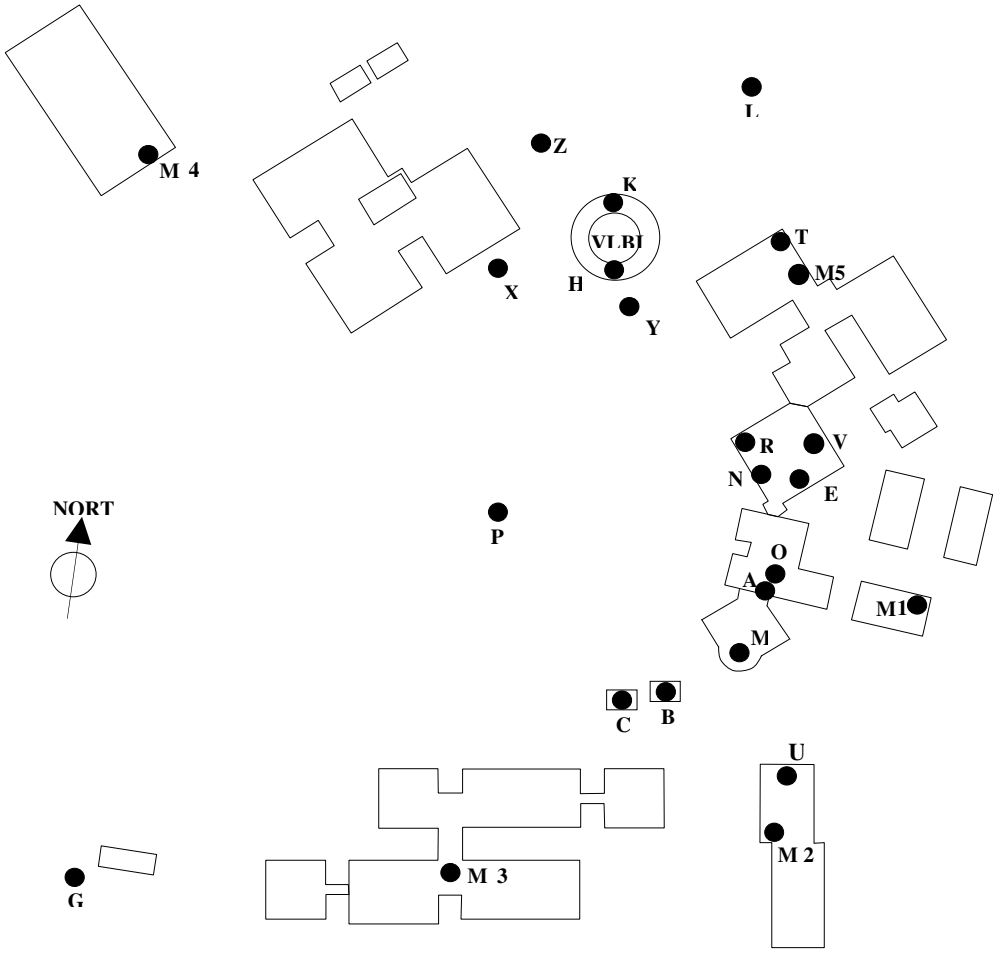


Fig. 1

USO INTERNO
Riproduzione vietata. Tutti i diritti sono riservati. Nessuna parte del presente documento può essere riprodotta o diffusa con un mezzo qualsiasi, senza il consenso scritto della e-GEOS.

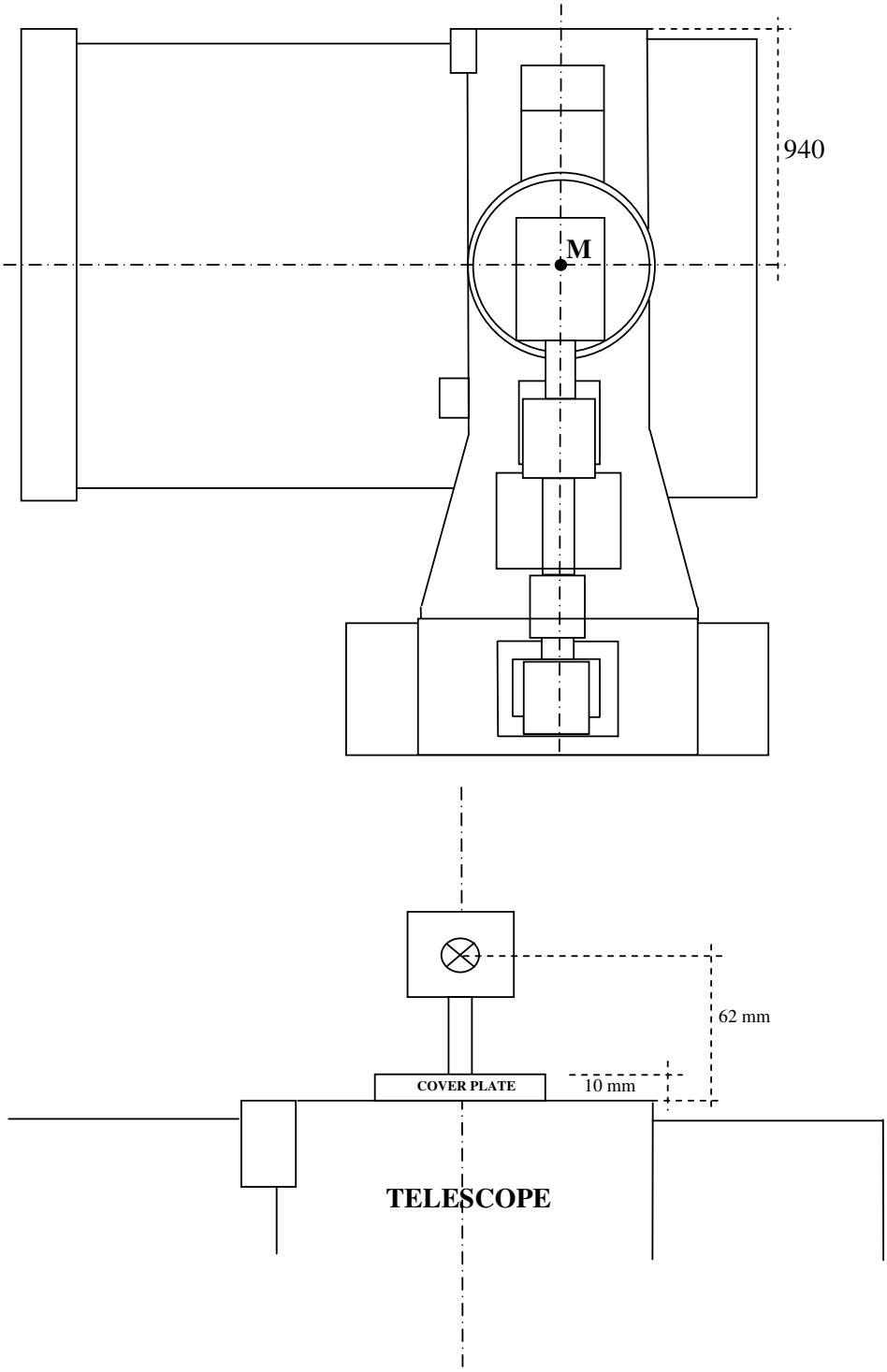


Fig. 2

USO INTERNO
Riproduzione vietata. Tutti i diritti sono riservati. Nessuna parte del presente documento può essere riprodotta o diffusa con un mezzo qualsiasi, senza il consenso scritto della e-GEOS.

TRIMBLE CHOKE RING

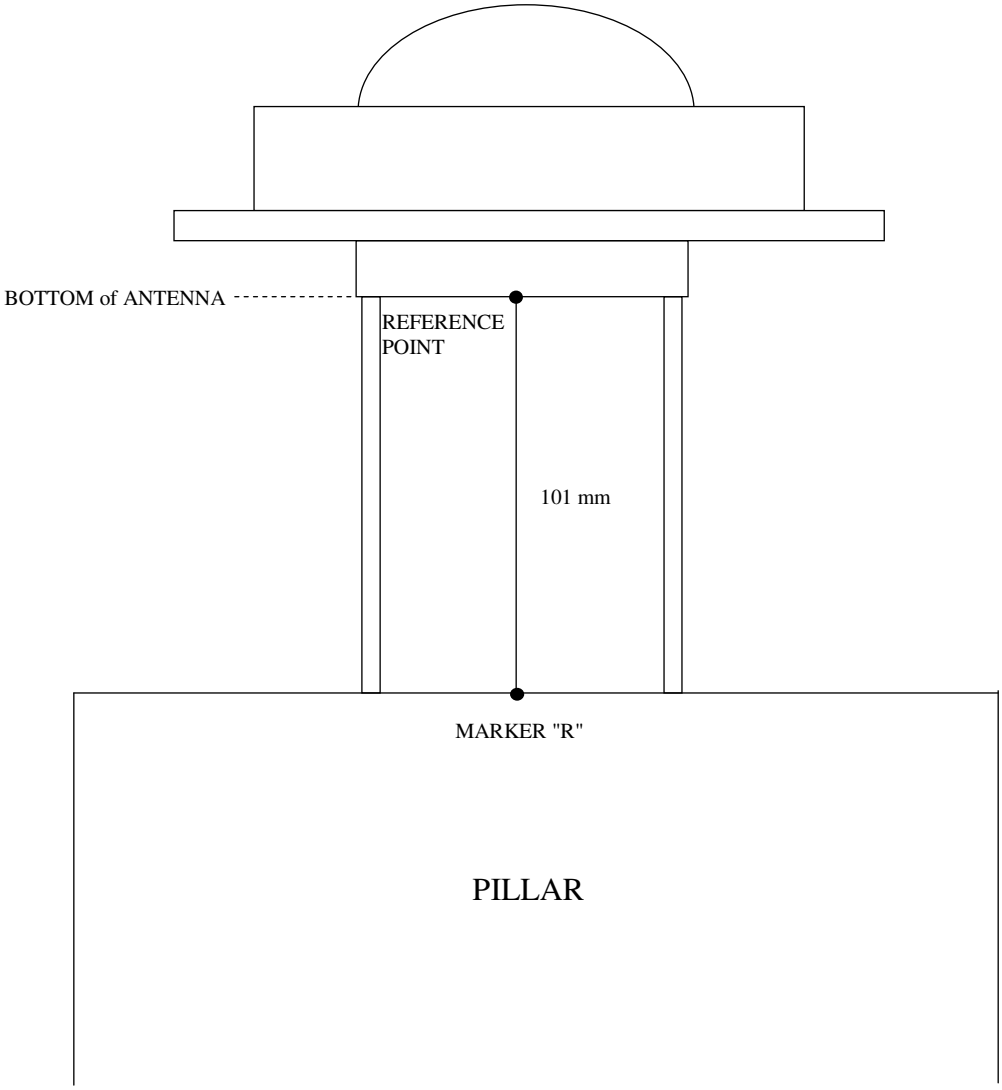


Fig. 3

USO INTERNO
Riproduzione vietata. Tutti i diritti sono riservati. Nessuna parte del presente documento può essere riprodotta o diffusa con un mezzo qualsiasi, senza il consenso scritto della e-GEOS.

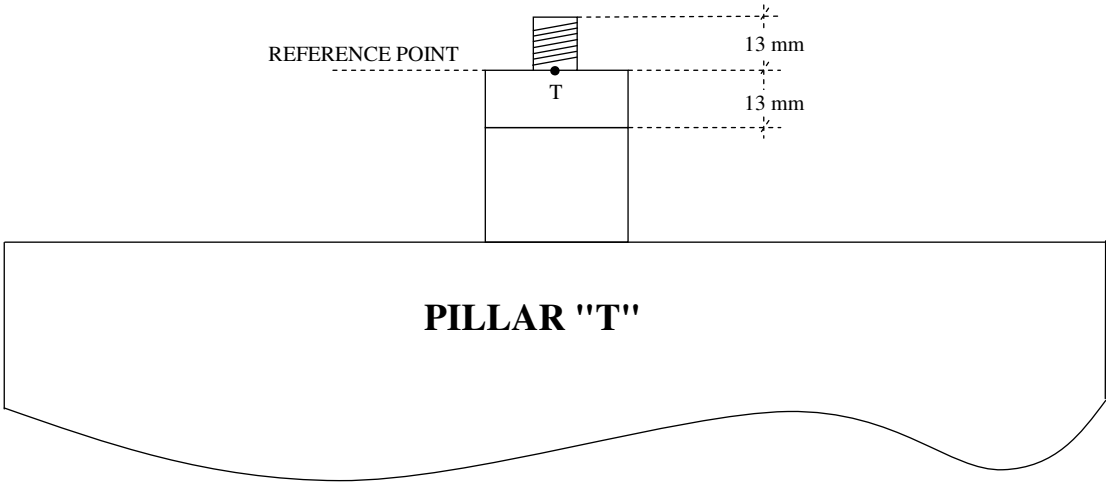


Fig. 4

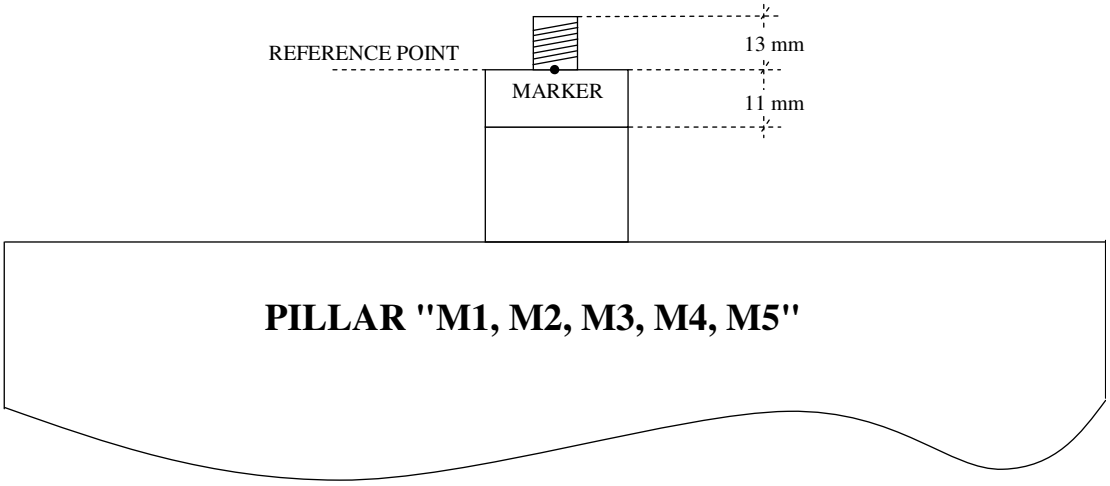
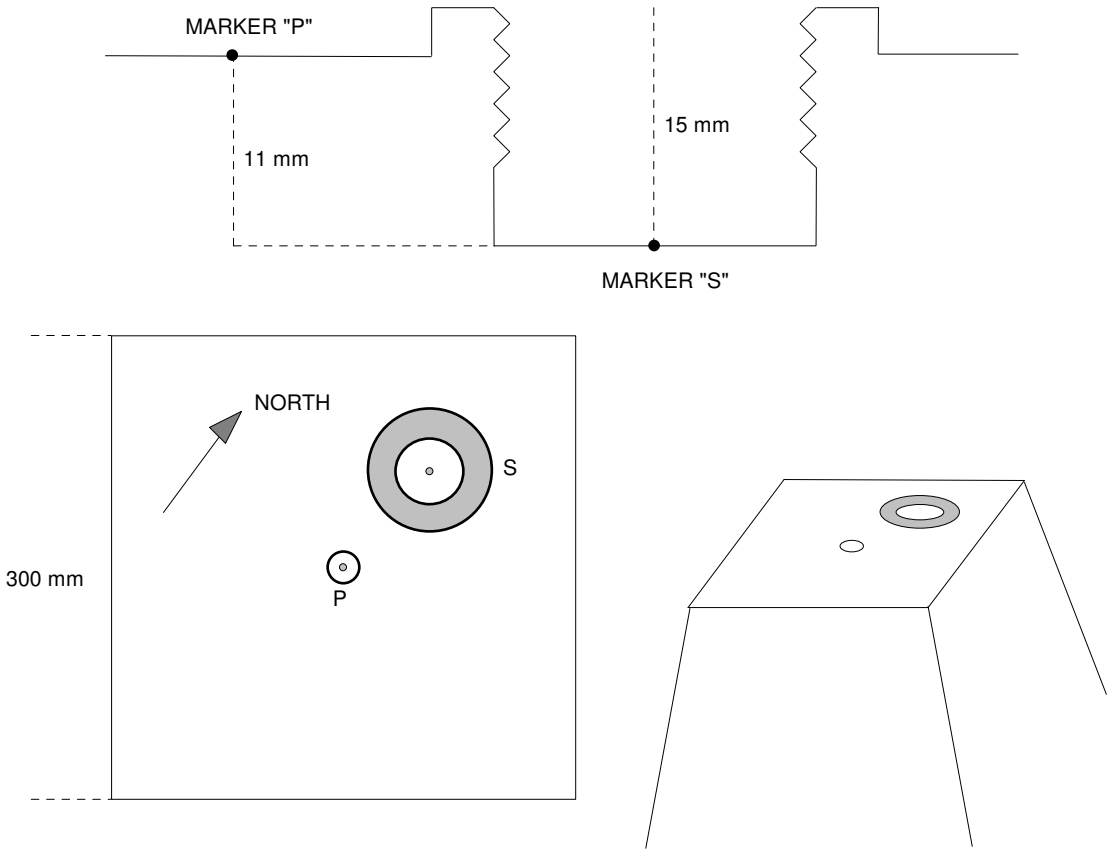


Fig. 5

USO INTERNO
Riproduzione vietata. Tutti i diritti sono riservati. Nessuna parte del presente documento può essere riprodotta o diffusa con un mezzo qualsiasi, senza il consenso scritto della e-GEOS.



IGM PILLAR "P"

Fig. 6

USO INTERNO
Riproduzione vietata. Tutti i diritti sono riservati. Nessuna parte del presente documento può essere riprodotta o diffusa con un mezzo qualsiasi, senza il consenso scritto della e-GEOS.

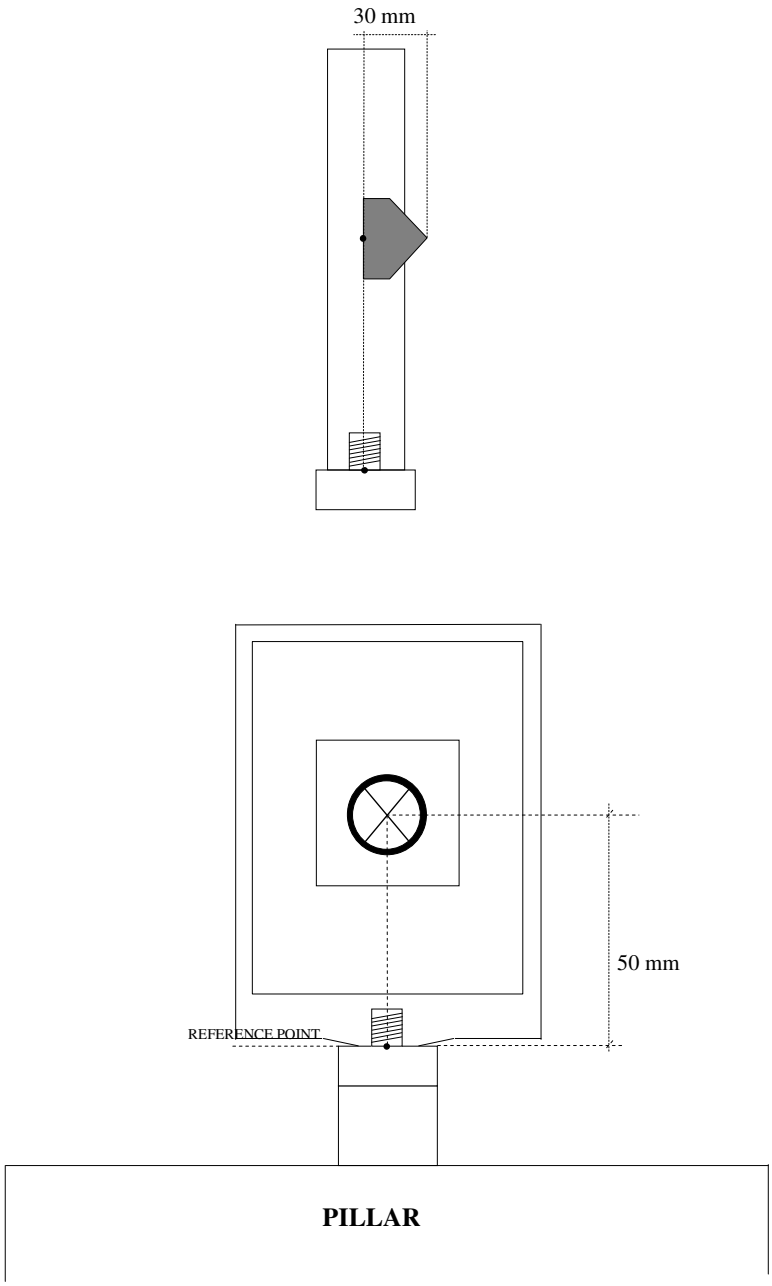


Fig. 7

USO INTERNO
Riproduzione vietata. Tutti i diritti sono riservati. Nessuna parte del presente documento può essere riprodotta o diffusa con un mezzo qualsiasi, senza il consenso scritto della e-GEOS.

4. SURVEY MEASUREMENTS PROCEDURES

The theodolite used for the survey is a TACHYMAT WILD TC2002S with angle measurement accuracy of 1" and distance measurement accuracy of ± (2mm + 2ppm).
The measurements were made in six different configurations moving the survey equipment all over the following markers of the local network; "M1", "M2", "M3",M5,"P", "T".
For each station, horizontal and vertical angle and distance measurements were taken to the prism reflector mounted over all the other markers.
In order to measure point “M”, the intersection of the azimuth and elevation axis of the MLRO Telescope, the following steps were made:

- Tilt the telescope of 180 degrees;
- Level telescope using a level;
- Install a corner cube prism on the top of the telescope above the centre of the vertical axis.

Measurements were also corrected by 940 mm that is the offset height given by manufacturer (Fig 2)

USO INTERNO
Riproduzione vietata. Tutti i diritti sono riservati. Nessuna parte del presente documento può essere riprodotta o diffusa con un mezzo qualsiasi, senza il consenso scritto della e-GEOS.

5. SURVEY DATA PROCESSING

The data have been analyzed using the software GSMAT developed by Telespazio.
The computation and analysis consist of following steps:

1. Distances are corrected for atmospheric refraction using the “Barrel and Sears" formula and meteo data (temperature, pressure and humidity) continuously recorded by the meteorological sensors operating at ASI/CGS and stored in the GEODAF web server.
2. Correction for the height differences between the instruments (tachometer and reflectors) and the markers.
3. For each setup of the theodolite, vectors are transformed from the topocentric polar reference system (azimuth elevation distance) in a topocentric rectangular reference system (up, east north) cantered in the marker occupied by the theodolite and having a unknown orientation angle w.r.t. the astronomical azimuth.
4. Determination of the unknown orientation angles using the Polaris star to orientate the network w.r.t. the geographical north direction.
5. Minimal inner constraints solution via Singular Value Decomposition to solve for marker coordinates in an unique topocentric rectangular reference system using the whole covariance matrix at each step of the computation.
6. Outlier detection. If outlier are detected, they are automatically removed and computation is repeated.
7. Translation of the network to the position of the GPS marker R as in the ITRF2000 to obtain the coordinates of the network points in the ITRF2000 terrestrial reference system.

The a priori input errors are the following:

- Azimuth: 0.3 milligrades = 1 masec
- Elevation: 0.3 milligrades = 1 masec
- Distance: 1 mm
- Height Differences: 1 mm

USO INTERNO
Riproduzione vietata. Tutti i diritti sono riservati. Nessuna parte del presente documento può essere riprodotta o diffusa con un mezzo qualsiasi, senza il consenso scritto della e-GEOS.

At the end of the outlier detection/removal process a total of 166 triple observables have been used in the analysis. The number of triples for each marker is reported in the following table

Marker	
C	8
K	16
M	25
M1	37
M2	28
M3	52
M4	25
M5	42
P	29
R	21
T	45
V	4

Riproduzione vietata. Tutti i diritti sono riservati. Nessuna parte del presente documento può essere riprodotta o diffusa con un mezzo qualsiasi, senza il consenso scritto della e-GEOS.

6. SURVEY DATA RESULTS

Il The Minimal inner constraints solution provides the network coordinates in a local topocentric reference frame that is oriented correctly with respect to the astronomical north but cantered in a particular point determined minimizing the trace of the variance-covariance matrix of the parameters.

Station	Up	Scaled error	East	Scaled error	North	Scaled error	Distance	Scaled error
C	-5.749 m	0.719 mm	0.939 m	0.351 mm	-50.579 m	0.313 mm	50.913 m	0.325 mm
K	-1.465 m	0.512 mm	-26.814 m	0.280 mm	61.731 m	0.153 mm	67.319 m	0.177 mm
M	2.848 m	0.401 mm	28.132 m	0.139 mm	-35.018 m	0.147 mm	45.009 m	0.143 mm
M1	0.649 m	0.362 mm	71.153 m	0.155 mm	-21.165 m	0.133 mm	74.237 m	0.163 mm
M2	-0.903 m	0.415 mm	43.493 m	0.172 mm	-80.010 m	0.161 mm	91.072 m	0.189 mm
M3	-1.563 m	0.306 mm	-36.847 m	0.134 mm	-79.832 m	0.140 mm	87.940 m	0.147 mm
M4	8.940 m	0.446 mm	-140.854 m	0.250 mm	56.926 m	0.219 mm	152.185 m	0.261 mm
M5	1.796 m	0.341 mm	26.536 m	0.121 mm	60.274 m	0.138 mm	65.882 m	0.121 mm
P	-4.036 m	0.402 mm	-35.822 m	0.147 mm	-10.903 m	0.159 mm	37.661 m	0.149 mm
R	1.516 m	0.429 mm	15.249 m	0.134 mm	16.096 m	0.165 mm	22.224 m	0.161 mm
T	1.809 m	0.319 mm	17.359 m	0.115 mm	69.909 m	0.143 mm	72.054 m	0.133 mm
V	-3.842 m	0.980 mm	37.477 m	0.487 mm	12.572 m	0.481 mm	39.716 m	0.353 mm

Tab. 1 The reduced chi square of the solution was 1.95

USO INTERNO
Riproduzione vietata. Tutti i diritti sono riservati. Nessuna parte del presente documento può essere riprodotta o diffusa con un mezzo qualsiasi, senza il consenso scritto della e-GEOS.

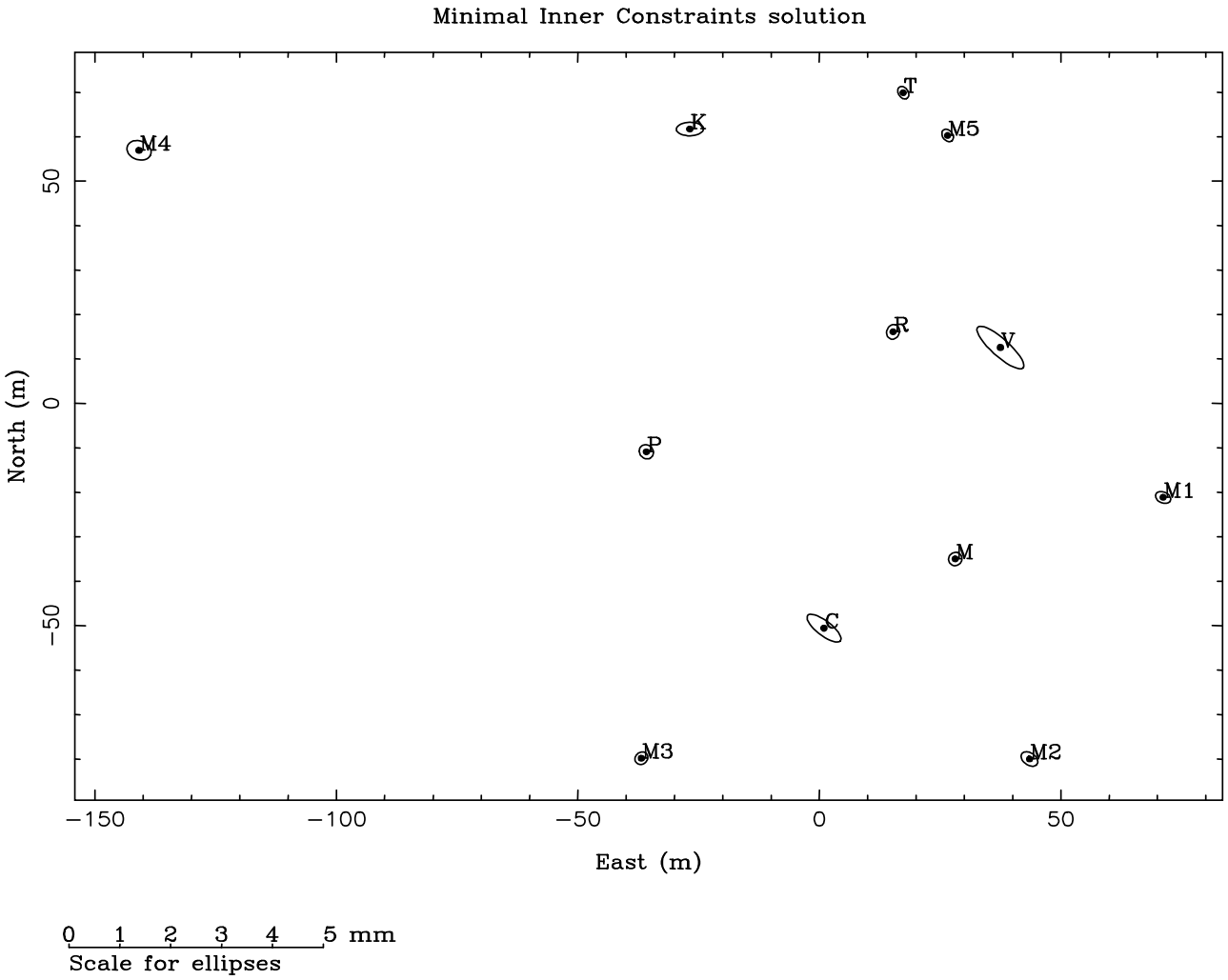


Fig. 8

Riproduzione vietata. Tutti i diritti sono riservati. Nessuna parte del presente documento può essere riprodotta o diffusa con un mezzo qualsiasi, senza il consenso scritto della e-GEOS.

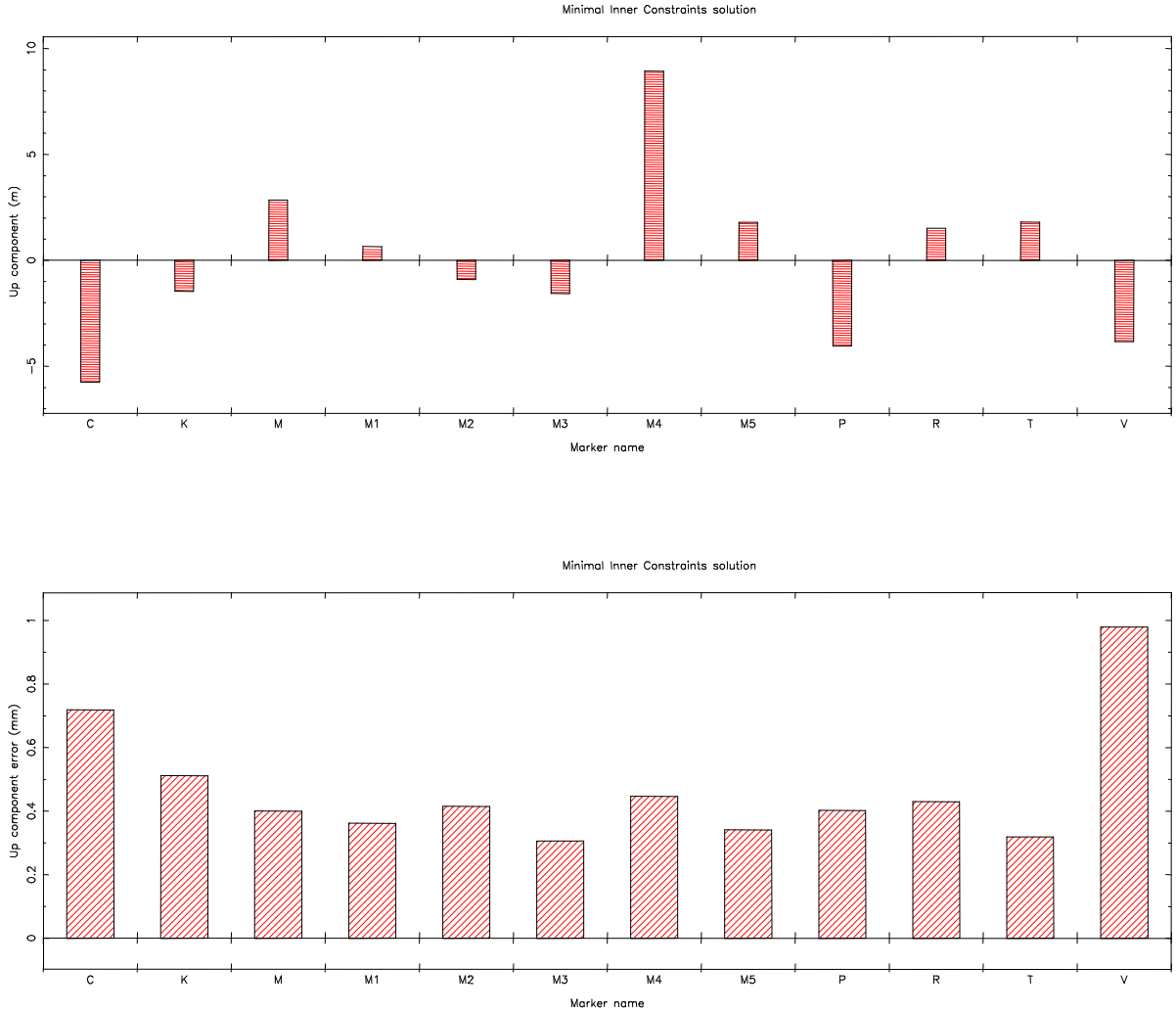


Fig. 9

Vector		Up	Scaled error	East	Scaled error	North	Scaled error	Dist	Scaled error
K	−C	4.2848 m	0.972 mm	−27.7530 m	0.484 mm	112.3095 m	0.385 mm	115.7670 m	0.444 mm
M	−C	8.5975 m	0.885 mm	27.1934 m	0.398 mm	15.5608 m	0.368 mm	32.4890 m	0.345 mm
M1	−C	6.3987 m	0.909 mm	70.2138 m	0.425 mm	29.4138 m	0.373 mm	76.3943 m	0.330 mm
M2	−C	4.8461 m	0.755 mm	42.5546 m	0.392 mm	−29.4309 m	0.318 mm	51.9669 m	0.488 mm
M3	−C	4.1866 m	0.799 mm	−37.7858 m	0.382 mm	−29.2536 m	0.340 mm	47.9695 m	0.218 mm
M4	−C	14.6893 m	0.865 mm	−141.7928 m	0.447 mm	107.5048 m	0.401 mm	178.5449 m	0.544 mm
M5	−C	7.5451 m	0.890 mm	25.5974 m	0.408 mm	110.8531 m	0.378 mm	114.0200 m	0.322 mm
P	−C	1.7130 m	0.755 mm	−36.7605 m	0.365 mm	39.6754 m	0.353 mm	54.1147 m	0.485 mm
R	−C	7.2656 m	0.903 mm	14.3098 m	0.411 mm	66.6748 m	0.377 mm	68.5791 m	0.337 mm
T	−C	7.5581 m	0.864 mm	16.4199 m	0.404 mm	120.4876 m	0.380 mm	121.8359 m	0.347 mm
V	−C	1.9073 m	1.350 mm	36.5383 m	0.661 mm	63.1503 m	0.629 mm	72.9839 m	0.346 mm

Tab. 2 Marker coordinates w.r.t. marker C.

USO INTERNO
Riproduzione vietata. Tutti i diritti sono riservati. Nessuna parte del presente documento può essere riprodotta o diffusa con un mezzo qualsiasi, senza il consenso scritto della e-GEOS.

Vector	Up	Scaled error	East	Scaled error	North	Scaled error	Dist	Scaled error
C -K	-4.2848 m	0.972 mm	27.7530 m	0.484 mm	-112.3095 m	0.385 mm	115.7670 m	0.444 mm
M -K	4.3127 m	0.670 mm	54.9464 m	0.330 mm	-96.7486 m	0.222 mm	111.3463 m	0.240 mm
M1 -K	2.1139 m	0.632 mm	97.9668 m	0.336 mm	-82.8957 m	0.202 mm	128.3497 m	0.296 mm
M2 -K	0.5613 m	0.719 mm	70.3076 m	0.350 mm	-141.7403 m	0.249 mm	158.2207 m	0.280 mm
M3 -K	-0.0982 m	0.610 mm	-10.0328 m	0.311 mm	-141.5631 m	0.223 mm	141.9182 m	0.227 mm
M4 -K	10.4045 m	0.721 mm	-114.0398 m	0.398 mm	-4.8047 m	0.274 mm	114.6142 m	0.400 mm
M5 -K	3.2603 m	0.547 mm	53.3504 m	0.315 mm	-1.4564 m	0.108 mm	53.4698 m	0.317 mm
P -K	-2.5718 m	0.711 mm	-9.0075 m	0.329 mm	-72.6341 m	0.239 mm	73.2357 m	0.246 mm
R -K	2.9808 m	0.688 mm	42.0628 m	0.319 mm	-45.6347 m	0.228 mm	62.1345 m	0.255 mm
T -K	3.2733 m	0.576 mm	44.1729 m	0.298 mm	8.1781 m	0.117 mm	45.0426 m	0.301 mm
V -K	-2.3775 m	1.180 mm	64.2914 m	0.607 mm	-49.1591 m	0.546 mm	80.9670 m	0.756 mm

Tab. 3 Marker coordinates w.r.t. marker K.

Vector	Up	Scaled error	East	Scaled error	North	Scaled error	Dist	Scaled error
C -M	-8.5975 m	0.885 mm	-27.1934 m	0.398 mm	-15.5608 m	0.368 mm	32.4890 m	0.345 mm
K -M	-4.3127 m	0.670 mm	-54.9464 m	0.330 mm	96.7486 m	0.222 mm	111.3463 m	0.240 mm
M1 -M	-2.1988 m	0.523 mm	43.0204 m	0.208 mm	13.8529 m	0.134 mm	45.2492 m	0.216 mm
M2 -M	-3.7514 m	0.575 mm	15.3612 m	0.157 mm	-44.9917 m	0.226 mm	47.6896 m	0.240 mm
M3 -M	-4.4109 m	0.490 mm	-64.9792 m	0.185 mm	-44.8144 m	0.196 mm	79.0575 m	0.214 mm
M4 -M	6.0918 m	0.632 mm	-168.9862 m	0.295 mm	91.9440 m	0.285 mm	192.4764 m	0.303 mm
M5 -M	-1.0525 m	0.515 mm	-1.5960 m	0.177 mm	95.2923 m	0.209 mm	95.3114 m	0.209 mm
P -M	-6.8845 m	0.607 mm	-63.9539 m	0.199 mm	24.1145 m	0.227 mm	68.6950 m	0.210 mm
R -M	-1.3319 m	0.610 mm	-12.8836 m	0.192 mm	51.1139 m	0.225 mm	52.7295 m	0.215 mm
T -M	-1.0394 m	0.484 mm	-10.7735 m	0.172 mm	104.9267 m	0.212 mm	105.4835 m	0.211 mm
V -M	-6.6902 m	1.126 mm	9.3450 m	0.547 mm	47.5895 m	0.524 mm	48.9576 m	0.461 mm

Tab. 4 Marker coordinates w.r.t. marker M.

Vector	Up	Scaled error	East	Scaled error	North	Scaled error	Dist	Scaled error
C -M1	-6.3987 m	0.909 mm	-70.2138 m	0.425 mm	-29.4138 m	0.373 mm	76.3943 m	0.330 mm
K -M1	-2.1139 m	0.632 mm	-97.9668 m	0.336 mm	82.8957 m	0.202 mm	128.3497 m	0.296 mm
M -M1	2.1988 m	0.523 mm	-43.0204 m	0.208 mm	-13.8529 m	0.134 mm	45.2492 m	0.216 mm
M2 -M1	-1.5526 m	0.632 mm	-27.6591 m	0.252 mm	-58.8447 m	0.231 mm	65.0395 m	0.215 mm
M3 -M1	-2.2121 m	0.526 mm	-107.9996 m	0.224 mm	-58.6674 m	0.203 mm	122.9255 m	0.230 mm
M4 -M1	8.2906 m	0.634 mm	-212.0066 m	0.321 mm	78.0910 m	0.280 mm	226.0835 m	0.330 mm
M5 -M1	1.1464 m	0.413 mm	-44.6164 m	0.153 mm	81.4393 m	0.187 mm	92.8671 m	0.208 mm
P -M1	-4.6857 m	0.623 mm	-106.9743 m	0.242 mm	10.2616 m	0.225 mm	107.5674 m	0.243 mm
R -M1	0.8669 m	0.547 mm	-55.9039 m	0.174 mm	37.2610 m	0.201 mm	67.1892 m	0.200 mm
T -M1	1.1594 m	0.446 mm	-53.7939 m	0.161 mm	91.0738 m	0.190 mm	105.7807 m	0.215 mm
V -M1	-4.4914 m	0.997 mm	-33.6754 m	0.506 mm	33.7366 m	0.507 mm	47.8786 m	0.702 mm

Tab. 5 Marker coordinates w.r.t. marker M1.

Vector	Up	Scaled error	East	Scaled error	North	Scaled error	Dist	Scaled error
C -M2	-4.8461 m	0.755 mm	-42.5546 m	0.392 mm	29.4309 m	0.318 mm	51.9669 m	0.488 mm
K -M2	-0.5613 m	0.719 mm	-70.3076 m	0.350 mm	141.7403 m	0.249 mm	158.2207 m	0.280 mm
M -M2	3.7514 m	0.575 mm	-15.3612 m	0.157 mm	44.9917 m	0.226 mm	47.6896 m	0.240 mm
M1 -M2	1.5526 m	0.632 mm	27.6591 m	0.252 mm	58.8447 m	0.231 mm	65.0395 m	0.215 mm
M3 -M2	-0.6595 m	0.454 mm	-80.3404 m	0.211 mm	0.1773 m	0.144 mm	80.3433 m	0.211 mm
M4 -M2	9.8432 m	0.581 mm	-184.3475 m	0.302 mm	136.9357 m	0.268 mm	229.8527 m	0.321 mm
M5 -M2	2.6989 m	0.605 mm	-16.9572 m	0.220 mm	140.2840 m	0.239 mm	141.3309 m	0.244 mm
P -M2	-3.1331 m	0.524 mm	-79.3151 m	0.216 mm	69.1062 m	0.209 mm	105.2444 m	0.252 mm
R -M2	2.4195 m	0.642 mm	-28.2448 m	0.229 mm	96.1057 m	0.246 mm	100.1994 m	0.248 mm
T -M2	2.7120 m	0.564 mm	-26.1348 m	0.214 mm	149.9185 m	0.241 mm	152.2036 m	0.247 mm
V -M2	-2.9388 m	1.181 mm	-6.0163 m	0.565 mm	92.5812 m	0.557 mm	92.8230 m	0.585 mm

Tab. 6 Marker coordinates w.r.t. marker M2.

USO INTERNO
Riproduzione vietata. Tutti i diritti sono riservati. Nessuna parte del presente documento può essere riprodotta o diffusa con un mezzo qualsiasi, senza il consenso scritto della e-GEOS.

Vector	Up	Scaled error	East	Scaled error	North	Scaled error	Dist	Scaled error
C -M3	-4.1866 m	0.799 mm	37.7858 m	0.382 mm	29.2536 m	0.340 mm	47.9695 m	0.218 mm
K -M3	0.0982 m	0.610 mm	10.0328 m	0.311 mm	141.5631 m	0.223 mm	141.9182 m	0.227 mm
M -M3	4.4109 m	0.490 mm	64.9792 m	0.185 mm	44.8144 m	0.196 mm	79.0575 m	0.214 mm
M1 -M3	2.2121 m	0.526 mm	107.9996 m	0.224 mm	58.6674 m	0.203 mm	122.9255 m	0.230 mm
M2 -M3	0.6595 m	0.454 mm	80.3404 m	0.211 mm	-0.1773 m	0.144 mm	80.3433 m	0.211 mm
M4 -M3	10.5027 m	0.517 mm	-104.0070 m	0.275 mm	136.7584 m	0.258 mm	172.1355 m	0.281 mm
M5 -M3	3.3585 m	0.493 mm	63.3832 m	0.188 mm	140.1067 m	0.214 mm	153.8135 m	0.219 mm
P -M3	-2.4736 m	0.451 mm	1.0253 m	0.128 mm	68.9290 m	0.201 mm	68.9810 m	0.202 mm
R -M3	3.0790 m	0.531 mm	52.0957 m	0.193 mm	95.9284 m	0.228 mm	109.2048 m	0.249 mm
T -M3	3.3715 m	0.425 mm	54.2057 m	0.179 mm	149.7412 m	0.214 mm	159.2860 m	0.220 mm
V -M3	-2.2793 m	1.127 mm	74.3242 m	0.553 mm	92.4039 m	0.546 mm	118.6076 m	0.284 mm

Tab. 7 Marker coordinates w.r.t. marker M3.

Vector	Up	Scaled error	East	Scaled error	North	Scaled error	Dist	Scaled error
C -M4	-14.6893 m	0.865 mm	141.7928 m	0.447 mm	-107.5048 m	0.401 mm	178.5449 m	0.544 mm
K -M4	-10.4045 m	0.721 mm	114.0398 m	0.398 mm	4.8047 m	0.274 mm	114.6142 m	0.400 mm
M -M4	-6.0918 m	0.632 mm	168.9862 m	0.295 mm	-91.9440 m	0.285 mm	192.4764 m	0.303 mm
M1 -M4	-8.2906 m	0.634 mm	212.0066 m	0.321 mm	-78.0910 m	0.280 mm	226.0835 m	0.330 mm
M2 -M4	-9.8432 m	0.581 mm	184.3475 m	0.302 mm	-136.9357 m	0.268 mm	229.8527 m	0.321 mm
M3 -M4	-10.5027 m	0.517 mm	104.0070 m	0.275 mm	-136.7584 m	0.258 mm	172.1355 m	0.281 mm
M5 -M4	-7.1443 m	0.591 mm	167.3902 m	0.293 mm	3.3483 m	0.264 mm	167.5761 m	0.293 mm
P -M4	-12.9763 m	0.541 mm	105.0323 m	0.276 mm	-67.8295 m	0.252 mm	125.7021 m	0.298 mm
R -M4	-7.4237 m	0.650 mm	156.1027 m	0.300 mm	-40.8300 m	0.284 mm	161.5248 m	0.300 mm
T -M4	-7.1312 m	0.560 mm	158.2127 m	0.289 mm	12.9828 m	0.266 mm	158.9046 m	0.288 mm
V -M4	-12.7820 m	1.182 mm	178.3312 m	0.599 mm	-44.3545 m	0.579 mm	184.2083 m	0.690 mm

Tab. 8 Marker coordinates w.r.t. marker M4.

Vector	Up	Scaled error	East	Scaled error	North	Scaled error	Dist	Scaled error
C -M5	-7.5451 m	0.890 mm	-25.5974 m	0.408 mm	-110.8531 m	0.378 mm	114.0200 m	0.322 mm
K -M5	-3.2603 m	0.547 mm	-53.3504 m	0.315 mm	1.4564 m	0.108 mm	53.4698 m	0.317 mm
M -M5	1.0525 m	0.515 mm	1.5960 m	0.177 mm	-95.2923 m	0.209 mm	95.3114 m	0.209 mm
M1 -M5	-1.1464 m	0.413 mm	44.6164 m	0.153 mm	-81.4393 m	0.187 mm	92.8671 m	0.208 mm
M2 -M5	-2.6989 m	0.605 mm	16.9572 m	0.220 mm	-140.2840 m	0.239 mm	141.3309 m	0.244 mm
M3 -M5	-3.3585 m	0.493 mm	-63.3832 m	0.188 mm	-140.1067 m	0.214 mm	153.8135 m	0.219 mm
M4 -M5	7.1443 m	0.591 mm	-167.3902 m	0.293 mm	-3.3483 m	0.264 mm	167.5761 m	0.293 mm
P -M5	-5.8321 m	0.592 mm	-62.3579 m	0.204 mm	-71.1777 m	0.226 mm	94.8092 m	0.225 mm
R -M5	-0.2795 m	0.524 mm	-11.2876 m	0.112 mm	-44.1783 m	0.212 mm	45.5984 m	0.211 mm
T -M5	0.0131 m	0.427 mm	-9.1775 m	0.109 mm	9.6345 m	0.115 mm	13.3060 m	0.155 mm
V -M5	-5.6378 m	1.079 mm	10.9409 m	0.528 mm	-47.7028 m	0.540 mm	49.2650 m	0.638 mm

Tab. 9 Marker coordinates w.r.t. marker M5.

Vector	Up	Scaled error	East	Scaled error	North	Scaled error	Dist	Scaled error
C -P	-1.7130 m	0.755 mm	36.7605 m	0.365 mm	-39.6754 m	0.353 mm	54.1147 m	0.485 mm
K -P	2.5718 m	0.711 mm	9.0075 m	0.329 mm	72.6341 m	0.239 mm	73.2357 m	0.246 mm
M -P	6.8845 m	0.607 mm	63.9539 m	0.199 mm	-24.1145 m	0.227 mm	68.6950 m	0.210 mm
M1 -P	4.6857 m	0.623 mm	106.9743 m	0.242 mm	-10.2616 m	0.225 mm	107.5674 m	0.243 mm
M2 -P	3.1331 m	0.524 mm	79.3151 m	0.216 mm	-69.1062 m	0.209 mm	105.2444 m	0.252 mm
M3 -P	2.4736 m	0.451 mm	-1.0253 m	0.128 mm	-68.9290 m	0.201 mm	68.9810 m	0.202 mm
M4 -P	12.9763 m	0.541 mm	-105.0323 m	0.276 mm	67.8295 m	0.252 mm	125.7021 m	0.298 mm
M5 -P	5.8321 m	0.592 mm	62.3579 m	0.204 mm	71.1777 m	0.226 mm	94.8092 m	0.225 mm
R -P	5.5526 m	0.593 mm	51.0703 m	0.210 mm	26.9994 m	0.193 mm	58.0343 m	0.240 mm
T -P	5.8451 m	0.554 mm	53.1804 m	0.199 mm	80.8122 m	0.233 mm	96.9171 m	0.229 mm
V -P	0.1943 m	1.176 mm	73.2989 m	0.561 mm	23.4750 m	0.554 mm	76.9665 m	0.422 mm

Tab. 10 Marker coordinates w.r.t. marker P.

USO INTERNO
Riproduzione vietata. Tutti i diritti sono riservati. Nessuna parte del presente documento può essere riprodotta o diffusa con un mezzo qualsiasi, senza il consenso scritto della e-GEOS.

Vector	Up	Scaled error	East	Scaled error	North	Scaled error	Dist	Scaled error
C -R	-7.2656 m	0.903 mm	-14.3098 m	0.411 mm	-66.6748 m	0.377 mm	68.5791 m	0.337 mm
K -R	-2.9808 m	0.688 mm	-42.0628 m	0.319 mm	45.6347 m	0.228 mm	62.1345 m	0.255 mm
M -R	1.3319 m	0.610 mm	12.8836 m	0.192 mm	-51.1139 m	0.225 mm	52.7295 m	0.215 mm
M1 -R	-0.8669 m	0.547 mm	55.9039 m	0.174 mm	-37.2610 m	0.201 mm	67.1892 m	0.200 mm
M2 -R	-2.4195 m	0.642 mm	28.2448 m	0.229 mm	-96.1057 m	0.246 mm	100.1994 m	0.248 mm
M3 -R	-3.0790 m	0.531 mm	-52.0957 m	0.193 mm	-95.9284 m	0.228 mm	109.2048 m	0.249 mm
M4 -R	7.4237 m	0.650 mm	-156.1027 m	0.300 mm	40.8300 m	0.284 mm	161.5248 m	0.300 mm
M5 -R	0.2795 m	0.524 mm	11.2876 m	0.112 mm	44.1783 m	0.212 mm	45.5984 m	0.211 mm
P -R	-5.5526 m	0.593 mm	-51.0703 m	0.210 mm	-26.9994 m	0.193 mm	58.0343 m	0.240 mm
T -R	0.2925 m	0.519 mm	2.1100 m	0.124 mm	53.8128 m	0.220 mm	53.8549 m	0.220 mm
V -R	-5.3583 m	1.138 mm	22.2285 m	0.535 mm	-3.5245 m	0.545 mm	23.1353 m	0.640 mm

Tab. 11 Marker coordinates w.r.t. marker R.

Vector	Up	Scaled error	East	Scaled error	North	Scaled error	Dist	Scaled error
C -T	-7.5581 m	0.864 mm	-16.4199 m	0.404 mm	-120.4876 m	0.380 mm	121.8359 m	0.347 mm
K -T	-3.2733 m	0.576 mm	-44.1729 m	0.298 mm	-8.1781 m	0.117 mm	45.0426 m	0.301 mm
M -T	1.0394 m	0.484 mm	10.7735 m	0.172 mm	-104.9267 m	0.212 mm	105.4835 m	0.211 mm
M1 -T	-1.1594 m	0.446 mm	53.7939 m	0.161 mm	-91.0738 m	0.190 mm	105.7807 m	0.215 mm
M2 -T	-2.7120 m	0.564 mm	26.1348 m	0.214 mm	-149.9185 m	0.241 mm	152.2036 m	0.247 mm
M3 -T	-3.3715 m	0.425 mm	-54.2057 m	0.179 mm	-149.7412 m	0.214 mm	159.2860 m	0.220 mm
M4 -T	7.1312 m	0.560 mm	-158.2127 m	0.289 mm	-12.9828 m	0.266 mm	158.9046 m	0.288 mm
M5 -T	-0.0131 m	0.427 mm	9.1775 m	0.109 mm	-9.6345 m	0.115 mm	13.3060 m	0.155 mm
P -T	-5.8451 m	0.554 mm	-53.1804 m	0.199 mm	-80.8122 m	0.233 mm	96.9171 m	0.229 mm
R -T	-0.2925 m	0.519 mm	-2.1100 m	0.124 mm	-53.8128 m	0.220 mm	53.8549 m	0.220 mm
V -T	-5.6508 m	1.092 mm	20.1185 m	0.531 mm	-57.3372 m	0.541 mm	61.0266 m	0.672 mm

Tab. 12 Marker coordinates w.r.t. marker T.

Vector	Up	Scaled error	East	Scaled error	North	Scaled error	Dist	Scaled error
C -V	-1.9073 m	1.350 mm	-36.5383 m	0.661 mm	-63.1503 m	0.629 mm	72.9839 m	0.346 mm
K -V	2.3775 m	1.180 mm	-64.2914 m	0.607 mm	49.1591 m	0.546 mm	80.9670 m	0.756 mm
M -V	6.6902 m	1.126 mm	-9.3450 m	0.547 mm	-47.5895 m	0.524 mm	48.9576 m	0.461 mm
M1 -V	4.4914 m	0.997 mm	33.6754 m	0.506 mm	-33.7366 m	0.507 mm	47.8786 m	0.702 mm
M2 -V	2.9388 m	1.181 mm	6.0163 m	0.565 mm	-92.5812 m	0.557 mm	92.8230 m	0.585 mm
M3 -V	2.2793 m	1.127 mm	-74.3242 m	0.553 mm	-92.4039 m	0.546 mm	118.6076 m	0.284 mm
M4 -V	12.7820 m	1.182 mm	-178.3312 m	0.599 mm	44.3545 m	0.579 mm	184.2083 m	0.690 mm
M5 -V	5.6378 m	1.079 mm	-10.9409 m	0.528 mm	47.7028 m	0.540 mm	49.2650 m	0.638 mm
P -V	-0.1943 m	1.176 mm	-73.2989 m	0.561 mm	-23.4750 m	0.554 mm	76.9665 m	0.422 mm
R -V	5.3583 m	1.138 mm	-22.2285 m	0.535 mm	3.5245 m	0.545 mm	23.1353 m	0.640 mm
T -V	5.6508 m	1.092 mm	-20.1185 m	0.531 mm	57.3372 m	0.541 mm	61.0266 m	0.672 mm

Tab. 13 Marker coordinates w.r.t. marker V.

USO INTERNO
Riproduzione vietata. Tutti i diritti sono riservati. Nessuna parte del presente documento può essere riprodotta o diffusa con un mezzo qualsiasi, senza il consenso scritto della e-GEOS.

Cartesian coordinates estimated using reference point R

X = 4641949.707 m Y = 1393045.271 m Z = 4133287.343 m

Station	X	Scaled error	Y	Scaled error	Z	Scaled error
C	4641990.141 m	0.549 mm	1393042.465 m	0.316 mm	4133232.023 m	0.580 mm
K	4641931.159 m	0.348 mm	1392995.789 m	0.285 mm	4133320.025 m	0.401 mm
M	4641978.864 m	0.274 mm	1393067.472 m	0.158 mm	4133249.430 m	0.319 mm
M1	4641956.257 m	0.254 mm	1393105.604 m	0.159 mm	4133258.508 m	0.288 mm
M2	4641999.794 m	0.296 mm	1393089.792 m	0.173 mm	4133212.851 m	0.332 mm
M3	4642022.297 m	0.217 mm	1393012.665 m	0.147 mm	4133212.556 m	0.250 mm
M4	4641974.496 m	0.336 mm	1392889.730 m	0.249 mm	4133323.158 m	0.367 mm
M5	4641919.102 m	0.243 mm	1393047.871 m	0.127 mm	4133321.044 m	0.274 mm
P	4641977.198 m	0.281 mm	1393000.201 m	0.159 mm	4133263.241 m	0.322 mm
R	4641949.707 m	0.294 mm	1393045.271 m	0.158 mm	4133287.343 m	0.343 mm
T	4641915.738 m	0.232 mm	1393037.280 m	0.121 mm	4133328.362 m	0.259 mm
V	4641941.623 m	0.775 mm	1393066.053 m	0.423 mm	4133281.179 m	0.806 mm

Cartesian coordinates differences w.r.t. reference point R

Station	DX	Scaled error	DY	Scaled error	DZ	Scaled error	Distance	Scaled error
R -C	40.434 m	0.766 mm	-2.806 m	0.440 mm	-55.320 m	0.809 mm	68.579 m	0.978 mm
R -K	-18.549 m	0.486 mm	-49.483 m	0.398 mm	32.682 m	0.560 mm	62.134 m	0.582 mm
R -M	29.157 m	0.382 mm	22.201 m	0.220 mm	-37.913 m	0.445 mm	52.729 m	0.544 mm
R -M1	6.550 m	0.354 mm	60.333 m	0.221 mm	-28.835 m	0.402 mm	67.189 m	0.334 mm
R -M2	50.087 m	0.412 mm	44.520 m	0.241 mm	-74.493 m	0.464 mm	100.199 m	0.560 mm
R -M3	72.590 m	0.303 mm	-32.607 m	0.206 mm	-74.788 m	0.348 mm	109.205 m	0.386 mm
R -M4	24.789 m	0.469 mm	-155.541 m	0.347 mm	35.814 m	0.512 mm	161.525 m	0.374 mm
R -M5	-30.606 m	0.339 mm	2.600 m	0.178 mm	33.701 m	0.382 mm	45.598 m	0.464 mm
R -P	27.490 m	0.392 mm	-45.071 m	0.222 mm	-24.102 m	0.449 mm	58.034 m	0.317 mm
R -R	0.000 m	0.410 mm	0.000 m	0.221 mm	0.000 m	0.479 mm	0.000 m	0.000 mm
R -T	-33.970 m	0.323 mm	-7.991 m	0.168 mm	41.019 m	0.361 mm	53.855 m	0.444 mm
R -V	-8.084 m	1.081 mm	20.782 m	0.590 mm	-6.165 m	1.124 mm	23.135 m	0.815 mm

USO INTERNO
Riproduzione vietata. Tutti i diritti sono riservati. Nessuna parte del presente documento può essere riprodotta o diffusa con un mezzo qualsiasi, senza il consenso scritto della e-GEOS.

Comparison to IERS:

CDP code	ITRF2000 coordinates			Source document
	X (m)	Y (m)	Z (m)	
7541	4641990.143	1393042.472	4133232.015	ftp://lareg.ensg.ign.fr/pub/itrf/itrf2000/ITRF2000_SLR.SNX.gz
7941	4641978.863	1393067.471	4133249.434	http://ilrs.gsfc.nasa.gov/products_formats_procedures/site_positions_velocities/itrf2000.txt
MATE	4641949.707	1393045.271	4133287.343	ftp://lareg.ensg.ign.fr/pub/itrf/itrf2000/ITRF2000_EUR_GPS_PERM.SNX.gz

Tab. 14 Cartesian coordinates in the ITRF2000 of the IERS sites used in the comparison.

Code	Dome num	DX	DY	DZ	3D Dist	DLength	
7541	12734M004	-1.323 mm	-7.140 mm	8.283 mm	11.015 mm	-7.170 mm	Matera SLR marker
7941	12734S008	0.895 mm	1.390 mm	-3.790 mm	4.135 mm	3.805 mm	Matera SLR MLRO
MATE	12734M008	0.000 mm	0.000 mm	0.000 mm	0.000 mm	0.000 mm	Matera GPS MATE

Riproduzione vietata. Tutti i diritti sono riservati. Nessuna parte del presente documento può essere riprodotta o diffusa con un mezzo qualsiasi, senza il consenso scritto della e-GEOS.

7. COMPARISON WITH SURVEY 2004

Vector	Up	Error	East	Error	North	Error	Dist	Error
K -C	-1.1 mm	1.4 mm	3.4 mm	0.7 mm	-3.3 mm	0.7 mm	-4.1 mm	0.7 mm
M -C	-2.5 mm	1.2 mm	6.0 mm	0.6 mm	0.0 mm	0.5 mm	4.3 mm	0.6 mm
M1 -C	-0.8 mm	1.2 mm	6.4 mm	0.6 mm	-2.0 mm	0.5 mm	5.0 mm	0.6 mm
M2 -C	0.2 mm	1.0 mm	3.2 mm	0.5 mm	-1.0 mm	0.4 mm	3.2 mm	0.5 mm
M3 -C	-0.3 mm	1.0 mm	5.8 mm	0.5 mm	-0.7 mm	0.4 mm	-4.1 mm	0.5 mm
M4 -C	-0.2 mm	1.2 mm	6.1 mm	0.6 mm	0.9 mm	0.5 mm	-4.3 mm	0.6 mm
P -C	0.7 mm	1.0 mm	5.7 mm	0.5 mm	-0.3 mm	0.5 mm	-4.1 mm	0.5 mm
R -C	-1.0 mm	1.2 mm	5.7 mm	0.6 mm	0.8 mm	0.5 mm	1.9 mm	0.5 mm
T -C	-2.0 mm	1.1 mm	8.0 mm	0.5 mm	-1.4 mm	0.5 mm	-0.5 mm	0.5 mm
C -K	1.1 mm	1.4 mm	-3.4 mm	0.7 mm	3.3 mm	0.7 mm	-4.1 mm	0.7 mm
M -K	-1.5 mm	1.2 mm	2.6 mm	0.5 mm	3.4 mm	0.6 mm	-1.7 mm	0.6 mm
M1 -K	0.3 mm	1.1 mm	3.0 mm	0.5 mm	1.3 mm	0.6 mm	1.4 mm	0.5 mm
M2 -K	1.3 mm	1.2 mm	-0.2 mm	0.5 mm	2.4 mm	0.6 mm	-2.2 mm	0.6 mm
M3 -K	0.8 mm	1.0 mm	2.5 mm	0.4 mm	2.5 mm	0.6 mm	-2.7 mm	0.6 mm
M4 -K	0.9 mm	1.2 mm	2.7 mm	0.6 mm	4.1 mm	0.6 mm	-2.8 mm	0.6 mm
P -K	1.8 mm	1.1 mm	2.3 mm	0.5 mm	3.0 mm	0.6 mm	-3.3 mm	0.6 mm
R -K	0.1 mm	1.2 mm	2.4 mm	0.5 mm	4.1 mm	0.6 mm	-1.4 mm	0.5 mm
T -K	-0.9 mm	1.1 mm	4.6 mm	0.5 mm	1.9 mm	0.6 mm	4.7 mm	0.5 mm
C -M	2.5 mm	1.2 mm	-6.0 mm	0.6 mm	0.0 mm	0.5 mm	4.3 mm	0.6 mm
K -M	1.5 mm	1.2 mm	-2.6 mm	0.5 mm	-3.4 mm	0.6 mm	-1.7 mm	0.6 mm
M1 -M	1.8 mm	0.8 mm	0.4 mm	0.3 mm	-2.1 mm	0.3 mm	-0.4 mm	0.3 mm
M2 -M	2.8 mm	0.8 mm	-2.8 mm	0.3 mm	-1.0 mm	0.3 mm	-0.1 mm	0.3 mm
M3 -M	2.3 mm	0.7 mm	-0.2 mm	0.3 mm	-0.8 mm	0.3 mm	0.5 mm	0.3 mm
M4 -M	2.3 mm	0.9 mm	0.1 mm	0.4 mm	0.8 mm	0.4 mm	0.4 mm	0.4 mm
P -M	3.2 mm	0.8 mm	-0.3 mm	0.3 mm	-0.4 mm	0.3 mm	-0.2 mm	0.3 mm
R -M	1.5 mm	0.8 mm	-0.3 mm	0.3 mm	0.7 mm	0.3 mm	0.8 mm	0.3 mm
T -M	0.6 mm	0.7 mm	2.0 mm	0.3 mm	-1.5 mm	0.3 mm	-1.7 mm	0.3 mm
C -M1	0.8 mm	1.2 mm	-6.4 mm	0.6 mm	2.0 mm	0.5 mm	5.0 mm	0.6 mm
K -M1	-0.3 mm	1.1 mm	-3.0 mm	0.5 mm	-1.3 mm	0.6 mm	1.4 mm	0.5 mm
M -M1	-1.8 mm	0.8 mm	-0.4 mm	0.3 mm	2.1 mm	0.3 mm	-0.4 mm	0.3 mm
M2 -M1	1.0 mm	0.7 mm	-3.1 mm	0.3 mm	1.0 mm	0.3 mm	0.4 mm	0.3 mm
M3 -M1	0.5 mm	0.7 mm	-0.5 mm	0.3 mm	1.3 mm	0.3 mm	-0.1 mm	0.3 mm
M4 -M1	0.5 mm	0.8 mm	-0.2 mm	0.4 mm	2.9 mm	0.4 mm	1.3 mm	0.4 mm
P -M1	1.4 mm	0.7 mm	-0.7 mm	0.3 mm	1.7 mm	0.3 mm	0.7 mm	0.3 mm
R -M1	-0.3 mm	0.7 mm	-0.5 mm	0.2 mm	2.8 mm	0.3 mm	2.1 mm	0.3 mm
T -M1	-1.2 mm	0.6 mm	1.6 mm	0.2 mm	0.6 mm	0.3 mm	-0.3 mm	0.3 mm
C -M2	-0.2 mm	1.0 mm	-3.2 mm	0.5 mm	1.0 mm	0.4 mm	3.2 mm	0.5 mm
K -M2	-1.3 mm	1.2 mm	0.2 mm	0.5 mm	-2.4 mm	0.6 mm	-2.2 mm	0.6 mm
M -M2	-2.8 mm	0.8 mm	2.8 mm	0.3 mm	1.0 mm	0.3 mm	-0.1 mm	0.3 mm
M1 -M2	-1.0 mm	0.7 mm	3.1 mm	0.3 mm	-1.0 mm	0.3 mm	0.4 mm	0.3 mm
M3 -M2	-0.5 mm	0.6 mm	2.6 mm	0.3 mm	0.2 mm	0.2 mm	-2.6 mm	0.3 mm
M4 -M2	-0.4 mm	0.7 mm	2.8 mm	0.4 mm	1.8 mm	0.3 mm	-1.2 mm	0.4 mm
P -M2	0.5 mm	0.6 mm	2.5 mm	0.3 mm	0.6 mm	0.2 mm	-1.4 mm	0.3 mm
R -M2	-1.3 mm	0.8 mm	2.5 mm	0.3 mm	1.8 mm	0.3 mm	1.0 mm	0.3 mm

USO INTERNO
Riproduzione vietata. Tutti i diritti sono riservati. Nessuna parte del presente documento può essere riprodotta o diffusa con un mezzo qualsiasi, senza il consenso scritto della e-GEOS.

T	-M2	-2.2 mm	0.7 mm	4.7 mm	0.3 mm	-0.4 mm	0.3 mm	-1.2 mm	0.3 mm
C	-M3	0.3 mm	1.0 mm	-5.8 mm	0.5 mm	0.7 mm	0.4 mm	-4.1 mm	0.5 mm
K	-M3	-0.8 mm	1.0 mm	-2.5 mm	0.4 mm	-2.5 mm	0.6 mm	-2.7 mm	0.6 mm
M	-M3	-2.3 mm	0.7 mm	0.2 mm	0.3 mm	0.8 mm	0.3 mm	0.5 mm	0.3 mm
M1	-M3	-0.5 mm	0.7 mm	0.5 mm	0.3 mm	-1.3 mm	0.3 mm	-0.1 mm	0.3 mm
M2	-M3	0.5 mm	0.6 mm	-2.6 mm	0.3 mm	-0.2 mm	0.2 mm	-2.6 mm	0.3 mm
M4	-M3	0.1 mm	0.7 mm	0.3 mm	0.4 mm	1.6 mm	0.3 mm	1.2 mm	0.4 mm
P	-M3	1.0 mm	0.5 mm	-0.2 mm	0.2 mm	0.5 mm	0.2 mm	0.4 mm	0.3 mm
R	-M3	-0.7 mm	0.7 mm	0.0 mm	0.2 mm	1.6 mm	0.3 mm	1.3 mm	0.3 mm
T	-M3	-1.7 mm	0.5 mm	2.1 mm	0.2 mm	-0.6 mm	0.3 mm	0.0 mm	0.3 mm
C	-M4	0.2 mm	1.2 mm	-6.1 mm	0.6 mm	-0.9 mm	0.5 mm	-4.3 mm	0.6 mm
K	-M4	-0.9 mm	1.2 mm	-2.7 mm	0.6 mm	-4.1 mm	0.6 mm	-2.8 mm	0.6 mm
M	-M4	-2.3 mm	0.9 mm	-0.1 mm	0.4 mm	-0.8 mm	0.4 mm	0.4 mm	0.4 mm
M1	-M4	-0.5 mm	0.8 mm	0.2 mm	0.4 mm	-2.9 mm	0.4 mm	1.3 mm	0.4 mm
M2	-M4	0.4 mm	0.7 mm	-2.8 mm	0.4 mm	-1.8 mm	0.3 mm	-1.2 mm	0.4 mm
M3	-M4	-0.1 mm	0.7 mm	-0.3 mm	0.4 mm	-1.6 mm	0.3 mm	1.2 mm	0.4 mm
P	-M4	0.9 mm	0.7 mm	-0.4 mm	0.4 mm	-1.2 mm	0.3 mm	0.3 mm	0.4 mm
R	-M4	-0.8 mm	0.8 mm	-0.3 mm	0.4 mm	0.0 mm	0.4 mm	-0.2 mm	0.4 mm
T	-M4	-1.8 mm	0.7 mm	1.9 mm	0.4 mm	-2.2 mm	0.3 mm	1.8 mm	0.4 mm
C	-P	-0.7 mm	1.0 mm	-5.7 mm	0.5 mm	0.3 mm	0.5 mm	-4.1 mm	0.5 mm
K	-P	-1.8 mm	1.1 mm	-2.3 mm	0.5 mm	-3.0 mm	0.6 mm	-3.3 mm	0.6 mm
M	-P	-3.2 mm	0.8 mm	0.3 mm	0.3 mm	0.4 mm	0.3 mm	-0.2 mm	0.3 mm
M1	-P	-1.4 mm	0.7 mm	0.7 mm	0.3 mm	-1.7 mm	0.3 mm	0.7 mm	0.3 mm
M2	-P	-0.5 mm	0.6 mm	-2.5 mm	0.3 mm	-0.6 mm	0.2 mm	-1.4 mm	0.3 mm
M3	-P	-1.0 mm	0.5 mm	0.2 mm	0.2 mm	-0.5 mm	0.2 mm	0.4 mm	0.3 mm
M4	-P	-0.9 mm	0.7 mm	0.4 mm	0.4 mm	1.2 mm	0.3 mm	0.3 mm	0.4 mm
R	-P	-1.7 mm	0.7 mm	0.1 mm	0.3 mm	1.1 mm	0.2 mm	0.5 mm	0.3 mm
T	-P	-2.7 mm	0.6 mm	2.3 mm	0.2 mm	-1.1 mm	0.3 mm	0.1 mm	0.3 mm
C	-R	1.0 mm	1.2 mm	-5.7 mm	0.6 mm	-0.8 mm	0.5 mm	1.9 mm	0.5 mm
K	-R	-0.1 mm	1.2 mm	-2.4 mm	0.5 mm	-4.1 mm	0.6 mm	-1.4 mm	0.5 mm
M	-R	-1.5 mm	0.8 mm	0.3 mm	0.3 mm	-0.7 mm	0.3 mm	0.8 mm	0.3 mm
M1	-R	0.3 mm	0.7 mm	0.5 mm	0.2 mm	-2.8 mm	0.3 mm	2.1 mm	0.3 mm
M2	-R	1.3 mm	0.8 mm	-2.5 mm	0.3 mm	-1.8 mm	0.3 mm	1.0 mm	0.3 mm
M3	-R	0.7 mm	0.7 mm	0.0 mm	0.2 mm	-1.6 mm	0.3 mm	1.3 mm	0.3 mm
M4	-R	0.8 mm	0.8 mm	0.3 mm	0.4 mm	0.0 mm	0.4 mm	-0.2 mm	0.4 mm
P	-R	1.7 mm	0.7 mm	-0.1 mm	0.3 mm	-1.1 mm	0.2 mm	0.5 mm	0.3 mm
T	-R	-0.9 mm	0.6 mm	2.1 mm	0.2 mm	-2.2 mm	0.3 mm	-2.2 mm	0.3 mm
C	-T	2.0 mm	1.1 mm	-8.0 mm	0.5 mm	1.4 mm	0.5 mm	-0.5 mm	0.5 mm
K	-T	0.9 mm	1.1 mm	-4.6 mm	0.5 mm	-1.9 mm	0.6 mm	4.7 mm	0.5 mm
M	-T	-0.6 mm	0.7 mm	-2.0 mm	0.3 mm	1.5 mm	0.3 mm	-1.7 mm	0.3 mm
M1	-T	1.2 mm	0.6 mm	-1.6 mm	0.2 mm	-0.6 mm	0.3 mm	-0.3 mm	0.3 mm
M2	-T	2.2 mm	0.7 mm	-4.7 mm	0.3 mm	0.4 mm	0.3 mm	-1.2 mm	0.3 mm
M3	-T	1.7 mm	0.5 mm	-2.1 mm	0.2 mm	0.6 mm	0.3 mm	0.0 mm	0.3 mm
M4	-T	1.8 mm	0.7 mm	-1.9 mm	0.4 mm	2.2 mm	0.3 mm	1.8 mm	0.4 mm
P	-T	2.7 mm	0.6 mm	-2.3 mm	0.2 mm	1.1 mm	0.3 mm	0.1 mm	0.3 mm
R	-T	0.9 mm	0.6 mm	-2.1 mm	0.2 mm	2.2 mm	0.3 mm	-2.2 mm	0.3 mm

USO INTERNO
Riproduzione vietata. Tutti i diritti sono riservati. Nessuna parte del presente documento può essere riprodotta o diffusa con un mezzo qualsiasi, senza il consenso scritto della e-GEOS.

8. ASTRONOMICAL AZIMUTH ORIENTATION

The astronomical azimuth orientation of the network has been determined by observations of the Polaris star, from the monument "P" (18 March 2004).

The software package used for data processing has been developed by G. Bianco (ASI).

Table 6.1 summarises the results of these observations.

Marker "C" and "M3" have been used as terrestrial references.

The column marker "C" and "M3 " show the azimuth values (grades) of these reference points with respect to the astronomical north, taking into account the anomaly of the star.

These measurements are in agreement with the previous report: Survey of the Matera Site March 2000.

ASTRONOMICAL AZIMUTH DETERMINATION

STATION:	MATERA MARKER "P"
OBSERVER:	F. AMBRICO
TERR.DIRECT:	MARKER “M3” and “C”.
OBSERVED STAR:	POLARIS 907
DATE:	18 March 2004
LAT:	40° 38' 56.87"
LON:	16° 42' 16.05"

USO INTERNO
Riproduzione vietata. Tutti i diritti sono riservati. Nessuna parte del presente documento può essere riprodotta o diffusa con un mezzo qualsiasi, senza il consenso scritto della e-GEOS.

18 March 2004

UT	MARKER "M3"	MARKER "C"
18:44	200.9480	152.4237
18:48	200.9478	152.4244
18:56	200.9471	152.4246
19:07	200.9475	152.4248
19:20	200.9470	152.4243
19:30	200.9469	152.4242
AVER.=	**200.9474**	**152.4243**

The previous value on marker C (survey 2000) was: 152.4254.

USO INTERNO
Riproduzione vietata. Tutti i diritti sono riservati. Nessuna parte del presente documento può essere riprodotta o diffusa con un mezzo qualsiasi, senza il consenso scritto della e-GEOS.

9. APPENDIX "A" REANALYSIS OF THE 2004 SURVEY

Minimal inner constraints solution

Total number of stations ..... = 21
Total number of measurements ..... = 406
Reduced Chi square = 2.4

Marker	N.r of meas.
A	19
B	4
C	13
E	22
G	7
H	6
K	8
L	12
M	27
M1	60
M2	87
M3	111
M4	40
N	23
P	108
R	43
T	172
U	17
X	4
Y	15
Z	14

USO INTERNO
Riproduzione vietata. Tutti i diritti sono riservati. Nessuna parte del presente documento può essere riprodotta o diffusa con un mezzo qualsiasi, senza il consenso scritto della e-GEOS.

Station	Up	Scaled error	East	Scaled error	North	Scaled error	Distance	Scaled error
A	2.351 m	0.539 mm	39.466 m	0.187 mm	-20.965 m	0.188 mm	44.751 m	0.199 mm
B	-4.222 m	1.087 mm	25.018 m	0.657 mm	-49.791 m	0.429 mm	55.883 m	0.259 mm
C	-4.463 m	0.634 mm	8.597 m	0.349 mm	-51.687 m	0.288 mm	52.587 m	0.247 mm
E	2.300 m	0.486 mm	38.538 m	0.169 mm	2.588 m	0.163 mm	38.693 m	0.168 mm
G	-5.508 m	1.010 mm	-106.667 m	0.596 mm	-121.405 m	0.582 mm	161.701 m	0.566 mm
H	-0.203 m	0.876 mm	-13.014 m	0.569 mm	53.904 m	0.267 mm	55.453 m	0.175 mm
K	-0.177 m	0.836 mm	-19.159 m	0.322 mm	60.626 m	0.528 mm	63.581 m	0.501 mm
L	-3.611 m	0.641 mm	9.326 m	0.210 mm	102.985 m	0.396 mm	103.469 m	0.383 mm
M	4.137 m	0.447 mm	35.785 m	0.191 mm	-36.126 m	0.177 mm	51.017 m	0.212 mm
M1	1.937 m	0.319 mm	78.805 m	0.132 mm	-22.271 m	0.141 mm	81.914 m	0.138 mm
M2	0.383 m	0.293 mm	51.149 m	0.139 mm	-81.117 m	0.128 mm	95.897 m	0.129 mm
M3	-0.276 m	0.254 mm	-29.194 m	0.120 mm	-80.940 m	0.123 mm	86.045 m	0.131 mm
M4	10.227 m	0.404 mm	-133.202 m	0.231 mm	55.817 m	0.193 mm	144.785 m	0.236 mm
N	1.677 m	0.467 mm	30.241 m	0.144 mm	7.256 m	0.156 mm	31.144 m	0.148 mm
P	-2.750 m	0.259 mm	-28.169 m	0.121 mm	-12.011 m	0.106 mm	30.746 m	0.126 mm
R	2.804 m	0.354 mm	22.901 m	0.118 mm	14.987 m	0.142 mm	27.512 m	0.147 mm
T	3.097 m	0.203 mm	25.009 m	0.095 mm	68.802 m	0.108 mm	73.272 m	0.111 mm
U	0.786 m	0.557 mm	48.431 m	0.145 mm	-62.043 m	0.209 mm	78.711 m	0.188 mm
X	-2.948 m	1.082 mm	-37.078 m	0.677 mm	39.204 m	0.397 mm	54.041 m	0.338 mm
Y	-2.645 m	0.579 mm	-4.774 m	0.342 mm	52.368 m	0.217 mm	52.652 m	0.192 mm
Z	-2.896 m	0.604 mm	-42.009 m	0.398 mm	79.821 m	0.176 mm	90.247 m	0.276 mm

Station to station vectors:

Vector	Up	Scaled error	East	Scaled error	North	Scaled error	Dist	Scaled error
B -A	-6.5726 m	1.255 mm	-14.4482 m	0.708 mm	-28.8264 m	0.483 mm	32.9076 m	0.723 mm
C -A	-6.8133 m	0.844 mm	-30.8689 m	0.398 mm	-30.7223 m	0.349 mm	44.0813 m	0.482 mm
E -A	-0.0508 m	0.739 mm	-0.9285 m	0.252 mm	23.5533 m	0.237 mm	23.5717 m	0.239 mm
G -A	-7.8582 m	1.201 mm	-146.1330 m	0.654 mm	-100.4403 m	0.643 mm	177.4961 m	0.625 mm
H -A	-2.5532 m	1.079 mm	-52.4798 m	0.626 mm	74.8693 m	0.343 mm	91.4662 m	0.302 mm
K -A	-2.5274 m	1.017 mm	-58.6252 m	0.371 mm	81.5905 m	0.580 mm	100.5003 m	0.507 mm
L -A	-5.9614 m	0.877 mm	-30.1402 m	0.288 mm	123.9499 m	0.461 mm	127.7010 m	0.494 mm
M -A	1.7868 m	0.704 mm	-3.6815 m	0.269 mm	-15.1615 m	0.230 mm	15.7040 m	0.225 mm
M1 -A	-0.4138 m	0.621 mm	39.3386 m	0.185 mm	-1.3064 m	0.228 mm	39.3624 m	0.186 mm
M2 -A	-1.9674 m	0.528 mm	11.6825 m	0.139 mm	-60.1522 m	0.205 mm	61.3077 m	0.212 mm
M3 -A	-2.6264 m	0.583 mm	-68.6605 m	0.199 mm	-59.9751 m	0.216 mm	91.2040 m	0.192 mm
M4 -A	7.8762 m	0.659 mm	-172.6678 m	0.284 mm	76.7817 m	0.260 mm	189.1339 m	0.302 mm
N -A	-0.6736 m	0.724 mm	-9.2255 m	0.238 mm	28.2205 m	0.226 mm	29.6978 m	0.232 mm
P -A	-5.1010 m	0.543 mm	-67.6350 m	0.193 mm	8.9534 m	0.169 mm	68.4155 m	0.202 mm
R -A	0.4534 m	0.644 mm	-16.5648 m	0.220 mm	35.9517 m	0.212 mm	39.5869 m	0.214 mm
T -A	0.7468 m	0.601 mm	-14.4569 m	0.210 mm	89.7667 m	0.228 mm	90.9265 m	0.231 mm
U -A	-1.5641 m	0.757 mm	8.9645 m	0.149 mm	-41.0782 m	0.278 mm	42.0741 m	0.285 mm
X -A	-5.2982 m	1.268 mm	-76.5441 m	0.735 mm	60.1689 m	0.462 mm	97.5058 m	0.474 mm
Y -A	-4.9956 m	0.828 mm	-44.2398 m	0.404 mm	73.3333 m	0.302 mm	85.7897 m	0.248 mm
Z -A	-5.2469 m	0.848 mm	-81.4749 m	0.457 mm	100.7864 m	0.271 mm	129.7057 m	0.397 mm

USO INTERNO
Riproduzione vietata. Tutti i diritti sono riservati. Nessuna parte del presente documento può essere riprodotta o diffusa con un mezzo qualsiasi, senza il consenso scritto della e-GEOS.

Vector	Up	Scaled error	East	Scaled error	North	Scaled error	Dist	Scaled error
A -B	6.5726 m	1.255 mm	14.4482 m	0.708 mm	28.8264 m	0.483 mm	32.9076 m	0.723 mm
C -B	-0.2407 m	1.268 mm	-16.4207 m	0.762 mm	-1.8958 m	0.512 mm	16.5315 m	0.806 mm
E -B	6.5218 m	1.246 mm	13.5196 m	0.709 mm	52.3797 m	0.480 mm	54.4881 m	0.617 mm
G -B	-1.2856 m	1.558 mm	-131.6848 m	0.930 mm	-71.6138 m	0.762 mm	149.9036 m	0.989 mm
H -B	4.0194 m	1.466 mm	-38.0316 m	0.911 mm	103.6958 m	0.534 mm	110.5232 m	0.337 mm
K -B	4.0452 m	1.396 mm	-44.1771 m	0.751 mm	110.4170 m	0.694 mm	118.9953 m	0.566 mm
L -B	0.6112 m	1.325 mm	-15.6921 m	0.722 mm	152.7763 m	0.616 mm	153.5813 m	0.589 mm
M -B	8.3594 m	1.226 mm	10.7667 m	0.714 mm	13.6649 m	0.481 mm	19.3011 m	0.866 mm
M1 -B	6.1588 m	1.184 mm	53.7867 m	0.699 mm	27.5200 m	0.470 mm	60.7313 m	0.800 mm
M2 -B	4.6052 m	1.159 mm	26.1307 m	0.697 mm	-31.3257 m	0.448 mm	41.0527 m	0.321 mm
M3 -B	3.9462 m	1.111 mm	-54.2123 m	0.679 mm	-31.1487 m	0.432 mm	62.6481 m	0.773 mm
M4 -B	14.4489 m	1.202 mm	-158.2196 m	0.721 mm	105.6081 m	0.488 mm	190.7755 m	0.477 mm
N -B	5.8990 m	1.237 mm	5.2227 m	0.703 mm	57.0469 m	0.477 mm	57.5884 m	0.538 mm
P -B	1.4717 m	1.152 mm	-53.1869 m	0.685 mm	37.7799 m	0.457 mm	65.2559 m	0.399 mm
R -B	7.0260 m	1.185 mm	-2.1166 m	0.696 mm	64.7781 m	0.470 mm	65.1924 m	0.471 mm
T -B	7.3194 m	1.161 mm	-0.0088 m	0.694 mm	118.5932 m	0.469 mm	118.8188 m	0.475 mm
U -B	5.0085 m	1.245 mm	23.4127 m	0.697 mm	-12.2518 m	0.470 mm	26.8950 m	0.534 mm
X -B	1.2744 m	1.611 mm	-62.0960 m	0.989 mm	88.9954 m	0.617 mm	108.5252 m	0.397 mm
Y -B	1.5771 m	1.293 mm	-29.7916 m	0.775 mm	102.1597 m	0.509 mm	106.4266 m	0.351 mm
Z -B	1.3257 m	1.306 mm	-67.0267 m	0.804 mm	129.6128 m	0.491 mm	145.9240 m	0.389 mm

Vector	Up	Scaled error	East	Scaled error	North	Scaled error	Dist	Scaled error
A -C	6.8133 m	0.844 mm	30.8689 m	0.398 mm	30.7223 m	0.349 mm	44.0813 m	0.482 mm
B -C	0.2407 m	1.268 mm	16.4207 m	0.762 mm	1.8958 m	0.512 mm	16.5315 m	0.806 mm
E -C	6.7625 m	0.830 mm	29.9403 m	0.399 mm	54.2756 m	0.344 mm	62.3538 m	0.452 mm
G -C	-1.0449 m	1.251 mm	-115.2641 m	0.723 mm	-69.7180 m	0.685 mm	134.7127 m	0.749 mm
H -C	4.2600 m	1.135 mm	-21.6109 m	0.697 mm	105.5916 m	0.416 mm	107.8646 m	0.319 mm
K -C	4.2859 m	1.043 mm	-27.7564 m	0.469 mm	112.3128 m	0.608 mm	115.7711 m	0.562 mm
L -C	0.8519 m	0.945 mm	0.7286 m	0.421 mm	154.6721 m	0.518 mm	154.6762 m	0.517 mm
M -C	8.6000 m	0.800 mm	27.1874 m	0.408 mm	15.5608 m	0.345 mm	32.4847 m	0.501 mm
M1 -C	6.3995 m	0.734 mm	70.2074 m	0.382 mm	29.4158 m	0.330 mm	76.3893 m	0.454 mm
M2 -C	4.8459 m	0.694 mm	42.5514 m	0.377 mm	-29.4299 m	0.298 mm	51.9637 m	0.225 mm
M3 -C	4.1869 m	0.610 mm	-37.7916 m	0.345 mm	-29.2529 m	0.274 mm	47.9736 m	0.430 mm
M4 -C	14.6895 m	0.762 mm	-141.7989 m	0.420 mm	107.5039 m	0.355 mm	178.5492 m	0.295 mm
N -C	6.1396 m	0.817 mm	21.6434 m	0.388 mm	58.9427 m	0.340 mm	63.0902 m	0.428 mm
P -C	1.7123 m	0.682 mm	-36.7662 m	0.356 mm	39.6757 m	0.311 mm	54.1188 m	0.162 mm
R -C	7.2666 m	0.735 mm	14.3041 m	0.376 mm	66.6740 m	0.330 mm	68.5772 m	0.393 mm
T -C	7.5601 m	0.696 mm	16.4119 m	0.373 mm	120.4890 m	0.328 mm	121.8364 m	0.366 mm
U -C	5.2492 m	0.830 mm	39.8334 m	0.379 mm	-10.3560 m	0.330 mm	41.4909 m	0.332 mm
X -C	1.5151 m	1.316 mm	-45.6753 m	0.797 mm	90.8912 m	0.518 mm	101.7336 m	0.325 mm
Y -C	1.8177 m	0.900 mm	-13.3709 m	0.508 mm	104.0555 m	0.383 mm	104.9268 m	0.333 mm
Z -C	1.5664 m	0.918 mm	-50.6060 m	0.551 mm	131.5086 m	0.359 mm	140.9182 m	0.329 mm

USO INTERNO
Riproduzione vietata. Tutti i diritti sono riservati. Nessuna parte del presente documento può essere riprodotta o diffusa con un mezzo qualsiasi, senza il consenso scritto della e-GEOS.

Vector		Up	Scaled error	East	Scaled error	North	Scaled error	Dist	Scaled error
A	-E	0.0508 m	0.739 mm	0.9285 m	0.252 mm	-23.5533 m	0.237 mm	23.5717 m	0.239 mm
B	-E	-6.5218 m	1.246 mm	-13.5196 m	0.709 mm	-52.3797 m	0.480 mm	54.4881 m	0.617 mm
C	-E	-6.7625 m	0.830 mm	-29.9403 m	0.399 mm	-54.2756 m	0.344 mm	62.3538 m	0.452 mm
G	-E	-7.8074 m	1.155 mm	-145.2045 m	0.638 mm	-123.9936 m	0.630 mm	191.1013 m	0.602 mm
H	-E	-2.5024 m	1.027 mm	-51.5513 m	0.609 mm	51.3160 m	0.319 mm	72.7814 m	0.345 mm
K	-E	-2.4766 m	1.008 mm	-57.6967 m	0.373 mm	58.0372 m	0.578 mm	81.8740 m	0.470 mm
L	-E	-5.9106 m	0.813 mm	-29.2117 m	0.249 mm	100.3966 m	0.443 mm	104.7269 m	0.485 mm
M	-E	1.8376 m	0.661 mm	-2.7529 m	0.237 mm	-38.7148 m	0.231 mm	38.8560 m	0.227 mm
M1	-E	-0.3630 m	0.510 mm	40.2671 m	0.190 mm	-24.8598 m	0.155 mm	47.3242 m	0.222 mm
M2	-E	-1.9166 m	0.564 mm	12.6111 m	0.216 mm	-83.7055 m	0.200 mm	84.6718 m	0.205 mm
M3	-E	-2.5756 m	0.563 mm	-67.7320 m	0.202 mm	-83.5284 m	0.208 mm	107.5697 m	0.199 mm
M4	-E	7.9270 m	0.635 mm	-171.7392 m	0.287 mm	53.2284 m	0.250 mm	179.9735 m	0.299 mm
N	-E	-0.6228 m	0.667 mm	-8.2970 m	0.190 mm	4.6672 m	0.196 mm	9.5399 m	0.219 mm
P	-E	-5.0502 m	0.542 mm	-66.7065 m	0.201 mm	-14.5999 m	0.169 mm	68.4720 m	0.200 mm
R	-E	0.5042 m	0.596 mm	-15.6363 m	0.173 mm	12.3984 m	0.187 mm	19.9616 m	0.197 mm
T	-E	0.7976 m	0.503 mm	-13.5284 m	0.153 mm	66.2134 m	0.190 mm	67.5860 m	0.201 mm
U	-E	-1.5133 m	0.762 mm	9.8930 m	0.220 mm	-64.6315 m	0.272 mm	65.4018 m	0.276 mm
X	-E	-5.2474 m	1.225 mm	-75.6156 m	0.721 mm	36.6156 m	0.444 mm	84.1781 m	0.557 mm
Y	-E	-4.9448 m	0.760 mm	-43.3112 m	0.378 mm	49.7800 m	0.274 mm	66.1692 m	0.238 mm
Z	-E	-5.1961 m	0.781 mm	-80.5463 m	0.434 mm	77.2331 m	0.240 mm	111.7124 m	0.404 mm

Vector		Up	Scaled error	East	Scaled error	North	Scaled error	Dist	Scaled error
A	-G	7.8582 m	1.201 mm	146.1330 m	0.654 mm	100.4403 m	0.643 mm	177.4961 m	0.625 mm
B	-G	1.2856 m	1.558 mm	131.6848 m	0.930 mm	71.6138 m	0.762 mm	149.9036 m	0.989 mm
C	-G	1.0449 m	1.251 mm	115.2641 m	0.723 mm	69.7180 m	0.685 mm	134.7127 m	0.749 mm
E	-G	7.8074 m	1.155 mm	145.2045 m	0.638 mm	123.9936 m	0.630 mm	191.1013 m	0.602 mm
H	-G	5.3050 m	1.373 mm	93.6532 m	0.855 mm	175.3096 m	0.653 mm	198.8279 m	0.760 mm
K	-G	5.3308 m	1.376 mm	87.5078 m	0.709 mm	182.0308 m	0.828 mm	202.0427 m	0.804 mm
L	-G	1.8968 m	1.220 mm	115.9928 m	0.649 mm	224.3901 m	0.722 mm	252.6041 m	0.647 mm
M	-G	9.6450 m	1.138 mm	142.4516 m	0.645 mm	85.2788 m	0.637 mm	166.3068 m	0.617 mm
M1	-G	7.4444 m	1.093 mm	185.4716 m	0.634 mm	99.1338 m	0.624 mm	210.4344 m	0.605 mm
M2	-G	5.8908 m	1.102 mm	157.8155 m	0.640 mm	40.2881 m	0.628 mm	162.9834 m	0.629 mm
M3	-G	5.2318 m	1.092 mm	77.4725 m	0.635 mm	40.4652 m	0.628 mm	87.5602 m	0.618 mm
M4	-G	15.7344 m	1.129 mm	-26.5348 m	0.666 mm	177.2219 m	0.638 mm	179.8869 m	0.650 mm
N	-G	7.1846 m	1.146 mm	136.9075 m	0.631 mm	128.6607 m	0.629 mm	188.0129 m	0.604 mm
P	-G	2.7572 m	1.091 mm	78.4980 m	0.635 mm	109.3937 m	0.621 mm	134.6719 m	0.605 mm
R	-G	8.3116 m	1.106 mm	129.5682 m	0.625 mm	136.3920 m	0.626 mm	188.3076 m	0.603 mm
T	-G	8.6050 m	1.040 mm	131.6761 m	0.619 mm	190.2070 m	0.601 mm	231.4980 m	0.584 mm
U	-G	6.2941 m	1.211 mm	155.0975 m	0.642 mm	59.3621 m	0.652 mm	166.1888 m	0.628 mm
X	-G	2.5600 m	1.526 mm	69.5889 m	0.938 mm	160.6092 m	0.723 mm	175.0556 m	0.842 mm
Y	-G	2.8626 m	1.186 mm	101.8933 m	0.709 mm	173.7735 m	0.633 mm	201.4638 m	0.676 mm
Z	-G	2.6113 m	1.199 mm	64.6581 m	0.740 mm	201.2266 m	0.619 mm	211.3756 m	0.606 mm

USO INTERNO
Riproduzione vietata. Tutti i diritti sono riservati. Nessuna parte del presente documento può essere riprodotta o diffusa con un mezzo qualsiasi, senza il consenso scritto della e-GEOS.

Vector	Up	Scaled error	East	Scaled error	North	Scaled error	Dist	Scaled error
A -H	2.5532 m	1.079 mm	52.4798 m	0.626 mm	-74.8693 m	0.343 mm	91.4662 m	0.302 mm
B -H	-4.0194 m	1.466 mm	38.0316 m	0.911 mm	-103.6958 m	0.534 mm	110.5232 m	0.337 mm
C -H	-4.2600 m	1.135 mm	21.6109 m	0.697 mm	-105.5916 m	0.416 mm	107.8646 m	0.319 mm
E -H	2.5024 m	1.027 mm	51.5513 m	0.609 mm	-51.3160 m	0.319 mm	72.7814 m	0.345 mm
G -H	-5.3050 m	1.373 mm	-93.6532 m	0.855 mm	-175.3096 m	0.653 mm	198.8279 m	0.760 mm
K -H	0.0258 m	1.271 mm	-6.1454 m	0.683 mm	6.7212 m	0.624 mm	9.1072 m	0.522 mm
L -H	-3.4082 m	1.100 mm	22.3396 m	0.621 mm	49.0805 m	0.475 mm	54.0330 m	0.553 mm
M -H	4.3400 m	1.009 mm	48.7983 m	0.617 mm	-90.0308 m	0.331 mm	102.4971 m	0.268 mm
M1 -H	2.1394 m	0.957 mm	91.8184 m	0.605 mm	-76.1758 m	0.307 mm	119.3228 m	0.369 mm
M2 -H	0.5858 m	0.968 mm	64.1623 m	0.612 mm	-135.0215 m	0.315 mm	149.4923 m	0.220 mm
M3 -H	-0.0732 m	0.956 mm	-16.1807 m	0.606 mm	-134.8444 m	0.314 mm	135.8118 m	0.366 mm
M4 -H	10.4295 m	0.998 mm	-120.1880 m	0.638 mm	1.9123 m	0.334 mm	120.6548 m	0.640 mm
N -H	1.8796 m	1.017 mm	43.2543 m	0.601 mm	-46.6489 m	0.317 mm	63.6442 m	0.308 mm
P -H	-2.5477 m	0.955 mm	-15.1553 m	0.606 mm	-65.9159 m	0.301 mm	67.6837 m	0.403 mm
R -H	3.0066 m	0.973 mm	35.9150 m	0.596 mm	-38.9176 m	0.311 mm	53.0425 m	0.294 mm
T -H	3.3000 m	0.896 mm	38.0229 m	0.589 mm	14.8974 m	0.256 mm	40.9702 m	0.632 mm
U -H	0.9891 m	1.090 mm	61.4443 m	0.613 mm	-115.9475 m	0.360 mm	131.2258 m	0.277 mm
X -H	-2.7450 m	1.432 mm	-24.0644 m	0.919 mm	-14.7004 m	0.476 mm	28.3325 m	0.993 mm
Y -H	-2.4423 m	1.062 mm	8.2400 m	0.683 mm	-1.5361 m	0.324 mm	8.7306 m	0.661 mm
Z -H	-2.6937 m	1.077 mm	-28.9951 m	0.716 mm	25.9170 m	0.295 mm	38.9829 m	0.473 mm

Vector	Up	Scaled error	East	Scaled error	North	Scaled error	Dist	Scaled error
A -K	2.5274 m	1.017 mm	58.6252 m	0.371 mm	-81.5905 m	0.580 mm	100.5003 m	0.507 mm
B -K	-4.0452 m	1.396 mm	44.1771 m	0.751 mm	-110.4170 m	0.694 mm	118.9953 m	0.566 mm
C -K	-4.2859 m	1.043 mm	27.7564 m	0.469 mm	-112.3128 m	0.608 mm	115.7711 m	0.562 mm
E -K	2.4766 m	1.008 mm	57.6967 m	0.373 mm	-58.0372 m	0.578 mm	81.8740 m	0.470 mm
G -K	-5.3308 m	1.376 mm	-87.5078 m	0.709 mm	-182.0308 m	0.828 mm	202.0427 m	0.804 mm
H -K	-0.0258 m	1.271 mm	6.1454 m	0.683 mm	-6.7212 m	0.624 mm	9.1072 m	0.522 mm
L -K	-3.4340 m	1.105 mm	28.4850 m	0.397 mm	42.3593 m	0.696 mm	51.1615 m	0.586 mm
M -K	4.3142 m	0.982 mm	54.9438 m	0.382 mm	-96.7520 m	0.578 mm	111.3480 m	0.531 mm
M1 -K	2.1136 m	0.931 mm	97.9638 m	0.355 mm	-82.8970 m	0.570 mm	128.3483 m	0.433 mm
M2 -K	0.5600 m	0.899 mm	70.3078 m	0.349 mm	-141.7427 m	0.554 mm	158.2229 m	0.506 mm
M3 -K	-0.0990 m	0.846 mm	-10.0353 m	0.319 mm	-141.5656 m	0.543 mm	141.9209 m	0.545 mm
M4 -K	10.4036 m	0.952 mm	-114.0425 m	0.395 mm	-4.8088 m	0.585 mm	114.6170 m	0.404 mm
N -K	1.8537 m	0.996 mm	49.3997 m	0.362 mm	-53.3701 m	0.575 mm	72.7470 m	0.463 mm
P -K	-2.5736 m	0.884 mm	-9.0098 m	0.323 mm	-72.6371 m	0.558 mm	73.2390 m	0.561 mm
R -K	2.9807 m	0.931 mm	42.0604 m	0.349 mm	-45.6388 m	0.569 mm	62.1359 m	0.450 mm
T -K	3.2742 m	0.902 mm	44.1683 m	0.345 mm	8.1762 m	0.569 mm	45.0379 m	0.372 mm
U -K	0.9633 m	1.012 mm	67.5897 m	0.351 mm	-122.6687 m	0.573 mm	140.0604 m	0.515 mm
X -K	-2.7708 m	1.436 mm	-17.9189 m	0.785 mm	-21.4216 m	0.696 mm	28.0651 m	0.884 mm
Y -K	-2.4682 m	1.067 mm	14.3855 m	0.488 mm	-8.2573 m	0.603 mm	16.7695 m	0.461 mm
Z -K	-2.7195 m	1.082 mm	-22.8497 m	0.533 mm	19.1959 m	0.588 mm	29.9664 m	0.565 mm

USO INTERNO
Riproduzione vietata. Tutti i diritti sono riservati. Nessuna parte del presente documento può essere riprodotta o diffusa con un mezzo qualsiasi, senza il consenso scritto della e-GEOS.

Vector		Up	Scaled error	East	Scaled error	North	Scaled error	Dist	Scaled error
A	-L	5.9614 m	0.877 mm	30.1402 m	0.288 mm	-123.9499 m	0.461 mm	127.7010 m	0.494 mm
B	-L	-0.6112 m	1.325 mm	15.6921 m	0.722 mm	-152.7763 m	0.616 mm	153.5813 m	0.589 mm
C	-L	-0.8519 m	0.945 mm	-0.7286 m	0.421 mm	-154.6721 m	0.518 mm	154.6762 m	0.517 mm
E	-L	5.9106 m	0.813 mm	29.2117 m	0.249 mm	-100.3966 m	0.443 mm	104.7269 m	0.485 mm
G	-L	-1.8968 m	1.220 mm	-115.9928 m	0.649 mm	-224.3901 m	0.722 mm	252.6041 m	0.647 mm
H	-L	3.4082 m	1.100 mm	-22.3396 m	0.621 mm	-49.0805 m	0.475 mm	54.0330 m	0.553 mm
K	-L	3.4340 m	1.105 mm	-28.4850 m	0.397 mm	-42.3593 m	0.696 mm	51.1615 m	0.586 mm
M	-L	7.7482 m	0.789 mm	26.4588 m	0.269 mm	-139.1114 m	0.452 mm	141.8170 m	0.483 mm
M1	-L	5.5476 m	0.722 mm	69.4788 m	0.239 mm	-125.2563 m	0.434 mm	143.3430 m	0.478 mm
M2	-L	3.9940 m	0.736 mm	41.8228 m	0.256 mm	-184.1020 m	0.440 mm	188.8350 m	0.468 mm
M3	-L	3.3350 m	0.721 mm	-38.5203 m	0.243 mm	-183.9250 m	0.439 mm	187.9450 m	0.402 mm
M4	-L	13.8377 m	0.776 mm	-142.5275 m	0.315 mm	-47.1682 m	0.454 mm	150.7661 m	0.261 mm
N	-L	5.2878 m	0.800 mm	20.9147 m	0.230 mm	-95.7294 m	0.441 mm	98.1300 m	0.473 mm
P	-L	0.8604 m	0.719 mm	-37.4948 m	0.243 mm	-114.9964 m	0.430 mm	120.9578 m	0.364 mm
R	-L	6.4148 m	0.742 mm	13.5754 m	0.215 mm	-87.9982 m	0.437 mm	89.2699 m	0.463 mm
T	-L	6.7082 m	0.639 mm	15.6833 m	0.197 mm	-34.1831 m	0.400 mm	38.2028 m	0.459 mm
U	-L	4.3973 m	0.891 mm	39.1047 m	0.260 mm	-165.0281 m	0.473 mm	169.6549 m	0.500 mm
X	-L	0.6632 m	1.287 mm	-46.4039 m	0.732 mm	-63.7809 m	0.567 mm	78.8782 m	0.725 mm
Y	-L	0.9658 m	0.856 mm	-14.0995 m	0.397 mm	-50.6166 m	0.446 mm	52.5525 m	0.439 mm
Z	-L	0.7145 m	0.875 mm	-51.3347 m	0.451 mm	-23.1635 m	0.426 mm	56.3232 m	0.358 mm

Vector		Up	Scaled error	East	Scaled error	North	Scaled error	Dist	Scaled error
A	-M	-1.7868 m	0.704 mm	3.6815 m	0.269 mm	15.1615 m	0.230 mm	15.7040 m	0.225 mm
B	-M	-8.3594 m	1.226 mm	-10.7667 m	0.714 mm	-13.6649 m	0.481 mm	19.3011 m	0.866 mm
C	-M	-8.6000 m	0.800 mm	-27.1874 m	0.408 mm	-15.5608 m	0.345 mm	32.4847 m	0.501 mm
E	-M	-1.8376 m	0.661 mm	2.7529 m	0.237 mm	38.7148 m	0.231 mm	38.8560 m	0.227 mm
G	-M	-9.6450 m	1.138 mm	-142.4516 m	0.645 mm	-85.2788 m	0.637 mm	166.3068 m	0.617 mm
H	-M	-4.3400 m	1.009 mm	-48.7983 m	0.617 mm	90.0308 m	0.331 mm	102.4971 m	0.268 mm
K	-M	-4.3142 m	0.982 mm	-54.9438 m	0.382 mm	96.7520 m	0.578 mm	111.3480 m	0.531 mm
L	-M	-7.7482 m	0.789 mm	-26.4588 m	0.269 mm	139.1114 m	0.452 mm	141.8170 m	0.483 mm
M1	-M	-2.2006 m	0.545 mm	43.0200 m	0.223 mm	13.8550 m	0.227 mm	45.2496 m	0.198 mm
M2	-M	-3.7542 m	0.532 mm	15.3640 m	0.235 mm	-44.9907 m	0.203 mm	47.6897 m	0.231 mm
M3	-M	-4.4132 m	0.518 mm	-64.9790 m	0.218 mm	-44.8136 m	0.210 mm	79.0570 m	0.191 mm
M4	-M	6.0895 m	0.594 mm	-168.9863 m	0.298 mm	91.9432 m	0.250 mm	192.4760 m	0.318 mm
N	-M	-2.4604 m	0.641 mm	-5.5440 m	0.218 mm	43.3820 m	0.219 mm	43.8039 m	0.228 mm
P	-M	-6.8877 m	0.473 mm	-63.9536 m	0.215 mm	24.1149 m	0.158 mm	68.6952 m	0.235 mm
R	-M	-1.3334 m	0.558 mm	-12.8833 m	0.201 mm	51.1132 m	0.208 mm	52.7287 m	0.216 mm
T	-M	-1.0400 m	0.464 mm	-10.7755 m	0.183 mm	104.9282 m	0.209 mm	105.4852 m	0.214 mm
U	-M	-3.3509 m	0.734 mm	12.6460 m	0.239 mm	-25.9167 m	0.273 mm	29.0315 m	0.300 mm
X	-M	-7.0850 m	1.210 mm	-72.8627 m	0.728 mm	75.3304 m	0.453 mm	105.0421 m	0.414 mm
Y	-M	-6.7823 m	0.735 mm	-40.5583 m	0.391 mm	88.4948 m	0.288 mm	97.5823 m	0.238 mm
Z	-M	-7.0337 m	0.757 mm	-77.7934 m	0.445 mm	115.9479 m	0.255 mm	139.8041 m	0.374 mm

USO INTERNO
Riproduzione vietata. Tutti i diritti sono riservati. Nessuna parte del presente documento può essere riprodotta o diffusa con un mezzo qualsiasi, senza il consenso scritto della e-GEOS.

Vector		Up	Scaled error	East	Scaled error	North	Scaled error	Dist	Scaled error
A	-M1	0.4138 m	0.621 mm	-39.3386 m	0.185 mm	1.3064 m	0.228 mm	39.3624 m	0.186 mm
B	-M1	-6.1588 m	1.184 mm	-53.7867 m	0.699 mm	-27.5200 m	0.470 mm	60.7313 m	0.800 mm
C	-M1	-6.3995 m	0.734 mm	-70.2074 m	0.382 mm	-29.4158 m	0.330 mm	76.3893 m	0.454 mm
E	-M1	0.3630 m	0.510 mm	-40.2671 m	0.190 mm	24.8598 m	0.155 mm	47.3242 m	0.222 mm
G	-M1	-7.4444 m	1.093 mm	-185.4716 m	0.634 mm	-99.1338 m	0.624 mm	210.4344 m	0.605 mm
H	-M1	-2.1394 m	0.957 mm	-91.8184 m	0.605 mm	76.1758 m	0.307 mm	119.3228 m	0.369 mm
K	-M1	-2.1136 m	0.931 mm	-97.9638 m	0.355 mm	82.8970 m	0.570 mm	128.3483 m	0.433 mm
L	-M1	-5.5476 m	0.722 mm	-69.4788 m	0.239 mm	125.2563 m	0.434 mm	143.3430 m	0.478 mm
M	-M1	2.2006 m	0.545 mm	-43.0200 m	0.223 mm	-13.8550 m	0.227 mm	45.2496 m	0.198 mm
M2	-M1	-1.5536 m	0.380 mm	-27.6560 m	0.121 mm	-58.8457 m	0.169 mm	65.0391 m	0.180 mm
M3	-M1	-2.2126 m	0.407 mm	-107.9991 m	0.165 mm	-58.6687 m	0.185 mm	122.9256 m	0.178 mm
M4	-M1	8.2901 m	0.506 mm	-212.0064 m	0.258 mm	78.0881 m	0.237 mm	226.0822 m	0.268 mm
N	-M1	-0.2598 m	0.534 mm	-48.5641 m	0.174 mm	29.5269 m	0.175 mm	56.8364 m	0.199 mm
P	-M1	-4.6871 m	0.393 mm	-106.9736 m	0.163 mm	10.2599 m	0.162 mm	107.5667 m	0.164 mm
R	-M1	0.8672 m	0.450 mm	-55.9034 m	0.153 mm	37.2582 m	0.167 mm	67.1871 m	0.173 mm
T	-M1	1.1606 m	0.336 mm	-53.7955 m	0.136 mm	91.0732 m	0.168 mm	105.7810 m	0.185 mm
U	-M1	-1.1503 m	0.647 mm	-30.3741 m	0.133 mm	-39.7718 m	0.259 mm	50.0570 m	0.227 mm
X	-M1	-4.8844 m	1.167 mm	-115.8827 m	0.718 mm	61.4754 m	0.435 mm	131.2703 m	0.531 mm
Y	-M1	-4.5818 m	0.662 mm	-83.5783 m	0.371 mm	74.6397 m	0.260 mm	112.1491 m	0.233 mm
Z	-M1	-4.8331 m	0.686 mm	-120.8135 m	0.428 mm	102.0928 m	0.223 mm	158.2473 m	0.402 mm

Vector		Up	Scaled error	East	Scaled error	North	Scaled error	Dist	Scaled error
A	-M2	1.9674 m	0.528 mm	-11.6825 m	0.139 mm	60.1522 m	0.205 mm	61.3077 m	0.212 mm
B	-M2	-4.6052 m	1.159 mm	-26.1307 m	0.697 mm	31.3257 m	0.448 mm	41.0527 m	0.321 mm
C	-M2	-4.8459 m	0.694 mm	-42.5514 m	0.377 mm	29.4299 m	0.298 mm	51.9637 m	0.225 mm
E	-M2	1.9166 m	0.564 mm	-12.6111 m	0.216 mm	83.7055 m	0.200 mm	84.6718 m	0.205 mm
G	-M2	-5.8908 m	1.102 mm	-157.8155 m	0.640 mm	-40.2881 m	0.628 mm	162.9834 m	0.629 mm
H	-M2	-0.5858 m	0.968 mm	-64.1623 m	0.612 mm	135.0215 m	0.315 mm	149.4923 m	0.220 mm
K	-M2	-0.5600 m	0.899 mm	-70.3078 m	0.349 mm	141.7427 m	0.554 mm	158.2229 m	0.506 mm
L	-M2	-3.9940 m	0.736 mm	-41.8228 m	0.256 mm	184.1020 m	0.440 mm	188.8350 m	0.468 mm
M	-M2	3.7542 m	0.532 mm	-15.3640 m	0.235 mm	44.9907 m	0.203 mm	47.6897 m	0.231 mm
M1	-M2	1.5536 m	0.380 mm	27.6560 m	0.121 mm	58.8457 m	0.169 mm	65.0391 m	0.180 mm
M3	-M2	-0.6590 m	0.330 mm	-80.3430 m	0.153 mm	0.1771 m	0.118 mm	80.3459 m	0.153 mm
M4	-M2	9.8436 m	0.457 mm	-184.3503 m	0.251 mm	136.9339 m	0.221 mm	229.8539 m	0.261 mm
N	-M2	1.2938 m	0.551 mm	-20.9080 m	0.199 mm	88.3726 m	0.195 mm	90.8215 m	0.195 mm
P	-M2	-3.1336 m	0.313 mm	-79.3176 m	0.146 mm	69.1056 m	0.137 mm	105.2458 m	0.158 mm
R	-M2	2.4208 m	0.443 mm	-28.2473 m	0.176 mm	96.1039 m	0.181 mm	100.1984 m	0.174 mm
T	-M2	2.7142 m	0.366 mm	-26.1395 m	0.164 mm	149.9189 m	0.183 mm	152.2048 m	0.182 mm
U	-M2	0.4033 m	0.565 mm	-2.7180 m	0.057 mm	19.0740 m	0.211 mm	19.2709 m	0.213 mm
X	-M2	-3.3308 m	1.176 mm	-88.2267 m	0.723 mm	120.3211 m	0.441 mm	149.2388 m	0.336 mm
Y	-M2	-3.0282 m	0.678 mm	-55.9223 m	0.382 mm	133.4854 m	0.269 mm	144.7579 m	0.195 mm
Z	-M2	-3.2795 m	0.701 mm	-93.1574 m	0.438 mm	160.9386 m	0.234 mm	185.9846 m	0.332 mm

USO INTERNO
Riproduzione vietata. Tutti i diritti sono riservati. Nessuna parte del presente documento può essere riprodotta o diffusa con un mezzo qualsiasi, senza il consenso scritto della e-GEOS.

Vector		Up	Scaled error	East	Scaled error	North	Scaled error	Dist	Scaled error
A	-M3	2.6264 m	0.583 mm	68.6605 m	0.199 mm	59.9751 m	0.216 mm	91.2040 m	0.192 mm
B	-M3	-3.9462 m	1.111 mm	54.2123 m	0.679 mm	31.1487 m	0.432 mm	62.6481 m	0.773 mm
C	-M3	-4.1869 m	0.610 mm	37.7916 m	0.345 mm	29.2529 m	0.274 mm	47.9736 m	0.430 mm
E	-M3	2.5756 m	0.563 mm	67.7320 m	0.202 mm	83.5284 m	0.208 mm	107.5697 m	0.199 mm
G	-M3	-5.2318 m	1.092 mm	-77.4725 m	0.635 mm	-40.4652 m	0.628 mm	87.5602 m	0.618 mm
H	-M3	0.0732 m	0.956 mm	16.1807 m	0.606 mm	134.8444 m	0.314 mm	135.8118 m	0.366 mm
K	-M3	0.0990 m	0.846 mm	10.0353 m	0.319 mm	141.5656 m	0.543 mm	141.9209 m	0.545 mm
L	-M3	-3.3350 m	0.721 mm	38.5203 m	0.243 mm	183.9250 m	0.439 mm	187.9450 m	0.402 mm
M	-M3	4.4132 m	0.518 mm	64.9790 m	0.218 mm	44.8136 m	0.210 mm	79.0570 m	0.191 mm
M1	-M3	2.2126 m	0.407 mm	107.9991 m	0.165 mm	58.6687 m	0.185 mm	122.9256 m	0.178 mm
M2	-M3	0.6590 m	0.330 mm	80.3430 m	0.153 mm	-0.1771 m	0.118 mm	80.3459 m	0.153 mm
M4	-M3	10.5026 m	0.457 mm	-104.0073 m	0.240 mm	136.7568 m	0.226 mm	172.1343 m	0.248 mm
N	-M3	1.9528 m	0.542 mm	59.4350 m	0.179 mm	88.1956 m	0.201 mm	106.3710 m	0.207 mm
P	-M3	-2.4746 m	0.303 mm	1.0255 m	0.090 mm	68.9285 m	0.148 mm	68.9806 m	0.148 mm
R	-M3	3.0797 m	0.410 mm	52.0957 m	0.152 mm	95.9268 m	0.185 mm	109.2035 m	0.200 mm
T	-M3	3.3732 m	0.334 mm	54.2036 m	0.142 mm	149.7418 m	0.181 mm	159.2860 m	0.184 mm
U	-M3	1.0623 m	0.562 mm	77.6250 m	0.157 mm	18.8969 m	0.184 mm	79.8991 m	0.160 mm
X	-M3	-2.6718 m	1.166 mm	-7.8836 m	0.719 mm	120.1440 m	0.440 mm	120.4321 m	0.410 mm
Y	-M3	-2.3692 m	0.661 mm	24.4207 m	0.374 mm	133.3084 m	0.268 mm	135.5474 m	0.313 mm
Z	-M3	-2.6205 m	0.685 mm	-12.8144 m	0.430 mm	160.7615 m	0.233 mm	161.2927 m	0.242 mm

Vector		Up	Scaled error	East	Scaled error	North	Scaled error	Dist	Scaled error
A	-M4	-7.8762 m	0.659 mm	172.6678 m	0.284 mm	-76.7817 m	0.260 mm	189.1339 m	0.302 mm
B	-M4	-14.4489 m	1.202 mm	158.2196 m	0.721 mm	-105.6081 m	0.488 mm	190.7755 m	0.477 mm
C	-M4	-14.6895 m	0.762 mm	141.7989 m	0.420 mm	-107.5039 m	0.355 mm	178.5492 m	0.295 mm
E	-M4	-7.9270 m	0.635 mm	171.7392 m	0.287 mm	-53.2284 m	0.250 mm	179.9735 m	0.299 mm
G	-M4	-15.7344 m	1.129 mm	26.5348 m	0.666 mm	-177.2219 m	0.638 mm	179.8869 m	0.650 mm
H	-M4	-10.4295 m	0.998 mm	120.1880 m	0.638 mm	-1.9123 m	0.334 mm	120.6548 m	0.640 mm
K	-M4	-10.4036 m	0.952 mm	114.0425 m	0.395 mm	4.8088 m	0.585 mm	114.6170 m	0.404 mm
L	-M4	-13.8377 m	0.776 mm	142.5275 m	0.315 mm	47.1682 m	0.454 mm	150.7661 m	0.261 mm
M	-M4	-6.0895 m	0.594 mm	168.9863 m	0.298 mm	-91.9432 m	0.250 mm	192.4760 m	0.318 mm
M1	-M4	-8.2901 m	0.506 mm	212.0064 m	0.258 mm	-78.0881 m	0.237 mm	226.0822 m	0.268 mm
M2	-M4	-9.8436 m	0.457 mm	184.3503 m	0.251 mm	-136.9339 m	0.221 mm	229.8539 m	0.261 mm
M3	-M4	-10.5026 m	0.457 mm	104.0073 m	0.240 mm	-136.7568 m	0.226 mm	172.1343 m	0.248 mm
N	-M4	-8.5499 m	0.616 mm	163.4423 m	0.271 mm	-48.5612 m	0.243 mm	170.7181 m	0.277 mm
P	-M4	-12.9772 m	0.423 mm	105.0327 m	0.234 mm	-67.8283 m	0.202 mm	125.7018 m	0.248 mm
R	-M4	-7.4229 m	0.524 mm	156.1030 m	0.255 mm	-40.8300 m	0.232 mm	161.5250 m	0.256 mm
T	-M4	-7.1294 m	0.440 mm	158.2108 m	0.246 mm	12.9850 m	0.214 mm	158.9028 m	0.244 mm
U	-M4	-9.4404 m	0.687 mm	181.6323 m	0.255 mm	-117.8599 m	0.286 mm	216.7264 m	0.285 mm
X	-M4	-13.1745 m	1.201 mm	96.1236 m	0.746 mm	-16.6127 m	0.455 mm	98.4342 m	0.703 mm
Y	-M4	-12.8718 m	0.720 mm	128.4280 m	0.424 mm	-3.4484 m	0.292 mm	129.1175 m	0.419 mm
Z	-M4	-13.1232 m	0.743 mm	91.1929 m	0.475 mm	24.0047 m	0.259 mm	95.2081 m	0.452 mm

USO INTERNO
Riproduzione vietata. Tutti i diritti sono riservati. Nessuna parte del presente documento può essere riprodotta o diffusa con un mezzo qualsiasi, senza il consenso scritto della e-GEOS.

Vector		Up	Scaled error	East	Scaled error	North	Scaled error	Dist	Scaled error
A	-N	0.6736 m	0.724 mm	9.2255 m	0.238 mm	-28.2205 m	0.226 mm	29.6978 m	0.232 mm
B	-N	-5.8990 m	1.237 mm	-5.2227 m	0.703 mm	-57.0469 m	0.477 mm	57.5884 m	0.538 mm
C	-N	-6.1396 m	0.817 mm	-21.6434 m	0.388 mm	-58.9427 m	0.340 mm	63.0902 m	0.428 mm
E	-N	0.6228 m	0.667 mm	8.2970 m	0.190 mm	-4.6672 m	0.196 mm	9.5399 m	0.219 mm
G	-N	-7.1846 m	1.146 mm	-136.9075 m	0.631 mm	-128.6607 m	0.629 mm	188.0129 m	0.604 mm
H	-N	-1.8796 m	1.017 mm	-43.2543 m	0.601 mm	46.6489 m	0.317 mm	63.6442 m	0.308 mm
K	-N	-1.8537 m	0.996 mm	-49.3997 m	0.362 mm	53.3701 m	0.575 mm	72.7470 m	0.463 mm
L	-N	-5.2878 m	0.800 mm	-20.9147 m	0.230 mm	95.7294 m	0.441 mm	98.1300 m	0.473 mm
M	-N	2.4604 m	0.641 mm	5.5440 m	0.218 mm	-43.3820 m	0.219 mm	43.8039 m	0.228 mm
M1	-N	0.2598 m	0.534 mm	48.5641 m	0.174 mm	-29.5269 m	0.175 mm	56.8364 m	0.199 mm
M2	-N	-1.2938 m	0.551 mm	20.9080 m	0.199 mm	-88.3726 m	0.195 mm	90.8215 m	0.195 mm
M3	-N	-1.9528 m	0.542 mm	-59.4350 m	0.179 mm	-88.1956 m	0.201 mm	106.3710 m	0.207 mm
M4	-N	8.5499 m	0.616 mm	-163.4423 m	0.271 mm	48.5612 m	0.243 mm	170.7181 m	0.277 mm
P	-N	-4.4273 m	0.512 mm	-58.4095 m	0.178 mm	-19.2671 m	0.150 mm	61.6644 m	0.186 mm
R	-N	1.1270 m	0.579 mm	-7.3393 m	0.146 mm	7.7312 m	0.177 mm	10.7195 m	0.169 mm
T	-N	1.4204 m	0.481 mm	-5.2314 m	0.120 mm	61.5462 m	0.186 mm	61.7845 m	0.187 mm
U	-N	-0.8905 m	0.750 mm	18.1900 m	0.203 mm	-69.2987 m	0.266 mm	71.6518 m	0.263 mm
X	-N	-4.6246 m	1.216 mm	-67.3186 m	0.715 mm	31.9485 m	0.442 mm	74.6585 m	0.548 mm
Y	-N	-4.3219 m	0.746 mm	-35.0143 m	0.366 mm	45.1128 m	0.271 mm	57.2699 m	0.203 mm
Z	-N	-4.5733 m	0.768 mm	-72.2494 m	0.423 mm	72.5659 m	0.236 mm	102.5022 m	0.383 mm

Vector		Up	Scaled error	East	Scaled error	North	Scaled error	Dist	Scaled error
A	-P	5.1010 m	0.543 mm	67.6350 m	0.193 mm	-8.9534 m	0.169 mm	68.4155 m	0.202 mm
B	-P	-1.4717 m	1.152 mm	53.1869 m	0.685 mm	-37.7799 m	0.457 mm	65.2559 m	0.399 mm
C	-P	-1.7123 m	0.682 mm	36.7662 m	0.356 mm	-39.6757 m	0.311 mm	54.1188 m	0.162 mm
E	-P	5.0502 m	0.542 mm	66.7065 m	0.201 mm	14.5999 m	0.169 mm	68.4720 m	0.200 mm
G	-P	-2.7572 m	1.091 mm	-78.4980 m	0.635 mm	-109.3937 m	0.621 mm	134.6719 m	0.605 mm
H	-P	2.5477 m	0.955 mm	15.1553 m	0.606 mm	65.9159 m	0.301 mm	67.6837 m	0.403 mm
K	-P	2.5736 m	0.884 mm	9.0098 m	0.323 mm	72.6371 m	0.558 mm	73.2390 m	0.561 mm
L	-P	-0.8604 m	0.719 mm	37.4948 m	0.243 mm	114.9964 m	0.430 mm	120.9578 m	0.364 mm
M	-P	6.8877 m	0.473 mm	63.9536 m	0.215 mm	-24.1149 m	0.158 mm	68.6952 m	0.235 mm
M1	-P	4.6871 m	0.393 mm	106.9736 m	0.163 mm	-10.2599 m	0.162 mm	107.5667 m	0.164 mm
M2	-P	3.1336 m	0.313 mm	79.3176 m	0.146 mm	-69.1056 m	0.137 mm	105.2458 m	0.158 mm
M3	-P	2.4746 m	0.303 mm	-1.0255 m	0.090 mm	-68.9285 m	0.148 mm	68.9806 m	0.148 mm
M4	-P	12.9772 m	0.423 mm	-105.0327 m	0.234 mm	67.8283 m	0.202 mm	125.7018 m	0.248 mm
N	-P	4.4273 m	0.512 mm	58.4095 m	0.178 mm	19.2671 m	0.150 mm	61.6644 m	0.186 mm
R	-P	5.5543 m	0.389 mm	51.0702 m	0.151 mm	26.9983 m	0.127 mm	58.0338 m	0.175 mm
T	-P	5.8478 m	0.329 mm	53.1781 m	0.142 mm	80.8133 m	0.157 mm	96.9170 m	0.159 mm
U	-P	3.5368 m	0.598 mm	76.5995 m	0.151 mm	-50.0316 m	0.228 mm	91.5596 m	0.191 mm
X	-P	-0.1972 m	1.165 mm	-8.9091 m	0.719 mm	51.2155 m	0.431 mm	51.9850 m	0.353 mm
Y	-P	0.1054 m	0.658 mm	23.3953 m	0.374 mm	64.3798 m	0.252 mm	68.4990 m	0.339 mm
Z	-P	-0.1460 m	0.683 mm	-13.8398 m	0.430 mm	91.8330 m	0.214 mm	92.8701 m	0.236 mm

USO INTERNO
Riproduzione vietata. Tutti i diritti sono riservati. Nessuna parte del presente documento può essere riprodotta o diffusa con un mezzo qualsiasi, senza il consenso scritto della e-GEOS.

Vector		Up	Scaled error	East	Scaled error	North	Scaled error	Dist	Scaled error
A	-R	-0.4534 m	0.644 mm	16.5648 m	0.220 mm	-35.9517 m	0.212 mm	39.5869 m	0.214 mm
B	-R	-7.0260 m	1.185 mm	2.1166 m	0.696 mm	-64.7781 m	0.470 mm	65.1924 m	0.471 mm
C	-R	-7.2666 m	0.735 mm	-14.3041 m	0.376 mm	-66.6740 m	0.330 mm	68.5772 m	0.393 mm
E	-R	-0.5042 m	0.596 mm	15.6363 m	0.173 mm	-12.3984 m	0.187 mm	19.9616 m	0.197 mm
G	-R	-8.3116 m	1.106 mm	-129.5682 m	0.625 mm	-136.3920 m	0.626 mm	188.3076 m	0.603 mm
H	-R	-3.0066 m	0.973 mm	-35.9150 m	0.596 mm	38.9176 m	0.311 mm	53.0425 m	0.294 mm
K	-R	-2.9807 m	0.931 mm	-42.0604 m	0.349 mm	45.6388 m	0.569 mm	62.1359 m	0.450 mm
L	-R	-6.4148 m	0.742 mm	-13.5754 m	0.215 mm	87.9982 m	0.437 mm	89.2699 m	0.463 mm
M	-R	1.3334 m	0.558 mm	12.8833 m	0.201 mm	-51.1132 m	0.208 mm	52.7287 m	0.216 mm
M1	-R	-0.8672 m	0.450 mm	55.9034 m	0.153 mm	-37.2582 m	0.167 mm	67.1871 m	0.173 mm
M2	-R	-2.4208 m	0.443 mm	28.2473 m	0.176 mm	-96.1039 m	0.181 mm	100.1984 m	0.174 mm
M3	-R	-3.0797 m	0.410 mm	-52.0957 m	0.152 mm	-95.9268 m	0.185 mm	109.2035 m	0.200 mm
M4	-R	7.4229 m	0.524 mm	-156.1030 m	0.255 mm	40.8300 m	0.232 mm	161.5250 m	0.256 mm
N	-R	-1.1270 m	0.579 mm	7.3393 m	0.146 mm	-7.7312 m	0.177 mm	10.7195 m	0.169 mm
P	-R	-5.5543 m	0.389 mm	-51.0702 m	0.151 mm	-26.9983 m	0.127 mm	58.0338 m	0.175 mm
T	-R	0.2934 m	0.378 mm	2.1079 m	0.088 mm	53.8150 m	0.176 mm	53.8571 m	0.176 mm
U	-R	-2.0175 m	0.667 mm	25.5293 m	0.181 mm	-77.0299 m	0.253 mm	81.1753 m	0.243 mm
X	-R	-5.7516 m	1.179 mm	-59.9793 m	0.710 mm	24.2172 m	0.438 mm	64.9390 m	0.570 mm
Y	-R	-5.4489 m	0.684 mm	-27.6750 m	0.356 mm	37.3816 m	0.265 mm	46.8292 m	0.186 mm
Z	-R	-5.7003 m	0.708 mm	-64.9101 m	0.415 mm	64.8347 m	0.229 mm	91.9203 m	0.371 mm

Vector		Up	Scaled error	East	Scaled error	North	Scaled error	Dist	Scaled error
A	-T	-0.7468 m	0.601 mm	14.4569 m	0.210 mm	-89.7667 m	0.228 mm	90.9265 m	0.231 mm
B	-T	-7.3194 m	1.161 mm	0.0088 m	0.694 mm	-118.5932 m	0.469 mm	118.8188 m	0.475 mm
C	-T	-7.5601 m	0.696 mm	-16.4119 m	0.373 mm	-120.4890 m	0.328 mm	121.8364 m	0.366 mm
E	-T	-0.7976 m	0.503 mm	13.5284 m	0.153 mm	-66.2134 m	0.190 mm	67.5860 m	0.201 mm
G	-T	-8.6050 m	1.040 mm	-131.6761 m	0.619 mm	-190.2070 m	0.601 mm	231.4980 m	0.584 mm
H	-T	-3.3000 m	0.896 mm	-38.0229 m	0.589 mm	-14.8974 m	0.256 mm	40.9702 m	0.632 mm
K	-T	-3.2742 m	0.902 mm	-44.1683 m	0.345 mm	-8.1762 m	0.569 mm	45.0379 m	0.372 mm
L	-T	-6.7082 m	0.639 mm	-15.6833 m	0.197 mm	34.1831 m	0.400 mm	38.2028 m	0.459 mm
M	-T	1.0400 m	0.464 mm	10.7755 m	0.183 mm	-104.9282 m	0.209 mm	105.4852 m	0.214 mm
M1	-T	-1.1606 m	0.336 mm	53.7955 m	0.136 mm	-91.0732 m	0.168 mm	105.7810 m	0.185 mm
M2	-T	-2.7142 m	0.366 mm	26.1395 m	0.164 mm	-149.9189 m	0.183 mm	152.2048 m	0.182 mm
M3	-T	-3.3732 m	0.334 mm	-54.2036 m	0.142 mm	-149.7418 m	0.181 mm	159.2860 m	0.184 mm
M4	-T	7.1294 m	0.440 mm	-158.2108 m	0.246 mm	-12.9850 m	0.214 mm	158.9028 m	0.244 mm
N	-T	-1.4204 m	0.481 mm	5.2314 m	0.120 mm	-61.5462 m	0.186 mm	61.7845 m	0.187 mm
P	-T	-5.8478 m	0.329 mm	-53.1781 m	0.142 mm	-80.8133 m	0.157 mm	96.9170 m	0.159 mm
R	-T	-0.2934 m	0.378 mm	-2.1079 m	0.088 mm	-53.8150 m	0.176 mm	53.8571 m	0.176 mm
U	-T	-2.3109 m	0.621 mm	23.4214 m	0.170 mm	-130.8449 m	0.253 mm	132.9447 m	0.251 mm
X	-T	-6.0450 m	1.117 mm	-62.0872 m	0.705 mm	-29.5978 m	0.401 mm	69.0463 m	0.776 mm
Y	-T	-5.7424 m	0.570 mm	-29.7828 m	0.345 mm	-16.4334 m	0.198 mm	34.4971 m	0.409 mm
Z	-T	-5.9937 m	0.598 mm	-67.0180 m	0.406 mm	11.0197 m	0.146 mm	68.1818 m	0.415 mm

USO INTERNO
Riproduzione vietata. Tutti i diritti sono riservati. Nessuna parte del presente documento può essere riprodotta o diffusa con un mezzo qualsiasi, senza il consenso scritto della e-GEOS.

Vector		Up	Scaled error	East	Scaled error	North	Scaled error	Dist	Scaled error
A	-U	1.5641 m	0.757 mm	-8.9645 m	0.149 mm	41.0782 m	0.278 mm	42.0741 m	0.285 mm
B	-U	-5.0085 m	1.245 mm	-23.4127 m	0.697 mm	12.2518 m	0.470 mm	26.8950 m	0.534 mm
C	-U	-5.2492 m	0.830 mm	-39.8334 m	0.379 mm	10.3560 m	0.330 mm	41.4909 m	0.332 mm
E	-U	1.5133 m	0.762 mm	-9.8930 m	0.220 mm	64.6315 m	0.272 mm	65.4018 m	0.276 mm
G	-U	-6.2941 m	1.211 mm	-155.0975 m	0.642 mm	-59.3621 m	0.652 mm	166.1888 m	0.628 mm
H	-U	-0.9891 m	1.090 mm	-61.4443 m	0.613 mm	115.9475 m	0.360 mm	131.2258 m	0.277 mm
K	-U	-0.9633 m	1.012 mm	-67.5897 m	0.351 mm	122.6687 m	0.573 mm	140.0604 m	0.515 mm
L	-U	-4.3973 m	0.891 mm	-39.1047 m	0.260 mm	165.0281 m	0.473 mm	169.6549 m	0.500 mm
M	-U	3.3509 m	0.734 mm	-12.6460 m	0.239 mm	25.9167 m	0.273 mm	29.0315 m	0.300 mm
M1	-U	1.1503 m	0.647 mm	30.3741 m	0.133 mm	39.7718 m	0.259 mm	50.0570 m	0.227 mm
M2	-U	-0.4033 m	0.565 mm	2.7180 m	0.057 mm	-19.0740 m	0.211 mm	19.2709 m	0.213 mm
M3	-U	-1.0623 m	0.562 mm	-77.6250 m	0.157 mm	-18.8969 m	0.184 mm	79.8991 m	0.160 mm
M4	-U	9.4404 m	0.687 mm	-181.6323 m	0.255 mm	117.8599 m	0.286 mm	216.7264 m	0.285 mm
N	-U	0.8905 m	0.750 mm	-18.1900 m	0.203 mm	69.2987 m	0.266 mm	71.6518 m	0.263 mm
P	-U	-3.5368 m	0.598 mm	-76.5995 m	0.151 mm	50.0316 m	0.228 mm	91.5596 m	0.191 mm
R	-U	2.0175 m	0.667 mm	-25.5293 m	0.181 mm	77.0299 m	0.253 mm	81.1753 m	0.243 mm
T	-U	2.3109 m	0.621 mm	-23.4214 m	0.170 mm	130.8449 m	0.253 mm	132.9447 m	0.251 mm
X	-U	-3.7341 m	1.278 mm	-85.5086 m	0.725 mm	101.2471 m	0.474 mm	132.5770 m	0.385 mm
Y	-U	-3.4314 m	0.843 mm	-53.2043 m	0.385 mm	114.4115 m	0.321 mm	126.2238 m	0.252 mm
Z	-U	-3.6828 m	0.862 mm	-90.4394 m	0.440 mm	141.8646 m	0.292 mm	168.2807 m	0.374 mm

Vector		Up	Scaled error	East	Scaled error	North	Scaled error	Dist	Scaled error
A	-X	5.2982 m	1.268 mm	76.5441 m	0.735 mm	-60.1689 m	0.462 mm	97.5058 m	0.474 mm
B	-X	-1.2744 m	1.611 mm	62.0960 m	0.989 mm	-88.9954 m	0.617 mm	108.5252 m	0.397 mm
C	-X	-1.5151 m	1.316 mm	45.6753 m	0.797 mm	-90.8912 m	0.518 mm	101.7336 m	0.325 mm
E	-X	5.2474 m	1.225 mm	75.6156 m	0.721 mm	-36.6156 m	0.444 mm	84.1781 m	0.557 mm
G	-X	-2.5600 m	1.526 mm	-69.5889 m	0.938 mm	-160.6092 m	0.723 mm	175.0556 m	0.842 mm
H	-X	2.7450 m	1.432 mm	24.0644 m	0.919 mm	14.7004 m	0.476 mm	28.3325 m	0.993 mm
K	-X	2.7708 m	1.436 mm	17.9189 m	0.785 mm	21.4216 m	0.696 mm	28.0651 m	0.884 mm
L	-X	-0.6632 m	1.287 mm	46.4039 m	0.732 mm	63.7809 m	0.567 mm	78.8782 m	0.725 mm
M	-X	7.0850 m	1.210 mm	72.8627 m	0.728 mm	-75.3304 m	0.453 mm	105.0421 m	0.414 mm
M1	-X	4.8844 m	1.167 mm	115.8827 m	0.718 mm	-61.4754 m	0.435 mm	131.2703 m	0.531 mm
M2	-X	3.3308 m	1.176 mm	88.2267 m	0.723 mm	-120.3211 m	0.441 mm	149.2388 m	0.336 mm
M3	-X	2.6718 m	1.166 mm	7.8836 m	0.719 mm	-120.1440 m	0.440 mm	120.4321 m	0.410 mm
M4	-X	13.1745 m	1.201 mm	-96.1236 m	0.746 mm	16.6127 m	0.455 mm	98.4342 m	0.703 mm
N	-X	4.6246 m	1.216 mm	67.3186 m	0.715 mm	-31.9485 m	0.442 mm	74.6585 m	0.548 mm
P	-X	0.1972 m	1.165 mm	8.9091 m	0.719 mm	-51.2155 m	0.431 mm	51.9850 m	0.353 mm
R	-X	5.7516 m	1.179 mm	59.9793 m	0.710 mm	-24.2172 m	0.438 mm	64.9390 m	0.570 mm
T	-X	6.0450 m	1.117 mm	62.0872 m	0.705 mm	29.5978 m	0.401 mm	69.0463 m	0.776 mm
U	-X	3.7341 m	1.278 mm	85.5086 m	0.725 mm	-101.2471 m	0.474 mm	132.5770 m	0.385 mm
Y	-X	0.3026 m	1.254 mm	32.3044 m	0.785 mm	13.1643 m	0.447 mm	34.8850 m	0.864 mm
Z	-X	0.0513 m	1.267 mm	-4.9307 m	0.813 mm	40.6174 m	0.427 mm	40.9157 m	0.382 mm

USO INTERNO
Riproduzione vietata. Tutti i diritti sono riservati. Nessuna parte del presente documento può essere riprodotta o diffusa con un mezzo qualsiasi, senza il consenso scritto della e-GEOS.

Vector		Up	Scaled error	East	Scaled error	North	Scaled error	Dist	Scaled error
A	-Y	4.9956 m	0.828 mm	44.2398 m	0.404 mm	-73.3333 m	0.302 mm	85.7897 m	0.248 mm
B	-Y	-1.5771 m	1.293 mm	29.7916 m	0.775 mm	-102.1597 m	0.509 mm	106.4266 m	0.351 mm
C	-Y	-1.8177 m	0.900 mm	13.3709 m	0.508 mm	-104.0555 m	0.383 mm	104.9268 m	0.333 mm
E	-Y	4.9448 m	0.760 mm	43.3112 m	0.378 mm	-49.7800 m	0.274 mm	66.1692 m	0.238 mm
G	-Y	-2.8626 m	1.186 mm	-101.8933 m	0.709 mm	-173.7735 m	0.633 mm	201.4638 m	0.676 mm
H	-Y	2.4423 m	1.062 mm	-8.2400 m	0.683 mm	1.5361 m	0.324 mm	8.7306 m	0.661 mm
K	-Y	2.4682 m	1.067 mm	-14.3855 m	0.488 mm	8.2573 m	0.603 mm	16.7695 m	0.461 mm
L	-Y	-0.9658 m	0.856 mm	14.0995 m	0.397 mm	50.6166 m	0.446 mm	52.5525 m	0.439 mm
M	-Y	6.7823 m	0.735 mm	40.5583 m	0.391 mm	-88.4948 m	0.288 mm	97.5823 m	0.238 mm
M1	-Y	4.5818 m	0.662 mm	83.5783 m	0.371 mm	-74.6397 m	0.260 mm	112.1491 m	0.233 mm
M2	-Y	3.0282 m	0.678 mm	55.9223 m	0.382 mm	-133.4854 m	0.269 mm	144.7579 m	0.195 mm
M3	-Y	2.3692 m	0.661 mm	-24.4207 m	0.374 mm	-133.3084 m	0.268 mm	135.5474 m	0.313 mm
M4	-Y	12.8718 m	0.720 mm	-128.4280 m	0.424 mm	3.4484 m	0.292 mm	129.1175 m	0.419 mm
N	-Y	4.3219 m	0.746 mm	35.0143 m	0.366 mm	-45.1128 m	0.271 mm	57.2699 m	0.203 mm
P	-Y	-0.1054 m	0.658 mm	-23.3953 m	0.374 mm	-64.3798 m	0.252 mm	68.4990 m	0.339 mm
R	-Y	5.4489 m	0.684 mm	27.6750 m	0.356 mm	-37.3816 m	0.265 mm	46.8292 m	0.186 mm
T	-Y	5.7424 m	0.570 mm	29.7828 m	0.345 mm	16.4334 m	0.198 mm	34.4971 m	0.409 mm
U	-Y	3.4314 m	0.843 mm	53.2043 m	0.385 mm	-114.4115 m	0.321 mm	126.2238 m	0.252 mm
X	-Y	-0.3026 m	1.254 mm	-32.3044 m	0.785 mm	-13.1643 m	0.447 mm	34.8850 m	0.864 mm
Z	-Y	-0.2514 m	0.826 mm	-37.2351 m	0.533 mm	27.4531 m	0.246 mm	46.2622 m	0.410 mm

Vector		Up	Scaled error	East	Scaled error	North	Scaled error	Dist	Scaled error
A	-Z	5.2469 m	0.848 mm	81.4749 m	0.457 mm	-100.7864 m	0.271 mm	129.7057 m	0.397 mm
B	-Z	-1.3257 m	1.306 mm	67.0267 m	0.804 mm	-129.6128 m	0.491 mm	145.9240 m	0.389 mm
C	-Z	-1.5664 m	0.918 mm	50.6060 m	0.551 mm	-131.5086 m	0.359 mm	140.9182 m	0.329 mm
E	-Z	5.1961 m	0.781 mm	80.5463 m	0.434 mm	-77.2331 m	0.240 mm	111.7124 m	0.404 mm
G	-Z	-2.6113 m	1.199 mm	-64.6581 m	0.740 mm	-201.2266 m	0.619 mm	211.3756 m	0.606 mm
H	-Z	2.6937 m	1.077 mm	28.9951 m	0.716 mm	-25.9170 m	0.295 mm	38.9829 m	0.473 mm
K	-Z	2.7195 m	1.082 mm	22.8497 m	0.533 mm	-19.1959 m	0.588 mm	29.9664 m	0.565 mm
L	-Z	-0.7145 m	0.875 mm	51.3347 m	0.451 mm	23.1635 m	0.426 mm	56.3232 m	0.358 mm
M	-Z	7.0337 m	0.757 mm	77.7934 m	0.445 mm	-115.9479 m	0.255 mm	139.8041 m	0.374 mm
M1	-Z	4.8331 m	0.686 mm	120.8135 m	0.428 mm	-102.0928 m	0.223 mm	158.2473 m	0.402 mm
M2	-Z	3.2795 m	0.701 mm	93.1574 m	0.438 mm	-160.9386 m	0.234 mm	185.9846 m	0.332 mm
M3	-Z	2.6205 m	0.685 mm	12.8144 m	0.430 mm	-160.7615 m	0.233 mm	161.2927 m	0.242 mm
M4	-Z	13.1232 m	0.743 mm	-91.1929 m	0.475 mm	-24.0047 m	0.259 mm	95.2081 m	0.452 mm
N	-Z	4.5733 m	0.768 mm	72.2494 m	0.423 mm	-72.5659 m	0.236 mm	102.5022 m	0.383 mm
P	-Z	0.1460 m	0.683 mm	13.8398 m	0.430 mm	-91.8330 m	0.214 mm	92.8701 m	0.236 mm
R	-Z	5.7003 m	0.708 mm	64.9101 m	0.415 mm	-64.8347 m	0.229 mm	91.9203 m	0.371 mm
T	-Z	5.9937 m	0.598 mm	67.0180 m	0.406 mm	-11.0197 m	0.146 mm	68.1818 m	0.415 mm
U	-Z	3.6828 m	0.862 mm	90.4394 m	0.440 mm	-141.8646 m	0.292 mm	168.2807 m	0.374 mm
X	-Z	-0.0513 m	1.267 mm	4.9307 m	0.813 mm	-40.6174 m	0.427 mm	40.9157 m	0.382 mm
Y	-Z	0.2514 m	0.826 mm	37.2351 m	0.533 mm	-27.4531 m	0.246 mm	46.2622 m	0.410 mm

USO INTERNO
Riproduzione vietata. Tutti i diritti sono riservati. Nessuna parte del presente documento può essere riprodotta o diffusa con un mezzo qualsiasi, senza il consenso scritto della e-GEOS.

Cartesian coordinates estimated using reference point R

R 4641949.707 m 1.717 mm 1393045.271 m 0.749 mm 4133287.343 m 1.757 mm

Station	X	Scaled error	Y	Scaled error	Z	Scaled error
A	4641967.048 m	0.370 mm	1393067.770 m	0.204 mm	4133259.771 m	0.427 mm
B	4641984.411 m	0.707 mm	1393057.896 m	0.728 mm	4133233.618 m	0.876 mm
C	4641990.138 m	0.419 mm	1393042.470 m	0.401 mm	4133232.023 m	0.519 mm
E	4641952.582 m	0.333 mm	1393062.459 m	0.181 mm	4133277.608 m	0.384 mm
G	4642066.010 m	0.791 mm	1392944.897 m	0.611 mm	4133178.447 m	0.845 mm
H	4641933.564 m	0.560 mm	1393002.929 m	0.616 mm	4133314.912 m	0.685 mm
K	4641931.155 m	0.640 mm	1392995.790 m	0.374 mm	4133320.028 m	0.729 mm
L	4641894.043 m	0.549 mm	1393014.393 m	0.184 mm	4133349.930 m	0.525 mm
M	4641978.865 m	0.321 mm	1393067.472 m	0.194 mm	4133249.432 m	0.356 mm
M1	4641956.255 m	0.229 mm	1393105.603 m	0.139 mm	4133258.510 m	0.259 mm
M2	4641999.792 m	0.209 mm	1393089.793 m	0.147 mm	4133212.851 m	0.237 mm
M3	4642022.296 m	0.182 mm	1393012.664 m	0.132 mm	4133212.556 m	0.208 mm
M4	4641974.496 m	0.300 mm	1392889.730 m	0.233 mm	4133323.157 m	0.331 mm
N	4641951.603 m	0.316 mm	1393053.503 m	0.168 mm	4133280.743 m	0.368 mm
P	4641977.196 m	0.181 mm	1393000.200 m	0.129 mm	4133263.241 m	0.208 mm
R	4641949.707 m	0.242 mm	1393045.271 m	0.141 mm	4133287.343 m	0.285 mm
T	4641915.738 m	0.150 mm	1393037.278 m	0.104 mm	4133328.365 m	0.169 mm
U	4641988.965 m	0.381 mm	1393083.707 m	0.179 mm	4133227.586 m	0.444 mm
X	4641947.658 m	0.705 mm	1392982.034 m	0.738 mm	4133301.971 m	0.862 mm
Y	4641930.379 m	0.371 mm	1393010.577 m	0.371 mm	4133312.156 m	0.473 mm
Z	4641923.770 m	0.431 mm	1392969.718 m	0.384 mm	4133332.821 m	0.471 mm

USO INTERNO
Riproduzione vietata. Tutti i diritti sono riservati. Nessuna parte del presente documento può essere riprodotta o diffusa con un mezzo qualsiasi, senza il consenso scritto della e-GEOS.

Cartesian coordinates differences w.r.t. reference point R

Station	DX	Scaled error	DY	Scaled error	DZ	Scaled error	Distance	Scaled error
R -A	17.341 m	0.570 mm	22.499 m	0.315 mm	-27.572 m	0.659 mm	39.587 m	0.763 mm
R -B	34.703 m	1.090 mm	12.624 m	1.122 mm	-53.725 m	1.351 mm	65.192 m	1.666 mm
R -C	40.431 m	0.645 mm	-2.801 m	0.619 mm	-55.320 m	0.800 mm	68.577 m	0.965 mm
R -E	2.875 m	0.513 mm	17.188 m	0.279 mm	-9.735 m	0.591 mm	19.962 m	0.507 mm
R -G	116.302 m	1.219 mm	-100.375 m	0.941 mm	-108.897 m	1.303 mm	188.308 m	1.281 mm
R -H	-16.144 m	0.863 mm	-42.342 m	0.950 mm	27.569 m	1.056 mm	53.043 m	1.172 mm
R -K	-18.552 m	0.987 mm	-49.481 m	0.577 mm	32.685 m	1.124 mm	62.136 m	1.004 mm
R -L	-55.665 m	0.846 mm	-30.878 m	0.283 mm	62.587 m	0.810 mm	89.270 m	0.974 mm
R -M	29.157 m	0.495 mm	22.201 m	0.299 mm	-37.912 m	0.549 mm	52.729 m	0.670 mm
R -M1	6.548 m	0.353 mm	60.331 m	0.215 mm	-28.833 m	0.400 mm	67.187 m	0.321 mm
R -M2	50.084 m	0.321 mm	44.522 m	0.227 mm	-74.492 m	0.366 mm	100.198 m	0.437 mm
R -M3	72.588 m	0.280 mm	-32.607 m	0.204 mm	-74.787 m	0.321 mm	109.203 m	0.356 mm
R -M4	24.788 m	0.463 mm	-155.542 m	0.358 mm	35.814 m	0.510 mm	161.525 m	0.380 mm
R -N	1.895 m	0.487 mm	8.231 m	0.259 mm	-6.600 m	0.568 mm	10.719 m	0.541 mm
R -P	27.488 m	0.279 mm	-45.071 m	0.200 mm	-24.102 m	0.321 mm	58.034 m	0.252 mm
R -R	0.000 m	0.373 mm	0.000 m	0.218 mm	0.000 m	0.439 mm	0.000 m	0.000 mm
R -T	-33.970 m	0.231 mm	-7.994 m	0.160 mm	41.021 m	0.261 mm	53.857 m	0.313 mm
R -U	39.258 m	0.588 mm	38.435 m	0.276 mm	-59.758 m	0.685 mm	81.175 m	0.817 mm
R -X	-2.049 m	1.087 mm	-63.237 m	1.138 mm	14.627 m	1.329 mm	64.939 m	1.175 mm
R -Y	-19.329 m	0.572 mm	-34.695 m	0.572 mm	24.812 m	0.729 mm	46.829 m	0.759 mm
R -Z	-25.938 m	0.664 mm	-75.554 m	0.591 mm	45.478 m	0.725 mm	91.920 m	0.768 mm

Comparison to IERS:

Code	Dome num	DX	DY	DZ	3D Dist	DLength	
7540	12734M005	-1.908 mm	0.516 mm	4.892 mm	5.276 mm	-4.947 mm	Matera SLR marker
7541	12734M004	-4.240 mm	-1.990 mm	8.250 mm	9.487 mm	-9.073 mm	Matera SLR marker
7941	12734S008	1.566 mm	1.376 mm	-2.245 mm	3.064 mm	3.060 mm	Matera SLR MLRO
MAT1	12734M009	-11.176 mm	0.181 mm	13.736 mm	17.709 mm	-10.304 mm	Matera GPS MAT1
MATE	12734M008	0.000 mm	0.000 mm	0.000 mm	0.000 mm	0.000 mm	Ma

USO INTERNO
Riproduzione vietata. Tutti i diritti sono riservati. Nessuna parte del presente documento può essere riprodotta o diffusa con un mezzo qualsiasi, senza il consenso scritto della e-GEOS.