Folha de Dados

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TÍTULO:

ESTUDO DE ALTERNATIVAS, VIABILIDADE E PROJETO BÁSICO DA ALTERNATIVA SELECIONADA DA BARRAGEM ARNEIROZ II

SUBTÍTULO:

TOMO II – RELATÓRIO DE ESTUDOS BÁSICOS; VOLUME 2 – TOPOGRAFIA - MEMÓRIA DE CÁLCULO

GOVERNO DO ESTADO DO CEARÁ
SECRETARIA DOS RECURSOS HÍDRICOS

GOVERNO DO ESTADO DO CEARÁ

SECRETARIA DOS RECURSOS HÍDRICOS - SRH

PROÁGUA

SEMI-ÁRIDO

ESTUDO DE ALTERNATIVAS, VIABILIDADE E PROJETO BÁSICO DA ALTERNATIVA SELECIONADA DA BARRAGEM ARNEIROZ II

TOMO II - RELATÓRIO DOS ESTUDOS BÁSICOS

VOLUME 2B - TOPOGRAFIA - MEMÓRIA DE CÁLCULO

Ministério do Meio Ambiente

GOVERNO FEDERAL

ESTUDO DE ALTERNATIVAS, VIABILIDADE E PROJETO BÁSICO DA ALTERNATIVA SELECIONADA DA BARRAGEM ARNEIROZ II

VOLUME 2B - TOPOGRAFIA - MEMÓRIA DE CÁLCULO

SECRETARIA DOS RECURSOS HÍDRICOS SRH/CE

Elaborado para:

SECRETARIA DOS RECURSOS HÍDRICOS – SRH – CE

Fortaleza – CE

Brasil

Elaborado por:

Consórcio GOLDER-PIVOT

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APRESENTAÇÃO

000004

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APRESENTAÇÃO

O Consórcio **GOLDER-PIVOT** apresenta, a seguir, os **Estudos Básicos da Barragem ARNEIROZ II**, no município de **Arneiroz**, no Estado do Ceará, objeto do Contrato n.º 001/PROÁGUA/CE/SRH/2000, firmado com a Secretaria dos Recursos Hídricos do Estado do Ceará.

O referido estudo está apresentado nos seguintes documentos:

TOMO II – RELATÓRIO DOS ESTUDOS BÁSICOS

Volume 1	- Hidrologia – Texto
Volume 1A	- Hidrologia – Memória de Cálculo
Volume 2	- Topografia – Texto
Volume 2A	- Topografia – Desenhos
Volume 2B	- Topografia – Memória de Cálculo
Volume 2C	- Topografia – Cadernetas de Campo
Volume 3	- Estudos Geológicos e Geotécnicos – Texto
Volume 3A	Estudos Geológicos – Anexos

O presente relatório refere-se ao **VOLUME 2B – Topografia – Memória de Cálculo**

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1. INTRODUÇÃO

O presente relatório a seguir, refere-se ao Volume 2B – Topografia – Memória de Cálculo dos Estudos Básicos, da Barragem Arneiroz II, distribuído da seguinte forma:

- Transporte de Coordenadas
- Coordenadas dos Pontos de Amarração do Eixo da Barragem
- Relatório da Estação Total da Locação do Eixo da Barragem
- Levantamento da Calha do Rio e do Riacho do Sangradouro
- Relatório da Estação Total da Locação da linha de Base (LB)
- Relatório da Estação Total da Locação da linha de Base (LB1)
- Relatório da Estação Total da Locação da linha de Base (LB2)
- Relatório da Estação Total da Locação da linha de Base (LBJ)
- Relatório da Estação Total do Levantamento das Estradas
- Relatório da Estação Total do Levantamento da Rede Elétrica
- Relatório da Estação Total do Levantamento das Jazidas

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2 – TRANSPOTE DE COORDENADAS

2.1 – Procedimentos Metodológicos

Para a execução dos serviços de levantamento geodésico de 6(seis) pontos nas áreas de construção de barragem no município acima citado, foi utilizado um par de receptores GPS geodésicos com precisão de 1cm +/- 1ppm.

Adotou-se como procedimento operacional o método estático relativo.

Todas as *linhas de base* foram processadas com distâncias inferiores a 20km, como forma de garantir os resultados especificados pelo fabricante *ASHTECH* com respeito ao modelo ***STEP 1.*** Este equipamento observa dados da fase da portadora e código C/A.

Todas as linhas de bases foram determinadas com estreita observância aos critérios básicos de controle de qualidade com respeito aos valores PDOP's, ao número de satélites utilizados e quanto à obstrução do sinal dos satélites das órbitas utilizadas.

O pós-processamento foi efetuado no *software* GPPS, desenvolvido pela companhia Ashtech, cujos resultados foram emitidos em relatórios anexos ao presente relatório.

Na área de construção de barragem localizada no município de Arneiroz, foram determinados 6(seis) pontos:

Marco_1 = ET23 (estaca **E 23** do eixo do boqueirão)
Marco_2 = ET60 (estaca **E 60** do eixo do boqueirão)
Localizados no eixo da barragem
58LB (estaca da linha de base da barragem)
112LB (estaca da linha de base da barragem)
153LB(estaca da linha de base da barragem)
189LB(estaca da linha de base da barragem)
Estacas da linha de base da barragem

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Conforme especificado, foi efetuado transporte do vértice de triangulação denominado ATERRO, pertencente à Rêde Geodésica de Apoio Fundamental determinada pela FIBGE – Fundação Instituto Brasileiro de Geografia e Estatística. Cópia de monografia do referido vértice está anexada a este relatório.

Para manter as linhas de bases de observações dos receptores GPS com distâncias inferiores a 20Km da área objeto do trabalho, utilizou-se a RN 488G como ponto auxiliar para o transporte de coordenadas.

2.2.1. Relação de Coordenadas

É parte integrante deste relatório todos os resultados de pós-processamento da fase da portadora L1, executados pelo software geodésico GPPS, e os resultados das transformações de datuns envolvidos nas operações: WGS-84 e SAD-69.

MUNICÍPIO DE ARNEIROZ – CEARÁ

Sistema UTM/SAD-69

Vértice de Triangulação ATERRO

$\varphi = 6^{o}12'02,769"$ *Sul*

$\lambda = 40^{o}01'41,162"$ *WGr*

E = 386.256,6015m

N = 9.314.489,2954m

Marco_1 = ET23

$\varphi = 6^{o}16'11,95999"$ *Sul*

$\lambda = 40^{o}13'05,78075"$ *WGr*

E = 365.231,8380m

N = 9.306.791,2428m

Marco_2 = ET60

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$\varphi = 6^o 15'50,95396"$ *Sul*

$\lambda = 40^o 13'17,46071"$ *WGr*

$E = 364.871,3765m$

$N = 9.307.435,5742m$

Estaca 58LB

$\varphi = 6^o 14'20,11459"$ *Sul*

$\lambda = 40^o 14'39,11829"$ *WGr*

$E = 362.349,0085m$

$N = 9.310.219,6769m$

Estaca 112LB

$\varphi = 6^o 13'41,01362"$ *Sul*

$\lambda = 40^o 16'25,93254"$ *WGr*

$E = 359.069,2929m$

$N = 9.311.412,7982m$

Estaca 153LB

$\varphi = 6^o 13'02,02492"$ *Sul*

$\lambda = 40^o 17'32,18525"$ *WGr*

$E = 357.030,0098m$

$N = 9.312.605,3577m$

Estaca 189LB

$\varphi = 6^o 11'50,73629"$ *Sul*

$\lambda = 40^o 17'59,24744"$ *WGr*

$E = 356.192,8283m$

$N = 9.314.792,8976m$

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2.2.2. Controle de Qualidade das Determinações

Para controle efetivo das determinações GPS foram efetuadas observações nas duas áreas objeto das medições.

Para a área de construção da barragem localizada no município de Arneiroz optou-se pelo rastreamento de um ponto localizado no pátio de igreja da mesma cidade, denominada de RN 488R, utilizando-se como base a RN 488G. A partir da RN 488R mediu-se uma linha de base, determinando-se as coordenadas do *Marco_1 = ET2*

A comparação de valores das coordenadas plano-retangulares E,N do sistema de projeção UTM(Universal Transverso de Mercator) para o Marco_1 = ET23 foi de:

ΔE = -0,0059m

ΔN = +0,0293m

2.3. Características dos Equipamentos Utilizados

Modelo: SCA –12S / STEP 01

Número de Série: SW01299 e SW00856

Fortaleza, 10 de Abril de 2000

Paulo Roberto Lopes Thiers

Engº Cartógrafo / CREA 13.808D

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ANEXOS

ATERRO

CONVERSAO DE DATUM

Datum: SAD-69

Latitude: -6.1202769 E: 386256.6015
Longitude: -40.0141162 N: 9314489.2954
Meridiano Central: 39°00'00" WGr

Datum: WGS-84

E : 386217.4447 Latitude: 6°12'04.20141" S
N : 9314447.5891 Longitude: 40°01'42.45231" WGr

RN 488G

CONVERSAO DE DATUM

Datum: WGS-84

Latitude: -6.113480429 E: 372401.8564
Longitude: -40.091188719 N: 9315322.0354
Meridiano Central: 39°00'00" WGr

Datum: SAD-69

E : 372441.0729 Latitude: 6°11'33.37240" S
N : 9315363.7402 Longitude: 40°09'10.59340" WGr

```
Ashtech, Inc. GPPS-L        Program: LINECOMP        Version: 5.2.00
                  Wed Mar 15 21:21:20 2000
_____________________________________________________________________
Project information
GPS Survey              |25-character project name  [ The | is in column 26. ]
0610A                   |5-character session name
Project information

Known-station parameters
00                      |Receiver identifier used in "LOGTIMES" file
000000                  |Project station number
ATERRO                  |4-character short name
FIXED STATION           |25-character long name
___ ___ ___ _____________|25-character comment field
0                       |Position extraction (0=below,1=U-file,2=proj. file)
S  6 12  4.20141        |Latitude deg-min-sec  (g=good;b=bad)
E 319 58 17.54769       |E-Longitude deg-min-sec (g=good;b=bad)
W  40  1 42.45231       |W-Longitude deg-min-sec (g=good;b=bad)
  722.1600              |Ellipsoidal height  (m) (g=good;b=bad)
    0.0000              |North antenna offset(m)
    0.0000              |East antenna offset (m)
 1.8080  0.0000  0.0000 |Vert antenna offset (m): slant/radius/added_offset
   20.0                 |Temperature (degrees C)
   50.0                 |Humidity (percent)
 1010.0                 |Pressure (millibars)
UBASEA00.061            |Measurement filename (restricted to 24 characters)
Known-station parameters

Unknown-station parameters
00                      |Receiver identifier used in "LOGTIMES" file
000000                  |Project station number
RN488G                  |4-character short name
UNKNOWN STATION         |25-character long name
___ ___ ___ _____________|25-character comment field
0                       |Position extraction (0=below,1=U-file,2=proj. file)
S  6 11 34.98464        |Latitude deg-min-sec  (g=good;b=bad)
E 319 50 47.94067       |E-Longitude deg-min-sec (g=good;b=bad)
W  40  9 12.05933       |W-Longitude deg-min-sec (g=good;b=bad)
  419.5840              |Ellipsoidal height  (m) (g=good;b=bad)
    0.0000              |North antenna offset(m)
    0.0000              |East antenna offset (m)
 1.7580  0.0000  0.0000 |Vert antenna offset (m): slant/radius/added_offset
   20.0                 |Temperature (degrees C)
   50.0                 |Humidity (percent)
 1010.0                 |Pressure (millibars)
UBAS1A00.061            |Measurement filename (restricted to 24 characters)
Unknown-station parameters

Run-time parameters
   1                    |First epoch to process
  -1                    |Final epoch to process (-1 = last available)
15.0                    |Elevation cutoff angle (degrees)
1                       |Data to process (0=Wdln;1=L1;2=L2;3=L1c;6=RpdSt)
0.010000                |Convergence criterion (meters)
00 00 00 00 00 00 00    |Omit these satellites (up to 7)
10                      |Maximum iterations for tisq and disq
00 00 00 00 00 00 00    |Forbidden reference SVs (up to 7)
yes                     |Apply tropo delay correction
Run-time parameters

LINECOMP 5.2.00 7-18-94

FIXED U-File from L1 only receiver.
UNKWN U-File from L1 only receiver.

FIXED U-File used BROADCAST orbits.
UNKWN U-File used BROADCAST orbits.

Common start of two UFILES: 2000/03/01 19:48:10.00
Common end  of two UFILES: 2000/03/01 20:51:45.00
   Selected first epoch:  1
```

Selected last epoch: 764
For SV 1 there are 763 triple-difference measurements.
For SV 2 there are 685 triple-difference measurements.
For SV 8 there are 763 triple-difference measurements.
For SV 13 there are 171 triple-difference measurements.
For SV 14 there are 763 triple-difference measurements.
For SV 16 there are 763 triple-difference measurements.
For SV 18 there are 763 triple-difference measurements.
For SV 19 there are 763 triple-difference measurements.
For SV 27 there are 763 triple-difference measurements.
For SV 31 there are 757 triple-difference measurements.
Epoch interval (seconds): 5.000000

THE TRIPLE DIFFERENCE SOLUTION (L1)
Measure of geometry: 14.467325
num_meas = 6191 num_used = 6141 rms_resid = 0.002327(m)
Post-Fit Chisq = 1170.081 NDF = 14.215

Sigmax (m): 2.082200
Sigmay (m): 2.426532
Sigmaz (m): 0.737527
x y z
x 1.00
y 0.19y 1.00
z 0.51z 0.18z 1.00

del_station: -0.000757 -0.007293 -0.001818
Station1: FIXED STATION (ATERRO) Station2: UNKNOWN STATION (RN488G)
Latitude: -6.20116706 -6 12 4.20141 -6.19300111 -6 11 34.80399
E-Long : 319.97154103 319 58 17.54769 319.84669802 319 50 48.11287
W-Long : 40.02845897 40 1 42.45231 40.15330198 40 9 11.88713
E-Height: 722.1600 399.3130

Baseline vector: -9069.7789 -10427.1865 932.7029

Mark1_xyz : 4856061.9592 -4078831.8073 -684456.3941
Az1 El1 D1 : 273.73273 -1.3978 13851.2457
E1 N1 U1 : -13818.2465 903.1526 -322.8470
Mark2_xyz : 4846992.1823 -4089258.9936 -683523.6911
Az2 El2 D2 : 93.74621 1.2734 13851.2457
E2 N2 U2 : 13817.7596 -903.1063 322.8470

Double-Difference Epochs:
Prn: 1 Start epoch: 2 End epoch: 764
Prn: 2 Start epoch: 80 End epoch: 764
Prn: 8 Start epoch: 2 End epoch: 764
Prn: 13 Start epoch: 594 End epoch: 764
Prn: 14 Start epoch: 2 End epoch: 764
Prn: 16 Start epoch: 2 End epoch: 764
Prn: 18 Start epoch: 2 End epoch: 764
Prn: 19 Start epoch: 2 End epoch: 764
Prn: 27 Start epoch: 2 End epoch: 764
Prn: 31 Start epoch: 8 End epoch: 764

THE FLOAT DOUBLE DIFFERENCE SOLUTION (L1)
Measure of geometry: 0.192481 Wavelength = 0.190294 (m/cycle)
num_meas = 6194 num_used = 6194 rms_resid = 0.012485(m)
Post-Fit Chisq = 2716.909 NDF = 14.338

Reference SV: 16

SV	Ambiguity	FIT	Meas	SV	Ambiguity	FIT	Meas
1	-8172706.030f	0.048	763	2	-7985104.867f	0.078	686
8	-6221957.704f	0.053	763	13	-13233166.670f	0.103	172
14	-15851696.990f	0.077	763	18	-2732284.992f	0.047	763
19	-13120956.906f	0.045	763	27	-6551932.755f	0.045	763
31	-8643991.987f	0.100	758				

Sigmax (m): 0.042330
Sigmay (m): 0.047252
Sigmaz (m): 0.019057
SigmaN (cy): 0.224170
SigmaN (cy): 0.153686
SigmaN (cy): 0.219739
SigmaN (cy): 0.244934
SigmaN (cy): 0.144373
SigmaN (cy): 0.143676
SigmaN (cy): 0.169658
SigmaN (cy): 0.196960
SigmaN (cy): 0.265299

x y z N N N N N N N N N

x 1.00
y 0.08y 1.00
z 0.11z 0.02z 1.00
N 0.27N 0.93N-0.18N 1.00
N-0.86N-0.44N 0.05N-0.57N 1.00
N-0.89N-0.26N-0.44N-0.31N 0.82N 1.00
N-0.82N 0.07N-0.53N 0.02N 0.61N 0.88N 1.00
N 0.09N 0.88N 0.34N 0.79N-0.29N-0.32N-0.07N 1.00
N-0.13N 0.66N-0.65N 0.75N-0.18N 0.25N 0.52N 0.42N 1.00
N-0.62N 0.31N-0.70N 0.33N 0.35N 0.74N 0.87N 0.10N 0.78N 1.00
N-0.85N-0.13N-0.56N-0.15N 0.72N 0.95N 0.92N-0.23N 0.41N 0.84N 1.00
N 0.19N 0.97N-0.10N 0.97N-0.51N-0.29N 0.04N 0.84N 0.73N 0.33N-0.14N 1.00

del_station: -0.000000 0.000000 -0.000000

	Station1: FIXED STATION (ATERRO)	Station2: UNKNOWN STATION (RN488G)
Latitude:	-6.20116706 -6 12 4.20141	-6.19300125 -6 11 34.80451
E-Long :	319.97154103 319 58 17.54769	319.84669771 319 50 48.11174
W-Long :	40.02845897 40 1 42.45231	40.15330229 40 9 11.88826
E-Height:	722.1600	398.9467

Baseline vector: -9070.0788 -10426.9770 932.7268

Mark1_xyz :	4856061.9592	-4078831.8073	-684456.3941
Az1 El1 D1 :	273.73266	-1.3993	13851.2872
E1 N1 U1 :	-13818.2810	903.1368	-323.2133
Mark2_xyz :	4846991.8804	-4089258.7843	-683523.6673
Az2 El2 D2 :	93.74613	1.2749	13851.2872
E2 N2 U2 :	13817.7933	-903.0905	323.2133

AMBIGUITY RESOLUTION

	1	2	3	4
Abs Contrast	0.064	0.000	0.000	0.000
Contrast		100.000	100.000	100.000
Change Chi2	1767.641	22310.862	26985.394	31705.559
Bias S16: 1	-8172706	-8172705	-8172706	-8172705
Bias S16: 2	-7965105	-7965105	-7965105	-7965105
Bias S16: 8	-6221958	-6221957	-6221958	-6221958
Bias S16:13	-13233167	-13233166	-13233166	-13233167
Bias S16:14	-15851697	-15851697	-15851697	-15851696
Bias S16:18	-2732285	-2732284	-2732285	-2732285
Bias S16:19	-13120957	-13120956	-13120957	-13120957
Bias S16:27	-6551933	-6551932	-6551933	-6551933
Bias S16:31	-8643992	-8643991	-8643992	-8643991

NDF=163.8500 Chi2=2716.9087

THE FIXED DOUBLE DIFFERENCE SOLUTION (L1)
Measure of geometry: 0.044034 Wavelength = 0.190294 (m/cycle)
num_meas = 6194 num_used = 6194 rms_resid = 0.016042(m)
Post-Fit Chisq = 4484.558 NDF = 14.338

Reference SV: 16 Integer Search Ratio = 100.000

SV	Ambiguity	FIT	Meas	SV	Ambiguity	FIT	Meas
1	-8172706.000X	0.052	763	2	-7965105.000X	0.085	686
8	-6221958.000X	0.074	763	13	-13233167.000X	0.098	172
14	-15851697.000X	0.122	763	18	-2732285.000X	0.068	763

19 -13120857.000X 0.089 763 27 -6551933.000X 0.061 763
31 -8643992.000X 0.098 758

Sigmax (m): 0.014207
Sigmay (m): 0.011829
Sigmaz (m): 0.006105
x y z
x 1.00
y-0.83y 1.00
z-0.51z 0.40z 1.00

del_station: 0.000407 -0.000378 -0.000359
Station1: FIXED STATION (ATERRO) Station2: UNKNOWN STATION (RN488G)
Latitude: -6.20116706 -6 12 4.20141 -6.19300119 -6 11 34.80429
E-Long : 319.97154103 319 58 17.54769 319.84669800 319 50 48.11281
W-Long : 40.02845897 40 1 42.45231 40.15330200 40 9 11.88719
E-Height: 722.1600 399.0024

Baseline vector: -9070.0147 -10426.9881 932.7275

Mark1_xyz : 4856061.9592 -4078831.8073 -684456.3941
Az1 El1 D1 : 273.73269 -1.3991 13851.2537
E1 N1 U1 : -13818.2482 903.1436 -323.1576
Mark2_xyz : 4846991.9445 -4089258.7954 -683523.6666
Az2 El2 D2 : 93.74617 1.2747 13851.2537
E2 N2 U2 : 13817.7607 -903.0973 323.1576
Wed Mar 15 21:21:36 2000

MARCO_1 = ET 23

CONVERSAO DE DATUM

Datum: WGS-84

Latitude: -6.161339370 E: 365192.5920
Longitude: -40.130707677 N: 9306749.5002
Meridiano Central: 39°00'00" WGr

Datum: SAD-69

E : 365231.8380 Latitude: 6°16'11.95999" S
N : 9306791.2428 Longitude: 40°13'05.78075" WGr

000022

Selected last epoch: 741
For SV 3 there are 740 triple-difference measurements.
For SV 15 there are 176 triple-difference measurements.
For SV 17 there are 716 triple-difference measurements.
For SV 21 there are 740 triple-difference measurements.
For SV 22 there are 478 triple-difference measurements.
For SV 23 there are 41 triple-difference measurements.
For SV 25 there are 740 triple-difference measurements.
For SV 29 there are 740 triple-difference measurements.
For SV 31 there are 536 triple-difference measurements.
Epoch interval (seconds): 5.000000

THE TRIPLE DIFFERENCE SOLUTION (L1)
Measure of geometry: 13.376565
num_meas = 4169 num_used = 4055 rms_resid = 0.003444(m)
Post-Fit Chisq = 2290.047 NDF = 9.387

Sigmax (m): 3.416510
Sigmay (m): 3.597620
Sigmaz (m): 1.633650
x y z
x 1.00
y 0.14y 1.00
z-0.47z 0.44z 1.00

del_station: -0.000000 -0.000000 -0.000000
Station1: FIXED STATION (RN488G) Station2: UNKNOWN STATION (MARCO_1)
Latitude: -6.19300119 -6 11 34.80429 -6.27038753 -6 16 13.39511
E-Long : 319.84669800 319 50 46.11281 319.78136537 319 46 52.91533
W-Long : 40.15330200 40 9 11.88719 40.21863463 40 13 7.08467
E-Height: 399.7311 367.8021

Baseline vector: -5399.6277 -4903.8524 -8504.4314

Mark1_xyz : 4846992.4982 -4089259.2626 -683523.7453
Az1 El1 D1 : 220.18894 -0.2138 11203.9771
E1 N1 U1 : -7231.0873 -8558.4784 -31.9290
Mark2_xyz : 4841592.8704 -4094163.1150 -692028.1767
Az2 El2 D2 : 40.19603 0.1128 11203.9771
E2 N2 U2 : 7229.9918 8558.4603 31.9290

Double-Difference Epochs:
Prn: 3 Start epoch: 2 End epoch: 741
Prn: 15 Start epoch: 566 End epoch: 741
Prn: 17 Start epoch: 26 End epoch: 741
Prn: 21 Start epoch: 2 End epoch: 741
Prn: 22 Start epoch: 2 End epoch: 588
Prn: 23 Start epoch: 8 End epoch: 48
Prn: 25 Start epoch: 2 End epoch: 741
Prn: 29 Start epoch: 2 End epoch: 741
Prn: 31 Start epoch: 204 End epoch: 741
Satellite 23 dropped due to insuff. good obs.
Number of measurements = 41

THE FLOAT DOUBLE DIFFERENCE SOLUTION (L1)
Measure of geometry: 0.216444 Wavelength = 0.190294 (m/cycle)
num_meas = 4152 num_used = 4150 rms_resid = 0.024438(m)
Post-Fit Chisq = 9439.536 NDF = 9.606

Reference SV: 29

SV	Ambiguity	FIT	Meas	SV	Ambiguity	FIT	Meas
3	9045743.451f	0.056	740	15	-5593384.377f	0.117	177
17	-5041296.467f	0.106	717	21	-10620351.868f	0.124	740
22	-5682251.380f	0.188	497	25	2311479.952f	0.097	740
31	-6386435.181f	0.191	539				

Sigmax (m): 0.114724

```
Ashtech, Inc. GPPS-L        Program: LINECOMP        Version: 5.2.00
                  Wed Mar 15 21:28:06 2000
_____________________________________________________________________
Project information
GPS Survey              |25-character project name  [ The | is in column 26. ]
0620A                   |5-character session name
Project information

Known-station parameters
00                      |Receiver identifier used in "LOGTIMES" file
000000                  |Project station number
RN488G                  |4-character short name
FIXED STATION           |25-character long name
___ ___ ___ _____________|25-character comment field
0                       |Position extraction (0=below,1=U-file,2=proj. file)
S  6 11 34.80429        |Latitude deg-min-sec  (g=good;b=bad)
E 319 50 48.11281       |E-Longitude deg-min-sec (g=good;b=bad)
W  40  9 11.88719       |W-Longitude deg-min-sec (g=good;b=bad)
  399.7311              |Ellipsoidal height  (m) (g=good;b=bad)
    0.0000              |North antenna offset(m)
    0.0000              |East antenna offset (m)
 1.8370  0.0000  0.0000 |Vert antenna offset (m): slant/radius/added_offset
   20.0                 |Temperature (degrees C)
   50.0                 |Humidity (percent)
 1010.0                 |Pressure (millibars)
UBAS2A00.062            |Measurement filename (restricted to 24 characters)
Known-station parameters

Unknown-station parameters
00                      |Receiver identifier used in "LOGTIMES" file
000000                  |Project station number
MARCO_1                 |4-character short name
UNKNOWN STATION         |25-character long name
___ ___ ___ _____________|25-character comment field
0                       |Position extraction (0=below,1=U-file,2=proj. file)
S  6 16 13.21234        |Latitude deg-min-sec  (g=good;b=bad)
E 319 46 52.76154       |E-Longitude deg-min-sec (g=good;b=bad)
W  40 13  7.23846       |W-Longitude deg-min-sec (g=good;b=bad)
  384.8338              |Ellipsoidal height  (m) (g=good;b=bad)
    0.0000              |North antenna offset(m)
    0.0000              |East antenna offset (m)
 1.6310  0.0000  0.0000 |Vert antenna offset (m): slant/radius/added_offset
   20.0                 |Temperature (degrees C)
   50.0                 |Humidity (percent)
 1010.0                 |Pressure (millibars)
UMAR1A00.062            |Measurement filename (restricted to 24 characters)
Unknown-station parameters

Run-time parameters
    1                   |First epoch to process
   -1                   |Final epoch to process (-1 = last available)
 15.0                   |Elevation cutoff angle (degrees)
 1                      |Data to process (0=Wdln;1=L1;2=L2;3=L1c;6=RpdSt)
 0.010000               |Convergence criterion (meters)
 00 00 00 00 00 00 00   |Omit these satellites (up to 7)
 10                     |Maximum iterations for tlsq and dlsq
 00 00 00 00 00 00 00   |Forbidden reference SVs (up to 7)
 yes                    |Apply tropo delay correction
Run-time parameters

LINECOMP 5.2.00 7-18-94

FIXED U-File from L1 only receiver.
UNKWN U-File from L1 only receiver.

FIXED U-File used BROADCAST orbits.
UNKWN U-File used BROADCAST orbits.

Common start of two UFILES: 2000/03/02 11:35:40.00
Common end  of two UFILES: 2000/03/02 12:37:20.00
  Selected first epoch:  1
```

```
  Sigmay (m):    0.108647
  Sigmaz (m):    0.061687
  SigmaN (cy):   0.443561
  SigmaN (cy):   0.610846
  SigmaN (cy):   0.619345
  SigmaN (cy):   0.273560
  SigmaN (cy):   0.632280
  SigmaN (cy):   0.475134
  SigmaN (cy):   0.670678
   x   y   z   N   N   N   N   N   N   N
 x 1.00
 y 0.26y 1.00
 z 0.01z 0.52z 1.00
 N-0.81N-0.74N-0.24N 1.00
 N-0.92N-0.43N-0.28N 0.85N 1.00
 N 0.31N 0.96N 0.67N-0.71N-0.49N 1.00
 N-0.82N-0.10N-0.30N 0.60N 0.85N-0.20N 1.00
 N-0.86N-0.24N 0.39N 0.75N 0.71N-0.17N 0.53N 1.00
 N-0.25N 0.51N 0.94N-0.05N-0.01N 0.64N 0.00N 0.57N 1.00
 N-0.93N-0.55N-0.25N 0.93N 0.95N-0.58N 0.79N 0.77N-0.01N 1.00

 del_station: -0.000000 -0.000000 -0.000000
    Station1: FIXED STATION          Station2: UNKNOWN STATION
          (RN486G)                             (MARCO_1)
 Latitude:  -6.19300119  -6 11 34.80429      -6.27038730  -6 16 13.39427
 E-Long  : 319.84669800 319 50 48.11281     319.78136628 319 46 52.91859
 W-Long  :  40.15330200  40  9 11.88719      40.21863372  40 13  7.08141
 E-Height: 399.7311                         367.9067

 Baseline vector:    -5399.4814    -4903.8449    -8504.4172

 Mark1_xyz  :  4848992.4982  -4089259.2626   -683523.7453
 Az1 El1 D1 :     220.18863      -0.2133     11203.8925
 E1 N1 U1   :    -7230.9871    -8558.4526      -31.8244
 Mark2_xyz  :  4841593.0167  -4094163.1074   -692028.1625
 Az2 El2 D2 :     40.19572       0.1122     11203.8925
 E2 N2 U2   :    7229.8917     8558.4347       31.8244


 AMBIGUITY RESOLUTION
                1        2        3        4
 Abs Contrast       3.956    0.002    0.001    0.000
 Contrast              99.291   99.672   99.992
 Change Chi2     3704.728 11276.618 12334.042 17207.612
 Bias S29: 3     9045743  9045743  9045744  9045743
 Bias S29:15    -5593385 -5593385 -5593384 -5593385
 Bias S29:17    -5041296 -5041295 -5041297 -5041297
 Bias S29:21   -10620352 -10620352 -10620352 -10620352
 Bias S29:22    -5682252 -5682251 -5682251 -5682253
 Bias S29:25     2311480  2311481  2311480  2311479
 Bias S29:31    -6386436 -6386436 -6386435 -6386436
 NDF=110.7500 Chi2=9439.5360


 THE FIXED DOUBLE DIFFERENCE SOLUTION (L1)
 Measure of geometry: 0.035548    Wavelength = 0.190294 (m/cycle)
 num_meas =  4152      num_used =  4149      rms_resid = 0.028807(m)
 Post-Fit Chisq = 13112.949        NDF   =   9.604

 Reference SV: 29              Integer Search Ratio =  99.291
  SV   Ambiguity      FIT   Meas    SV   Ambiguity      FIT   Meas
   3   9045743.000X 0.103  740     15   -5593385.000X 0.097  177
  17   -5041296.000X 0.107  717     21   -10620352.000X 0.141  740
  22   -5682252.000X 0.192  497     25    2311480.000X 0.148  739
  31   -6386436.000X 0.228  539

  Sigmax (m):    0.024007
  Sigmay (m):    0.019911
  Sigmaz (m):    0.010275
   x   y   z
 x 1.00
```

y-0.70y 1.00
z-0.14z 0.04z 1.00

del_station: 0.000196 -0.000132 -0.000102

	Station1: FIXED STATION (RN488G)	Station2: UNKNOWN STATION (MARCO_1)
Latitude:	-6.19300119 -6 11 34.80429	-6.27038714 -6 16 13.39370
E-Long :	319.84669800 319 50 48.11281	319.78136756 319 46 52.92323
W-Long :	40.15330200 40 9 11.88719	40.21863244 40 13 7.07677
E-Height:	399.7311	367.9524

Baseline vector: -5399.3533 -4903.7666 -8504.4046

Mark1_xyz :	4846692.4982	-4089259.2626	-683523.7453
Az1 El1 D1 :	220.18813	-0.2130	11203.7869
E1 N1 U1 :	-7230.8445	-8558.4349	-31.7787
Mark2_xyz :	4841593.1449	-4094163.0292	-692028.1499
Az2 El2 D2 :	40.19522	0.1120	11203.7869
E2 N2 U2 :	7229.7492	8558.4171	31.7787

Wed Mar 15 21:28:22 2000

MARCO_1 = ET23

COMPROVAÇÃO

CONVERSAO DE DATUM

Datum: WGS-84

Latitude: -6.161339279 E: 365192.5861
Longitude: -40.130707695 N: 9306749.5294
Meridiano Central: 39°00'00" WGr

Datum: SAD-69

E : 365231.8321 Latitude: 6°16'11.95908" S
N : 9306791.2721 Longitude: 40°13'05.78093" WGr

```
Ashtech, Inc. GPPS-L        Program: LINECOMP        Version: 5.2.00
                Tue Apr 04 09:49:23 2000
_____________________________________________________________________
Project information
GPS Survey              |25-character project name  [ The | is in column 26. ]
0860A                   |5-character session name
Project information

Known-station parameters
00                      |Receiver identifier used in "LOGTIMES" file
000000                  |Project station number
RN488R                  |4-character short name
FIXED STATION           |25-character long name
_____ _____ _____ _____ |25-character comment field
0                       |Position extraction (0=below,1=U-file,2=proj. file)
S  6 19 26.36755        |Latitude deg-min-sec  (g=good;b=bad)
E 319 50 21.32656       |E-Longitude deg-min-sec (g=good;b=bad)
W  40  9 38.67344       |W-Longitude deg-min-sec (g=good;b=bad)
  338.1453              |Ellipsoidal height  (m) (g=good;b=bad)
    0.0000              |North antenna offset(m)
    0.0000              |East antenna offset (m)
 1.9700  0.1318  0.0000 |Vert antenna offset (m): slant/radius/added_offset
   20.0                 |Temperature (degrees C)
   50.0                 |Humidity (percent)
 1010.0                 |Pressure (millibars)
UBAS1A00.086            |Measurement filename (restricted to 24 characters)
Known-station parameters

Unknown-station parameters
00                      |Receiver identifier used in "LOGTIMES" file
000000                  |Project station number
ET23=MARCO_1            |4-character short name
UNKNOWN STATION         |25-character long name
_____ _____ _____ _____ |25-character comment field
0                       |Position extraction (0=below,1=U-file,2=proj. file)
S  6 16 13.54310        |Latitude deg-min-sec  (g=good;b=bad)
E 319 46 52.78069       |E-Longitude deg-min-sec (g=good;b=bad)
W  40 13  7.21931       |W-Longitude deg-min-sec (g=good;b=bad)
  405.8234              |Ellipsoidal height  (m) (g=good;b=bad)
    0.0000              |North antenna offset(m)
    0.0000              |East antenna offset (m)
 1.7350  0.1318  0.0000 |Vert antenna offset (m): slant/radius/added_offset
   20.0                 |Temperature (degrees C)
   50.0                 |Humidity (percent)
 1010.0                 |Pressure (millibars)
UET23A00.086            |Measurement filename (restricted to 24 characters)
Unknown-station parameters

Run-time parameters
    1                   |First epoch to process
   -1                   |Final epoch to process (-1 = last available)
 15.0                   |Elevation cutoff angle (degrees)
 1                      |Data to process (0=Wdln;1=L1;2=L2;3=L1c;6=RpdSt)
 0.010000               |Convergence criterion (meters)
 00 00 00 00 00 00 00   |Omit these satellites (up to 7)
 10                     |Maximum iterations for tisq and disq
 00 00 00 00 00 00 00   |Forbidden reference SVs (up to 7)
 no                     |Apply tropo delay correction
Run-time parameters

LINECOMP 5.2.00 7-18-94

FIXED U-File from L1 only receiver.
UNKWN U-File from L1 only receiver.

FIXED U-File used BROADCAST orbits.
UNKWN U-File used BROADCAST orbits.

Common start of two UFILES: 2000/03/26 12:25:10.00
Common end  of two UFILES: 2000/03/26 13:24: 5.00
  Selected first epoch:  1
```

Selected last epoch: 708
For SV 1 there are 701 triple-difference measurements.
For SV 3 there are 696 triple-difference measurements.
For SV 11 there are 701 triple-difference measurements.
For SV 15 there are 707 triple-difference measurements.
For SV 21 there are 321 triple-difference measurements.
For SV 22 there are 510 triple-difference measurements.
For SV 25 there are 707 triple-difference measurements.
For SV 31 there are 707 triple-difference measurements.
Epoch interval (seconds): 5.000000

THE TRIPLE DIFFERENCE SOLUTION (L1)
Measure of geometry: 14.960752
num_meas = 4343 num_used = 4260 rms_resid = 0.002983(m)
Post-Fit Chisq = 2530.700 NDF = 9.861

Sigmax (m): 4.660595
Sigmay (m): 3.507932
Sigmaz (m): 1.351254
x y z
x 1.00
y 0.52y 1.00
z-0.61z-0.12z 1.00

del_station: 0.000000 -0.000000 -0.000000

	Station1: FIXED STATION (RN488R)	Station2: UNKNOWN STATION (ET23=MARCO_1)
Latitude:	-6.32399099 -6 19 26.36755	-6.27039641 -6 16 13.39107
E-Long :	319.83925738 319 50 21.32656	319.78136509 319 46 52.91431
W-Long :	40.16074262 40 9 38.67344	40.21863491 40 13 7.08569
E-Height:	338.1453	368.0682

Baseline vector: -3614.6378 -5332.6403 5889.2821

Mark1_xyz :	4845207.7004	-4066830.6781	-697917.3643
Az1 El1 D1 :	312.77787	0.1571	8728.4766
E1 N1 U1 :	-6405.9245	5928.3261	29.9229
Mark2_xyz :	4841593.0626	-4094163.3184	-692026.0822
Az2 El2 D2 :	132.78421	-0.2357	8728.4766
E2 N2 U2 :	6406.6115	-5928.3420	-29.9229

Double-Difference Epochs:
Prn: 1 Start epoch: 8 End epoch: 708
Prn: 3 Start epoch: 2 End epoch: 708
Prn: 11 Start epoch: 8 End epoch: 708
Prn: 15 Start epoch: 2 End epoch: 708
Prn: 21 Start epoch: 12 End epoch: 704
Prn: 22 Start epoch: 2 End epoch: 708
Prn: 25 Start epoch: 2 End epoch: 708
Prn: 31 Start epoch: 2 End epoch: 708

THE FLOAT DOUBLE DIFFERENCE SOLUTION (L1)
Measure of geometry: 0.200946 Wavelength = 0.190294 (m/cycle)
num_meas = 4373 num_used = 4371 rms_resid = 0.022158(m)
Post-Fit Chisq = 11387.228 NDF = 10.118

Reference SV: 15

SV	Ambiguity	FIT	Meas	SV	Ambiguity	FIT	Meas
1	286784.057f	0.099	700	3	-9254405.550f	0.102	698
11	1584730.663f	0.134	700	21	-7012579.598f	0.128	336
22	-5153151.435f	0.150	523	25	-3492037.851f	0.103	707
31	-4631499.758f	0.105	707				

Sigmax (m): 0.124832
Sigmay (m): 0.103538
Sigmaz (m): 0.046827
SigmaN (cy): 0.861944
SigmaN (cy): 0.461121

```
  SigmaN (cy):    0.430087
  SigmaN (cy):    0.573201
  SigmaN (cy):    0.366504
  SigmaN (cy):    0.289368
  SigmaN (cy):    0.689167
  x   y   z   N   N   N   N   N   N   N
 x 1.00
 y 0.52y 1.00
 z-0.44z-0.30z 1.00
 N-0.95N-0.70N 0.58N 1.00
 N-0.81N-0.48N 0.85N 0.88N 1.00
 N-0.95N-0.61N 0.29N 0.92N 0.71N 1.00
 N 0.53N 0.98N-0.31N-0.70N-0.48N-0.60N 1.00
 N-0.34N 0.26N 0.77N 0.34N 0.67N 0.17N 0.25N 1.00
 N 0.76N 0.87N-0.28N-0.82N-0.56N-0.78N 0.89N 0.15N 1.00
 N-0.91N-0.73N 0.64N 0.99N 0.90N 0.89N-0.73N 0.35N-0.82N 1.00

 del_station: 0.000058 -0.000465 -0.000061
    Station1: FIXED STATION          Station2: UNKNOWN STATION
              (RN486R)                         (ET23=MARCO_1)
 Latitude:  -6.32399099  -6 19 26.36755      -6.27036736  -6 16 13.39449
 E-Long  : 319.83925738 319 50 21.32656     319.78136860 319 46 52.92696
 W-Long  :  40.16074262  40  9 38.67344      40.21863140  40 13  7.07304
 E-Height: 338.1453                         368.0057

 Baseline vector:    -3614.4431    -5332.2960     5889.1844

 Mark1_xyz  :  4845207.7004  -4088830.6781   -697917.3643
 Az1 El1 D1 :    312.77909       0.1567      8728.1196
 E1 N1 U1   :   -6405.5359     5928.2209        29.8604
 Mark2_xyz  :  4841593.2574  -4094162.9741   -692028.1799
 Az2 El2 D2 :    132.78544      -0.2353      8728.1196
 E2 N2 U2   :    6406.2228     -5928.2367      -29.8604


 AMBIGUITY RESOLUTION
                  1         2         3         4
 Abs Contrast     2.826     0.001     0.000     0.000
 Contrast                  99.465    99.999   100.000
 Change Chi2   4791:170  14311.521 24755.881 28292.319
 Bias S15: 1     286785    286784    286784    286781
 Bias S15: 3   -9254405  -9254406  -9254406  -9254407
 Bias S15:11    1584731   1584731   1584731   1584729
 Bias S15:21   -7012580  -7012580  -7012579  -7012579
 Bias S15:22   -5153151  -5153152  -5153152  -5153152
 Bias S15:25   -3492038  -3492036  -3492038  -3492037
 Bias S15:31   -4631499  -4631500  -4631500  -4631502
 NDF=116.2750 Chi2=11387.2277


 THE FIXED DOUBLE DIFFERENCE SOLUTION (L1)
 Measure of geometry: 0.032995   Wavelength = 0.190294 (m/cycle)
 num_meas =  4373      num_used =  4372      rms_resid = 0.026443(m)
 Post-Fit Chisq = 16216.528        NDF    =   10.120

 Reference SV: 15              Integer Search Ratio =  99.465
  SV   Ambiguity      FIT   Meas    SV   Ambiguity      FIT   Meas
   1    286785.000X 0.088   700     3   -9254405.000X 0.116   699
  11   1584731.000X 0.132   700    21   -7012580.000X 0.163   336
  22   -5153151.000X 0.233  523    25   -3492038.000X 0.107   707
  31   -4631499.000X 0.130   707

  Sigmax (m):    0.022664
  Sigmay (m):    0.021788
  Sigmaz (m):    0.010092
  x   y   z
 x 1.00
 y-0.77y 1.00
 z 0.19z-0.07z 1.00

 del_station: 0.000178 -0.000660 -0.000408
```

	Station1: FIXED STATION (RN488R)			Station2: UNKNOWN STATION (ET23=MARCO_1)		
Latitude:	-6.32399099	-6 19 26.36755		-6.27036689	-6 16 13.39279	
E-Long :	319.83925738	319 50 21.32656		319.78136752	319 46 52.92305	
W-Long :	40.16074262	40 9 36.67344		40.21863248	40 13 7.07695	
E-Height:	338.1453			367.9534		

Baseline vector: -3614.5559 -5332.3578 5889.2420

Mark1_xyz :	4845207.7004	-4088830.6781	-697917.3643
Az1 El1 D1 :	312.77901	0.1584	8728.2430
E1 N1 U1 :	6406.3428	-5928.2889	-29.8081
Mark2_xyz :	4841593.1446	-4094163.0360	692028.1223
Az2 El2 D2 :	132.78516	-0.2350	8728.2430
E2 N2 U2 :	6406.3428	-5928.2889	-29.8081

Tue Apr 04 09:49:54 2000

RN 488R

COMPENSADA.

CONVERSAO DE DATUM

Datum: WGS-84

Latitude: -6.192636756 E: 371610.5264
Longitude: -40.093867344 N: 9300837.2829
Meridiano Central: 39°00'00" WGr

Datum: SAD-69

E : 371649.7442 Latitude: 6°19'24.93221" S
N : 9300879.0500 Longitude: 40°09'37.37904" WGr

```
Ashtech, Inc. GPPS-L        Program: LINECOMP        Version: 5.2.00
                  Tue Apr 04 09:46:08 2000

-------------------------------------------------------------------------------
Project information
GPS Survey              |25-character project name  [ The | is in column 26. ]
0860A                   |5-character session name
Project information

Known-station parameters
00                      |Receiver identifier used in "LOGTIMES" file
000000                  |Project station number
RN488G                  |4-character short name
FIXED STATION           |25-character long name
_____ _____ _____ _____ |25-character comment field
0                       |Position extraction (0=below,1=U-file,2=proj. file)
S  6 11 34.80429        |Latitude deg-min-sec  (g=good;b=bad)
E 319 50 48.11281       |E-Longitude deg-min-sec (g=good;b=bad)
W  40  9 11.68719       |W-Longitude deg-min-sec (g=good;b=bad)
  399.7311              |Ellipsoidal height  (m) (g=good;b=bad)
    0.0000              |North antenna offset(m)
    0.0000              |East antenna offset (m)
 1.7210 0.1318 0.0000 |Vert antenna offset (m): slant/radius/added_offset
   20.0                 |Temperature (degrees C)
   50.0                 |Humidity (percent)
 1010.0                 |Pressure (millibars)
U488GA00.086            |Measurement filename (restricted to 24 characters)
Known-station parameters

Unknown-station parameters
00                      |Receiver identifier used in "LOGTIMES" file
000000                  |Project station number
RN488R                  |4-character short name
UNKNOWN STATION         |25-character long name
_____ _____ _____ _____ |25-character comment field
0                       |Position extraction (0=below,1=U-file,2=proj. file)
S  6 19 26.36741        |Latitude deg-min-sec  (g=good;b=bad)
E 319 50 21.32582       |E-Longitude deg-min-sec (g=good;b=bad)
W  40  9 38.67418       |W-Longitude deg-min-sec (g=good;b=bad)
  338.1002              |Ellipsoidal height  (m) (g=good;b=bad)
    0.0000              |North antenna offset(m)
    0.0000              |East antenna offset (m)
 1.9700 0.1318 0.0000 |Vert antenna offset (m): slant/radius/added_offset
   20.0                 |Temperature (degrees C)
   50.0                 |Humidity (percent)
 1010.0                 |Pressure (millibars)
U488RA00.086            |Measurement filename (restricted to 24 characters)
Unknown-station parameters

Run-time parameters
    1                   |First epoch to process
   -1                   |Final epoch to process (-1 = last available)
 15.0                   |Elevation cutoff angle (degrees)
 1                      |Data to process (0=Wdln;1=L1;2=L2;3=L1c;6=RpdSt)
 0.010000               |Convergence criterion (meters)
 11 00 00 00 00 00 00   |Omit these satellites (up to 7)
 10                     |Maximum iterations for tlsq and dlsq
 03 00 00 00 00 00 00   |Forbidden reference SVs (up to 7)
 no                     |Apply tropo delay correction
Run-time parameters

LINECOMP 5.2.00 7-18-94

FIXED U-File from L1 only receiver.
UNKWN U-File from L1 only receiver.

FIXED U-File used BROADCAST orbits.
UNKWN U-File used BROADCAST orbits.

Common start of two UFILES: 2000/03/26 10:32:10.00
Common end  of two UFILES: 2000/03/26 11:11:50.00
  Selected first epoch:  1
```

Selected last epoch: 477
For SV 3 there are 476 triple-difference measurements.
For SV 15 there are 467 triple-difference measurements.
For SV 17 there are 449 triple-difference measurements.
For SV 21 there are 476 triple-difference measurements.
For SV 22 there are 476 triple-difference measurements.
For SV 25 there are 470 triple-difference measurements.
For SV 29 there are 476 triple-difference measurements.
For SV 31 there are 470 triple-difference measurements.
Epoch interval (seconds): 5.000000

THE TRIPLE DIFFERENCE SOLUTION (L1)
Measure of geometry: 18.483940
num_meas = 3284 num_used = 3196 rms_resid = 0.002621(m)
Post-Fit Chisq = 720.840 NDF = 7.398

Sigmax (m): 2.477364
Sigmay (m): 3.391525
Sigmaz (m): 1.779343
x y z
x 1.00
y 0.39y 1.00
z-0.35z 0.49z 1.00

del_station: -0.000000 -0.000000 -0.000000

	Station1: FIXED STATION (RN488G)	Station2: UNKNOWN STATION (RN488R)
Latitude:	-6.19300119 -6 11 34.80429	-6.32399178 -6 19 26.37042
E-Long :	319.84669800 319 50 48.11281	319.83925734 319 50 21.32641
W-Long :	40.15330200 40 9 11.88719	40.16074266 40 9 38.67359
E-Height:	399.7311	338.2199

Baseline vector: -1784.7515 428.5394 -14393.7150

Mark1_xyz :	4646992.4962	-4089259.2626	-683523.7453
Az1 El1 D1 :	183.25282	-0.3085	14510.2728
E1 N1 U1 :	-823.5411	-14486.7986	-61.5112
Mark2_xyz :	4645207.7467	-4088830.7231	-697917.4603
Az2 El2 D2 :	3.25363	0.1773	14510.2728
E2 N2 U2 :	823.3281	14486.7281	61.5112

Double-Difference Epochs:
Prn: 3 Start epoch: 2 End epoch: 477
Prn: 15 Start epoch: 11 End epoch: 477
Prn: 17 Start epoch: 2 End epoch: 450
Prn: 21 Start epoch: 2 End epoch: 477
Prn: 22 Start epoch: 2 End epoch: 477
Prn: 25 Start epoch: 8 End epoch: 477
Prn: 29 Start epoch: 2 End epoch: 477
Prn: 31 Start epoch: 8 End epoch: 477

THE FLOAT DOUBLE DIFFERENCE SOLUTION (L1)
Measure of geometry: 0.404991 Wavelength = 0.190294 (m/cycle)
num_meas = 3285 num_used = 3282 rms_resid = 0.029963(m)
Post-Fit Chisq = 7739.806 NDF = 7.597

Reference SV: 29

SV	Ambiguity	FIT	Meas	SV	Ambiguity	FIT	Meas
3	5951292.145f	0.100	476	15	4621632.657f	0.141	468
17	1337595.537f	0.192	449	21	-1368849.346f	0.145	476
22	297705.341f	0.202	473	25	6905601.346f	0.140	470
31	7880422.941f	0.160	470				

Sigmax (m): 0.210696
Sigmay (m): 0.203527
Sigmaz (m): 0.136460
SigmaN (cy): 0.787296
SigmaN (cy): 0.927567

```
 SigmaN (cy):   1.305607
 SigmaN (cy):   0.406628
 SigmaN (cy):   1.151217
 SigmaN (cy):   0.961839
 SigmaN (cy):   1.157555
  x   y   z   N   N   N   N   N   N   N
x 1.00
y 0.28y 1.00
z 0.18z 0.45z 1.00
N-0.65N-0.78N-0.03N 1.00
N-0.94N-0.48N-0.42N 0.70N 1.00
N 0.39N 0.89N 0.77N-0.60N-0.62N 1.00
N-0.70N 0.24N-0.30N 0.04N 0.66N-0.05N 1.00
N-0.60N-0.10N 0.63N 0.66N 0.42N 0.15N 0.15N 1.00
N 0.16N 0.47N 0.99N-0.03N-0.39N 0.79N-0.24N 0.63N 1.00
N-0.90N-0.65N-0.32N 0.86N 0.95N-0.88N 0.46N 0.53N-0.30N 1.00

del_station: -0.001870 -0.003469 -0.001666
   Station1: FIXED STATION          Station2: UNKNOWN STATION
             (RN468G)                         (RN468R)
Latitude:  -6.19300119  -6 11 34.80429      -6.32399099  -6 19 26.36755
E-Long  : 319.84669800 319 50 48.11281      319.83925736 319 50 21.32656
W-Long  :  40.15330200  40  9 11.88719       40.16074262  40  9 38.67344
E-Height: 399.7311                          338.1329

Baseline vector:    -1784.8071     428.5924   -14393.6177

Mark1_xyz  :  4846992.4982  -4089259.2626  -683523.7453
Az1 El1 D1 :     183.25262      -0.3088    14510.1846
E1 N1 U1   :    -823.5365    -14486.7083     -61.5982
Mark2_xyz  :  4845207.6910  -4088830.6702  -697917.3629
Az2 El2 D2 :     3.25363        0.1776     14510.1846
E2 N2 U2   :    823.3235     14486.6395      61.5982


AMBIGUITY RESOLUTION
                1       2       3       4
Abs Contrast      14.375    7.062    0.599    0.106
Contrast                  66.180   93.192   98.079
Change Chi2     1937.550 2805.179 5416.495 7096.866
Bias S29: 3     5951292  5951292  5951292  5951293
Bias S29:15     4621633  4621633  4621633  4621632
Bias S29:21    -1368849 -1368849 -1368849 -1368850
Bias S29:22      297705   297706   297704   297706
Bias S29:25     6905601  6905602  6905600  6905602
Bias S29:31     7880423  7880423  7880423  7880423
NDF=89.0500 Chi2=7739.8059
                1       2       3       4
Abs Contrast      15.173    8.536    0.609    0.577
Contrast                  63.595   93.503   93.747
Change Chi2     1871.714 2588.198 5414.253 5467.868
Bias S29: 3     5951292  5951292  5951292  5951291
Bias S29:15     4621633  4621633  4621633  4621631
Bias S29:21    -1368849 -1368849 -1368849 -1368850
Bias S29:25     6905601  6905602  6905600  6905601
Bias S29:31     7880423  7880423  7880423  7880421
NDF=89.0500 Chi2=7739.8059
                1       2       3       4
Abs Contrast      18.143    0.697    0.167    0.165
Contrast                  94.293   98.065   98.089
Change Chi2     1637.312 5292.845 6696.309 6711.517
Bias S29: 3     5951292  5951291  5951293  5951291
Bias S29:15     4621633  4621631  4621632  4621632
Bias S29:21    -1368849 -1368850 -1368850 -1368849
Bias S29:31     7880423  7880421  7880423  7880422
NDF=89.0500 Chi2=7739.8059
                1       2       3       4
Abs Contrast      26.748    8.349    5.949    3.795
Contrast                  77.954   82.902   87.889
Change Chi2     1084.402 2627.816 3025.145 3531.311
Bias S29: 3     5951292  5951292  5951291  5951293
```

```
Bias S29:21     -1368849  -1368850  -1368849  -1368849
Bias S29:31      7880423   7880422   7880422   7880424
NDF=89.0500 Chi2=7739.8059
                1       2       3       4
Abs Contrast     32.511   15.425   8.440   6.176
Contrast                 71.536   82.383   86.342
Change Chi2     780.226  1863.244  2621.237  2989.615
Bias S29: 3     5951292   5951293   5951292   5951291
Bias S29:21     -1368849  -1368849  -1368850  -1368849
NDF=89.0500 Chi2=7739.8059
                1       2       3       4
Abs Contrast     33.509   8.591    0.002    0.000
Contrast                 82.766   99.990   100.000
Change Chi2     732.057  2606.514  11060.129  16683.498
Bias S29:21     -1368849  -1368850  -1368848  -1368851
NDF=89.0500 Chi2=7739.8059


THE FIXED DOUBLE DIFFERENCE SOLUTION (L1)
Measure of geometry: 0.485447   Wavelength = 0.190294 (m/cycle)
num_meas = 3285     num_used = 3282     rms_resid = 0.029961(m)
Post-Fit Chisq = 7739.807       NDF    =   7.597

Reference SV: 29              Integer Search Ratio =  94.293
 SV   Ambiguity      FIT  Meas   SV   Ambiguity      FIT  Meas
  3   5951292.145f 0.101  476    15    4621632.657f 0.141  468
 17   1337595.537f 0.192  449    21   -1368849.348f 0.145  476
 22    297705.341f 0.203  473    25    6905601.348f 0.139  470
 31   7880422.941f 0.161  470

 Sigmax (m):    0.287892
 Sigmay (m):    0.232810
 Sigmaz (m):    0.113881
 x   y   z
x 1.00
y-0.69y 1.00
z-0.28z 0.17z 1.00

del_station: 0.000000 -0.000000 -0.000000
   Station1: FIXED STATION          Station2: UNKNOWN STATION
                (RN488G)                        (RN488R)
Latitude:  -6.19300119 -6 11 34.80429      -6.32399099 -6 19 26.36755
E-Long  : 319.84669600 319 50 48.11281      319.83925736 319 50 21.32656
W-Long  :  40.15330200  40  9 11.88719       40.16074262  40  9 38.67344
E-Height: 399.7311                          336.1329

 Baseline vector:    -1784.8071     428.5924   -14393.6177

Mark1_xyz  :  4846992.4982 -4069259.2626  -683523.7453
Az1 El1 D1 :   183.25282     -0.3088    14510.1846
E1 N1 U1   :   -823.5365   -14486.7083     -61.5982
Mark2_xyz  :  4845207.6910 -4068830.6702  -697917.3629
Az2 El2 D2 :     3.25363      0.1776    14510.1846
E2 N2 U2   :   823.3235    14486.6395      61.5982
Tue Apr 04 09:46:30 2000
```

MARCO_2 = ET69

CONVERSAO DE DATUM

Datum: WGS-84

Latitude: -6.155238763 E: 364832.1289
Longitude: -40.131875681 N: 9307393.8343
Meridiano Central: 39°00'00" WGr

Datum: SAD-69

E : 364871.3765 Latitude: 6°15'50.95396" S
N : 9307435.5742 Longitude: 40°13'17.46071" WGr

```
Ashtech, Inc. GPPS-L        Program: LINECOMP        Version: 5.2.00
                Wed Mar 15 21:28:22 2000
_____________________________________________________________________
Project information
GPS Survey              |25-character project name  [ The | is in column 26. ]
0620A                   |5-character session name
Project information

Known-station parameters
00                      |Receiver identifier used in "LOGTIMES" file
000000                  |Project station number
RN4888G                 |4-character short name
FIXED STATION           |25-character long name
_____ ____ ____ _____   |25-character comment field
0                       |Position extraction (0=below,1=U-file,2=proj. file)
S  6 11 34.80429        |Latitude deg-min-sec  (g=good;b=bad)
E 319 50 48.11281       |E-Longitude deg-min-sec (g=good;b=bad)
W  40  9 11.88719       |W-Longitude deg-min-sec (g=good;b=bad)
  399.7311              |Ellipsoidal height  (m) (g=good;b=bad)
    0.0000              |North antenna offset(m)
    0.0000              |East antenna offset (m)
  1.8370  0.0000  0.0000 |Vert antenna offset (m): slant/radius/added_offset
   20.0                 |Temperature (degrees C)
   50.0                 |Humidity (percent)
 1010.0                 |Pressure (millibars)
UBAS2A00.062            |Measurement filename (restricted to 24 characters)
Known-station parameters

Unknown-station parameters
00                      |Receiver identifier used in "LOGTIMES" file
000000                  |Project station number
MARC0_2                 |4-character short name
UNKNOWN STATION         |25-character long name
_____ ____ ____ _____   |25-character comment field
0                       |Position extraction (0=below,1=U-file,2=proj. file)
S  6 15 52.45427        |Latitude deg-min-sec  (g=good;b=bad)
E 319 46 41.24748       |E-Longitude deg-min-sec (g=good;b=bad)
W  40 13 18.75252       |W-Longitude deg-min-sec (g=good;b=bad)
  402.1419              |Ellipsoidal height  (m) (g=good;b=bad)
    0.0000              |North antenna offset(m)
    0.0000              |East antenna offset (m)
  1.7600  0.0000  0.0000 |Vert antenna offset (m): slant/radius/added_offset
   20.0                 |Temperature (degrees C)
   50.0                 |Humidity (percent)
 1010.0                 |Pressure (millibars)
UMAR2A00.062            |Measurement filename (restricted to 24 characters)
Unknown-station parameters

Run-time parameters
    1                   |First epoch to process
   -1                   |Final epoch to process (-1 = last available)
 15.0                   |Elevation cutoff angle (degrees)
 1                      |Data to process (0=Wdln;1=L1;2=L2;3=L1c;6=RpdSt)
 0.010000               |Convergence criterion (meters)
 00 00 00 00 00 00 00   |Omit these satellites (up to 7)
 10                     |Maximum iterations for tlsq and dlsq
 00 00 00 00 00 00 00   |Forbidden reference SVs (up to 7)
 yes                    |Apply tropo delay correction
Run-time parameters

LINECOMP 5.2.00 7-18-94

FIXED U-File from L1 only receiver.
UNKWN U-File from L1 only receiver.

FIXED U-File used BROADCAST orbits.
UNKWN U-File used BROADCAST orbits.

Common start of two UFILES: 2000/03/02 13:19:10.00
Common end  of two UFILES: 2000/03/02 14:20:10.00
   Selected first epoch:  1
```

Selected last epoch: 733
For SV 1 there are 383 triple-difference measurements.
For SV 3 there are 732 triple-difference measurements.
For SV 11 there are 466 triple-difference measurements.
For SV 15 there are 732 triple-difference measurements.
For SV 21 there are 732 triple-difference measurements.
For SV 22 there are 732 triple-difference measurements.
For SV 25 there are 732 triple-difference measurements.
For SV 29 there are 467 triple-difference measurements.
For SV 31 there are 732 triple-difference measurements.
Epoch interval (seconds): 5.000000

THE TRIPLE DIFFERENCE SOLUTION (L1)
Measure of geometry: 14.524597
num_meas = 4975 num_used = 4845 rms_resid = 0.002763(m)
Post-Fit Chisq = 1813.655 NDF = 11.215

Sigmax (m): 3.172854
Sigmay (m): 3.226828
Sigmaz (m): 0.918053
x y z
x 1.00
y 0.47y 1.00
z-0.49z-0.39z 1.00

del_station: 0.000000 0.000000 0.000000
Station1: FIXED STATION (RN488G) Station2: UNKNOWN STATION (MARCO_2)
Latitude: -6.19300119 -6 11 34.80429 -6.26455190 -6 15 52.38682
E-Long : 319.84669800 319 50 48.11281 319.77812202 319 46 41.23928
W-Long : 40.15330200 40 9 11.88719 40.22187798 40 13 18.76072
E-Height: 399.7311 363.5405

Baseline vector: -5580.8313 -5220.6762 -7862.4379

Mark1_xyz : 4846992.4962 -4089259.2626 -683523.7453
Az1 El1 D1 : 223.80066 -0.2385 10964.4456
E1 N1 U1 : -7590.0644 -7913.0910 -36.1906
Mark2_xyz : 4841411.6668 -4094479.9388 -691386.1832
Az2 El2 D2 : 43.80810 0.1397 10964.4456
E2 N2 U2 : 7588.9938 7913.0673 36.1906

Double-Difference Epochs:
Prn: 1 Start epoch: 351 End epoch: 733
Prn: 3 Start epoch: 2 End epoch: 733
Prn: 11 Start epoch: 269 End epoch: 733
Prn: 15 Start epoch: 2 End epoch: 733
Prn: 21 Start epoch: 2 End epoch: 733
Prn: 22 Start epoch: 2 End epoch: 733
Prn: 25 Start epoch: 2 End epoch: 733
Prn: 29 Start epoch: 2 End epoch: 468
Prn: 31 Start epoch: 2 End epoch: 733

THE FLOAT DOUBLE DIFFERENCE SOLUTION (L1)
Measure of geometry: 0.218839 Wavelength = 0.190294 (m/cycle)
num_meas = 4977 num_used = 4977 rms_resid = 0.025909(m)
Post-Fit Chisq = 13108.261 NDF = 11.521

Reference SV: 25

SV	Ambiguity	FIT	Meas	SV	Ambiguity	FIT	Meas
1	-37744290.315f	0.118	384	3	-3056804.419f	0.079	732
11	-40087031.615f	0.153	466	15	-14815035.821f	0.140	732
21	-35446505.714f	0.136	732	22	-26140175.098f	0.102	732
29	-28372453.465f	0.253	467	31	-10443252.200f	0.090	732

Sigmax (m): 0.126646
Sigmay (m): 0.123419
Sigmaz (m): 0.052766

```
 SigmaN (cy):   1.072679
 SigmaN (cy):   0.631960
 SigmaN (cy):   0.861222
 SigmaN (cy):   0.497852
 SigmaN (cy):   0.444685
 SigmaN (cy):   0.474232
 SigmaN (cy):   0.423609
 SigmaN (cy):   0.918994
  x   y   z   N   N   N   N   N   N   N   N
x 1.00
y 0.33y 1.00
z-0.02z-0.04z 1.00
N-0.91N-0.67N 0.11N 1.00
N-0.81N-0.78N 0.22N 0.97N 1.00
N-0.91N-0.54N-0.27N 0.91N 0.82N 1.00
N-0.80N-0.55N-0.44N 0.82N 0.74N 0.96N 1.00
N-0.16N 0.74N-0.48N-0.21N-0.39N 0.09N 0.11N 1.00
N-0.85N-0.29N 0.50N 0.82N 0.79N 0.64N 0.48N-0.05N 1.00
N-0.52N 0.32N-0.61N 0.23N 0.05N 0.54N 0.57N 0.83N 0.18N 1.00
N-0.85N-0.77N-0.00N 0.96N 0.96N 0.92N 0.87N-0.27N 0.72N 0.21N 1.00

del_station: -0.000000 -0.000000 0.000000
   Station1: FIXED STATION          Station2: UNKNOWN STATION
          (RN488G)                          (MARCO_2)
Latitude:  -6.19300119  -6 11 34.80429      -6.26455197  -6 15 52.38711
E-Long  : 319.84669800 319 50 48.11281      319.77812168 319 46 41.23805
W-Long  :  40.15330200  40  9 11.88719       40.22187832  40 13 18.76195
E-Height: 399.7311                          363.5009

 Baseline vector:    -5580.8866    -5220.6790    -7862.4423

Mark1_xyz  :  4846992.4982  -4089259.2626  -683523.7463
Az1 El1 D1 :     223.80077      -0.2367    10964.4782
E1 N1 U1   :   -7590.1023    -7913.0998      -36.2302
Mark2_xyz  :  4841411.6116  -4094479.9416  -691386.1875
Az2 El2 D2 :      43.80821       0.1399    10964.4782
E2 N2 U2   :    7589.0316     7913.0760       36.2302


AMBIGUITY RESOLUTION
                1        2        3        4
Abs Contrast        3.260    0.007    0.003    0.000
Contrast                   97.783   98.599   99.868
Change Chi2      4922.232 12306.869 13132.050 17061.968
Bias S25: 3     -3056805 -3056805 -3056804 -3056803
Bias S25:15    -14815036 -14815036 -14815036 -14815035
Bias S25:21    -35446505 -35446506 -35446506 -35446507
Bias S25:22    -26140175 -26140176 -26140175 -26140175
Bias S25:29    -28372453 -28372454 -28372454 -28372454
Bias S25:31    -10443253 -10443253 -10443252 -10443250
NDF=132.4250 Chi2=13108.2612
                1        2        3        4
Abs Contrast        42.648    0.000    0.000    0.000
Contrast                   100.000  100.000  100.000
Change Chi2      577.423 67430.715 68383.171 71284.655
Bias S25: 1     -37744291 -37744291 -37744292 -37744290
Bias S25:11     -40087032 -40087031 -40087032 -40087032
NDF=138.4250 Chi2=18030.4933


THE FIXED DOUBLE DIFFERENCE SOLUTION (L1)
Measure of geometry: 0.032143   Wavelength = 0.190294 (m/cycle)
num_meas =  4977      num_used =  4976      rms_resid = 0.030628(m)
Post-Fit Chisq = 18554.507        NDF    =   11.519

Reference SV: 25              Integer Search Ratio =  97.783
 SV   Ambiguity      FIT  Meas   SV   Ambiguity      FIT  Meas
  1  -37744291.000X 0.151  384    3  -3056805.000X 0.080  732
 11  -40087032.000X 0.193  466   15  -14815036.000X 0.224  732
 21  -35446505.000X 0.171  731   22  -26140175.000X 0.134  732
 29  -28372453.000X 0.218  467   31  -10443253.000X 0.094  732
```

000040

Sigmax (m): 0.023672
Sigmay (m): 0.019286
Sigmaz (m): 0.010388
x y z
x 1.00
y-0.66y 1.00
z-0.20z 0.37z 1.00

del_station: -0.000354 0.000022 -0.000060

	Station1: FIXED STATION (RN488G)	Station2: UNKNOWN STATION (MARCO_2)
Latitude:	-6.19300119 -6 11 34.80429	-6.26455212 -6 15 52.38763
E-Long :	319.84669800 319 50 48.11281	319.77812311 319 46 41.24319
W-Long :	40.15330200 40 9 11.88719	40.22187689 40 13 18.75681
E-Height:	399.7311	363.3632

Baseline vector: -5580.8905 -5220.4689 -7862.4433

Mark1_xyz :	4846992.4982	-4089259.2626	-683523.7453
Az1 El1 D1 :	223.80012	-0.2395	10964.3810
E1 N1 U1 :	-7589.9444	-7913.1180	-36.3679
Mark2_xyz :	4841411.6076	-4094479.7315	-691386.1886
Az2 El2 D2 :	43.80756	0.1406	10964.3810
E2 N2 U2 :	7588.8735	7913.0919	36.3679

Wed Mar 15 21:28:36 2000

58LB

CONVERSAO DE DATUM

Datum: WGS-84

Latitude: -6.142154747 E: 362309.7497
Longitude: -40.144061497 N: 9310177.9485
Meridiano Central: 39°00'00" WGr

Datum: SAD-69

E : 362349.0085 Latitude: 6°14'20.11459" S
N : 9310219.6769 Longitude: 40°14'39.31829" WGr

```
Ashtech, Inc. GPPS-L        Program: LINECOMP        Version: 5.2.00
                  Tue Apr 04 09:56:50 2000
_____________________________________________________________________
Project information
GPS Survey              |25-character project name  [ The | is in column 26. ]
0860A                   |5-character session name
Project information

Known-station parameters
00                      |Receiver identifier used in "LOGTIMES" file
000000                  |Project station number
MARCO_1=ET23            |4-character short name
FIXED STATION           |25-character long name
___ ___ ___ _____________|25-character comment field
0                       |Position extraction (0=below,1=U-file,2=proj. file)
S  6 16 13.39370        |Latitude deg-min-sec  (g=good;b=bad)
E 319 46 52.92323       |E-Longitude deg-min-sec (g=good;b=bad)
W  40 13  7.07677       |W-Longitude deg-min-sec (g=good;b=bad)
  367.9524              |Ellipsoidal height  (m) (g=good;b=bad)
    0.0000              |North antenna offset(m)
    0.0000              |East antenna offset (m)
 1.7360  0.1318  0.0000 |Vert antenna offset (m): slant/radius/added_offset
   20.0                 |Temperature (degrees C)
   50.0                 |Humidity (percent)
 1010.0                 |Pressure (millibars)
UBAS2A00.086            |Measurement filename (restricted to 24 characters)
Known-station parameters

Unknown-station parameters
00                      |Receiver identifier used in "LOGTIMES" file
000000                  |Project station number
58LB                    |4-character short name
UNKNOWN STATION         |25-character long name
___ ___ ___ _____________|25-character comment field
0                       |Position extraction (0=below,1=U-file,2=proj. file)
S  6 14 21.89579        |Latitude deg-min-sec  (g=good;b=bad)
E 319 45 19.10482       |E-Longitude deg-min-sec (g=good;b=bad)
W  40 14 40.89518       |W-Longitude deg-min-sec (g=good;b=bad)
  356.0772              |Ellipsoidal height  (m) (g=good;b=bad)
    0.0000              |North antenna offset(m)
    0.0000              |East antenna offset (m)
 1.8820  0.1318  0.0000 |Vert antenna offset (m): slant/radius/added_offset
   20.0                 |Temperature (degrees C)
   50.0                 |Humidity (percent)
 1010.0                 |Pressure (millibars)
US8LBA00.086            |Measurement filename (restricted to 24 characters)
Unknown-station parameters

Run-time parameters
   1                    |First epoch to process
  -1                    |Final epoch to process (-1 = last available)
15.0                    |Elevation cutoff angle (degrees)
1                       |Data to process (0=Wdln;1=L1;2=L2;3=L1c;6=RpdSt)
0.010000                |Convergence criterion (meters)
00 00 00 00 00 00 00    |Omit these satellites (up to 7)
10                      |Maximum iterations for tlsq and dlsq
00 00 00 00 00 00 00    |Forbidden reference SVs (up to 7)
no                      |Apply tropo delay correction
Run-time parameters

LINECOMP 5.2.00 7-18-94

FIXED U-File from L1 only receiver.
UNKWN U-File from L1 only receiver.

FIXED U-File used BROADCAST orbits.
UNKWN U-File used BROADCAST orbits.

Common start of two UFILES: 2000/03/26 17:10:40.00
Common end  of two UFILES: 2000/03/26 17:41:20.00
   Selected first epoch:  1
```

Selected last epoch: 369
For SV 1 there are 368 triple-difference measurements.
For SV 8 there are 368 triple-difference measurements.
For SV 11 there are 263 triple-difference measurements.
For SV 14 there are 368 triple-difference measurements.
For SV 16 there are 368 triple-difference measurements.
For SV 18 there are 368 triple-difference measurements.
For SV 19 there are 368 triple-difference measurements.
For SV 27 there are 368 triple-difference measurements.
For SV 31 there are 368 triple-difference measurements.
Epoch interval (seconds): 5.000000

THE TRIPLE DIFFERENCE SOLUTION (L1)
Measure of geometry: 11.572259
num_meas = 2839 num_used = 2839 rms_resid = 0.003783(m)
Post-Fit Chisq = 5649.750 NDF = 6.572

Sigmax (m): 5.512062
Sigmay (m): 6.147441
Sigmaz (m): 1.944640
x y z
x 1.00
y 0.28y 1.00
z 0.24z 0.69z 1.00

del_station: 0.000006 -0.000001 0.000002
Station1: FIXED STATION (MARCO_1=ET23) Station2: UNKNOWN STATION (58LB)
Latitude: -6.27036714 -6 16 13.39370 -6.23931841 -6 14 21.54626
E-Long : 319.78136756 319 46 52.92323 319.75538563 319 45 19.38827
W-Long : 40.21863244 40 13 7.07677 40.24461437 40 14 40.61173
E-Height: 367.9524 359.8840

Baseline vector: -1577.4569 -2431.7702 3416.4343

Mark1_xyz : 4841583.1449 -4094163.0291 -692028.1500
Az1 El1 D1 : 320.07497 -0.1234 4480.3906
E1 N1 U1 : -2875.2733 3436.0136 -8.0684
Mark2_xyz : 4840015.6880 -4096594.7993 -688611.7157
Az2 El2 D2 : 140.07780 0.0830 4480.3906
E2 N2 U2 : 2875.4394 -3436.0052 8.0684

Double-Difference Epochs:
Prn: 1 Start epoch: 2 End epoch: 369
Prn: 8 Start epoch: 2 End epoch: 369
Prn: 11 Start epoch: 2 End epoch: 264
Prn: 14 Start epoch: 2 End epoch: 369
Prn: 16 Start epoch: 2 End epoch: 369
Prn: 18 Start epoch: 2 End epoch: 369
Prn: 19 Start epoch: 2 End epoch: 369
Prn: 27 Start epoch: 2 End epoch: 369
Prn: 31 Start epoch: 2 End epoch: 369

THE FLOAT DOUBLE DIFFERENCE SOLUTION (L1)
Measure of geometry: 0.376337 Wavelength = 0.190294 (m/cycle)
num_meas = 2839 num_used = 2775 rms_resid = 0.021366(m)
Post-Fit Chisq = 14092.012 NDF = 6.424

Reference SV: 16

SV	Ambiguity	FIT	Meas	SV	Ambiguity	FIT	Meas
1	-5629392.639f	0.111	368	8	-3487736.940f	0.075	368
11	-13576423.254f	0.196	216	14	-6225673.823f	0.119	368
18	-3910025.792f	0.072	368	19	-6623699.017f	0.074	368
27	-3496534.988f	0.060	368	31	-5851913.091f	0.165	351

Sigmax (m): 0.273211
Sigmay (m): 0.331348
Sigmaz (m): 0.098765

```
 SigmaN (cy):   1.121962
 SigmaN (cy):   1.250294
 SigmaN (cy):   1.394780
 SigmaN (cy):   0.765046
 SigmaN (cy):   0.789361
 SigmaN (cy):   0.787886
 SigmaN (cy):   1.166062
 SigmaN (cy):   1.974935
  x   y   z   N   N   N   N   N   N   N   N
x 1.00
y-0.04y 1.00
z-0.17z 0.29z 1.00
N 0.02N 0.98N 0.14N 1.00
N-0.90N-0.37N 0.17N-0.43N 1.00
N-0.28N 0.84N 0.72N 0.75N-0.01N 1.00
N 0.47N 0.76N 0.50N 0.73N-0.68N 0.70N 1.00
N-0.81N 0.52N 0.00N 0.51N 0.50N 0.50N-0.11N 1.00
N-0.90N-0.35N-0.02N-0.36N 0.97N-0.10N-0.75N 0.58N 1.00
N-0.89N-0.39N 0.11N-0.44N 0.99N-0.06N-0.71N 0.50N 0.96N 1.00
N 0.08N 0.97N 0.46N 0.93N-0.44N 0.89N 0.88N 0.34N-0.47N-0.47N 1.00

del_station: -0.000495 0.000687 0.001110
   Station1: FIXED STATION          Station2: UNKNOWN STATION
         (MARCO_1=ET23)                        (58LB)
 Latitude:  -6.27038714  -6 16 13.39370      -6.23831848  -6 14 21.54652
 E-Long  : 319.78136756 319 46 52.92323     319.75538537 319 45 19.38732
 W-Long  :  40.21863244  40 13  7.07677      40.24461463  40 14 40.61268
 E-Height: 367.9524                         369.6994

 Baseline vector:    -1577.6163    -2431.6733    3416.4464

 Mark1_xyz  :  4841593.1449  -4094163.0291  -692028.1500
 Az1 El1 D1 :    320.07462      -0.1257     4480.4034
 E1 N1 U1   :   -2875.3023     3436.0057      -8.2530
 Mark2_xyz  :  4840015.5286  -4096594.7024  -688611.7035
 Az2 El2 D2 :    140.07745       0.0853     4480.4034
 E2 N2 U2   :    2875.4684    -3435.9972       8.2530


AMBIGUITY RESOLUTION
                1        2        3        4
Abs Contrast       42.224    2.032    1.029    0.720
Contrast                   97.050   98.474   98.922
Change Chi2       642.663  8307.861  9729.774 10461.305
Bias S16: 6     -3487739 -3487739 -3487739 -3487740
Bias S16:14     -6225674 -6225673 -6225674 -6225673
Bias S16:18     -3910026 -3910025 -3910025 -3910027
Bias S16:19     -6623699 -6623699 -6623699 -6623700
Bias S16:27     -3496535 -3496535 -3496535 -3496536
NDF=77.3750 Chi2=14092.0124
               1        2        3        4
Abs Contrast       31.996    0.000    0.000    0.000
Contrast                   99.998  100.000  100.000
Change Chi2      1595.651 26113.028 56893.079 91893.681
Bias S16: 1     -5629393 -5629393 -5629393 -5629393
Bias S16:11    -13576424 -13576423 -13576425 -13576425
Bias S16:31     -5651914 -5651913 -5651915 -5651914
NDF=82.3750 Chi2=14734.6750


THE FIXED DOUBLE DIFFERENCE SOLUTION (L1)
Measure of geometry: 0.027669   Wavelength = 0.190294 (m/cycle)
num_meas =  2839      num_used =  2773      rms_resid = 0.023012(m)
Post-Fit Chisq = 16330.683        NDF    =   6.419

Reference SV: 16              Integer Search Ratio =  97.050
 SV   Ambiguity      FIT  Meas   SV   Ambiguity      FIT  Meas
  1  -5629393.000X 0.117  368    8  -3487739.000X 0.076  368
 11  -13576424.000X 0.208  201   14  -6225674.000X 0.121  368
 18  -3910026.000X 0.067  368   19  -6623699.000X 0.079  368
 27  -3496535.000X 0.069  368   31  -5651914.000X 0.193  364
```

```
 Sigmax (m):    0.024513
 Sigmay (m):    0.021341
 Sigmaz (m):    0.012687
 x   y   z
x 1.00
y-0.75y 1.00
z-0.14z-0.09z 1.00

del_station: -0.000291 0.000821 0.000207
   Station1: FIXED STATION          Station2: UNKNOWN STATION
         (MARCO_1=ET23)                        (5BLB)
Latitude: -6.27036714 -6 16 13.39370     -6.23931874 -6 14 21.54747
E-Long : 319.78136756 319 46 52.92323     319.75536473 319 45 19.39503
W-Long : 40.21863244 40 13 7.07677     40.24461527 40 14 40.61497
E-Height: 367.9524                  359.8528

 Baseline vector:   -1577.5480   -2431.8236   3416.4007

Mark1_xyz : 4841593.1449 -4094163.0291 -692028.1500
Az1 El1 D1 :   320.07369    -0.1238   4480.4260
E1 N1 U1  :  -2875.3729   3435.9765    -8.0996
Mark2_xyz : 4840015.5969 -4096594.8527 -688611.7493
Az2 El2 D2 :   140.07652     0.0834   4480.4260
E2 N2 U2  :   2875.5390  -3435.9680     8.0996
Tue Apr 04 09:57:16 2000
```

112 LB

CONVERSAO DE DATUM

Datum: WGS-84

Latitude: -6.134244615 E: 359030.0199
Longitude: -40.162723004 N: 9311371.0744
Meridiano Central: 39°00'00" WGr

Datum: SAD-69

E : 359069.2929 Latitude: 6°13'41.01362" S
N : 9311412.7982 Longitude: 40°16'25.93254" WGr

```
Ashtech, Inc. GPPS-L        Program: LINECOMP        Version: 5.2.00
                Tue Apr 04 09:56:32 2000
_____________________________________________________________________
Project information
GPS Survey              |25-character project name  [ The | is in column 26. ]
0860A                   |5-character session name
Project information

Known-station parameters
00                      |Receiver identifier used in "LOGTIMES" file
000000                  |Project station number
MARCO_1=ET23            |4-character short name
FIXED STATION           |25-character long name
___ ___ ___ _____________|25-character comment field
0                       |Position extraction (0=below,1=U-file,2=proj. file)
S  6 16 13.39370        |Latitude deg-min-sec  (g=good;b=bad)
E 319 46 52.92323       |E-Longitude deg-min-sec (g=good;b=bad)
W  40 13  7.07677       |W-Longitude deg-min-sec (g=good;b=bad)
  367.9524              |Ellipsoidal height  (m) (g=good;b=bad)
    0.0000              |North antenna offset(m)
    0.0000              |East antenna offset (m)
  1.7350  0.1318  0.0000 |Vert antenna offset (m): slant/radius/added_offset
   20.0                 |Temperature (degrees C)
   50.0                 |Humidity (percent)
 1010.0                 |Pressure (millibars)
UBAS2A00.086            |Measurement filename (restricted to 24 characters)
Known-station parameters

Unknown-station parameters
00                      |Receiver identifier used in "LOGTIMES" file
000000                  |Project station number
112L                    |4-character short name
UNKNOWN STATION         |25-character long name
___ ___ ___ _____________|25-character comment field
0                       |Position extraction (0=below,1=U-file,2=proj. file)
S  6 13 42.83646        |Latitude deg-min-sec  (g=good;b=bad)
E 319 43 32.80894       |E-Longitude deg-min-sec (g=good;b=bad)
W  40 16 27.19106       |W-Longitude deg-min-sec (g=good;b=bad)
  387.3913              |Ellipsoidal height  (m) (g=good;b=bad)
    0.0000              |North antenna offset(m)
    0.0000              |East antenna offset (m)
  1.9420  0.1318  0.0000 |Vert antenna offset (m): slant/radius/added_offset
   20.0                 |Temperature (degrees C)
   50.0                 |Humidity (percent)
 1010.0                 |Pressure (millibars)
U112LA00.086            |Measurement filename (restricted to 24 characters)
Unknown-station parameters

Run-time parameters
    1                   |First epoch to process
   -1                   |Final epoch to process (-1 = last available)
15.0                    |Elevation cutoff angle (degrees)
1                       |Data to process (0=Wdln;1=L1;2=L2;3=L1c;6=RpdSt)
0.010000                |Convergence criterion (meters)
00 00 00 00 00 00 00    |Omit these satellites (up to 7)
10                      |Maximum iterations for ttsq and dlsq
00 00 00 00 00 00 00    |Forbidden reference SVs (up to 7)
no                      |Apply tropo delay correction
Run-time parameters

LINECOMP 5.2.00 7-18-94

FIXED U-File from L1 only receiver.
UNKWN U-File from L1 only receiver.

FIXED U-File used BROADCAST orbits.
UNKWN U-File used BROADCAST orbits.

Common start of two UFILES: 2000/03/26 18:09:40.00
Common end  of two UFILES: 2000/03/26 18:42:55.00
  Selected first epoch:  1
```

Selected last epoch: 400
For SV 1 there are 396 triple-difference measurements.
For SV 2 there are 386 triple-difference measurements.
For SV 8 there are 397 triple-difference measurements.
For SV 14 there are 397 triple-difference measurements.
For SV 16 there are 397 triple-difference measurements.
For SV 18 there are 397 triple-difference measurements.
For SV 19 there are 397 triple-difference measurements.
For SV 27 there are 397 triple-difference measurements.
For SV 31 there are 397 triple-difference measurements.
Epoch interval (seconds): 5.000000

THE TRIPLE DIFFERENCE SOLUTION (L1)
Measure of geometry: 14.339975
num_meas = 3164 num_used = 3164 rms_resid = 0.003367(m)
Post-Fit Chisq = 2777.946 NDF = 7.324

Sigmax (m): 4.782510
Sigmay (m): 4.871592
Sigmaz (m): 1.463621
x y z
x 1.00
y 0.11y 1.00
z 0.52z 0.28z 1.00

del_station: 0.000012 0.000022 -0.000004
Station1: FIXED STATION (MARCO_1=ET23) Station2: UNKNOWN STATION (112L)
Latitude: -6.27036714 -6 16 13.39370 -6.22845753 -6 13 42.44710
E-Long : 319.78136756 319 46 52.92323 319.72576847 319 43 32.76650
W-Long : 40.21863244 40 13 7.07677 40.27423153 40 16 27.23350
E-Height: 367.9524 373.6568

Baseline vector: -3585.7444 -5026.2749 4608.9819

Mark1_xyz : 4841593.1449 -4094163.0291 -692028.1500
Az1 El1 D1 : 306.99981 0.0077 7704.7853
E1 N1 U1 : -6152.8360 4637.1612 5.7044
Mark2_xyz : 4838007.4005 -4099189.3040 -687419.1681
Az2 El2 D2 : 127.00586 -0.0771 7704.7853
E2 N2 U2 : 6153.3313 -4637.1580 -5.7044

Double-Difference Epochs:
Prn: 1 Start epoch: 2 End epoch: 400
Prn: 2 Start epoch: 2 End epoch: 400
Prn: 8 Start epoch: 2 End epoch: 400
Prn: 14 Start epoch: 2 End epoch: 400
Prn: 16 Start epoch: 2 End epoch: 400
Prn: 18 Start epoch: 2 End epoch: 400
Prn: 19 Start epoch: 2 End epoch: 400
Prn: 27 Start epoch: 2 End epoch: 400
Prn: 31 Start epoch: 2 End epoch: 400

THE FLOAT DOUBLE DIFFERENCE SOLUTION (L1)
Measure of geometry: 0.334555 Wavelength = 0.190294 (m/cycle)
num_meas = 3175 num_used = 3168 rms_resid = 0.014636(m)
Post-Fit Chisq = 4314.790 NDF = 7.333

Reference SV: 16

SV	Ambiguity	FIT	Meas	SV	Ambiguity	FIT	Meas
1	-7066393.976f	0.056	397	2	-22563751.939f	0.091	383
8	-6278807.623f	0.069	398	14	-15364295.146f	0.085	398
18	-1598843.759f	0.067	398	19	-12531630.657f	0.068	398
27	-6626981.662f	0.053	398	31	-7723652.202f	0.115	398

Sigmax (m): 0.137238
Sigmay (m): 0.137415
Sigmaz (m): 0.058675

```
  SigmaN (cy):   0.647996
  SigmaN (cy):   0.496387
  SigmaN (cy):   0.674018
  SigmaN (cy):   0.392463
  SigmaN (cy):   0.418660
  SigmaN (cy):   0.501178
  SigmaN (cy):   0.618199
  SigmaN (cy):   0.844186
   x   y   z   N   N   N   N   N   N   N   N
x 1.00
y 0.15y 1.00
z 0.13z 0.03z 1.00
N 0.31N 0.95N-0.19N 1.00
N-0.93N-0.34N 0.15N-0.53N 1.00
N-0.93N-0.31N-0.41N-0.37N 0.83N 1.00
N 0.22N 0.89N 0.43N 0.77N-0.26N-0.46N 1.00
N-0.28N 0.62N-0.68N 0.69N-0.04N 0.35N 0.27N 1.00
N-0.74N 0.17N-0.67N 0.17N 0.48N 0.83N-0.14N 0.80N 1.00
N-0.91N-0.21N-0.50N-0.25N 0.76N 0.98N-0.41N 0.47N 0.89N 1.00
N 0.28N 0.98N-0.02N 0.98N-0.47N-0.40N 0.87N 0.61N 0.10N-0.30N 1.00

del_station: -0.000589 0.009063 0.001517
   Station1: FIXED STATION          Station2: UNKNOWN STATION
         (MARCO_1=ET23)                          (112LB)
Latitude:  -6.27036714  -6 16 13.39370      -6.22845770  -6 13 42.44772
E-Long  : 319.78136756 319 46 52.92323      319.72576901 319 43 32.76845
W-Long  :  40.21863244  40 13  7.07677       40.27423099  40 16 27.23155
E-Height: 367.9524                          373.6075

Baseline vector:    -3585.7447    -5026.1963    4608.9683

Mark1_xyz  :  4841593.1449  -4094163.0291  -692028.1500
Az1 El1 D1 :     306.99997       0.0074     7704.7260
E1 N1 U1   :    -6152.7762     4637.1422        5.6551
Mark2_xyz  :  4838007.4002  -4099189.2254  -687419.1817
Az2 El2 D2 :     127.00602      -0.0767     7704.7260
E2 N2 U2   :     6153.2715    -4637.1369       -5.6551


AMBIGUITY RESOLUTION
                1        2        3        4
Abs Contrast       4.008    0.000    0.000    0.000
Contrast                  99.999   99.999  100.000
Change Chi2     1939.635 10997.812 11253.313 17348.719
Bias S16: 1    -7066394 -7066395 -7066393 -7066393
Bias S16: 2   -22563752 -22563752 -22563752 -22563754
Bias S16:14   -15364295 -15364295 -15364295 -15364295
Bias S16:18    -1598844 -1598845 -1598843 -1598844
Bias S16:19   -12531831 -12531832 -12531830 -12531832
Bias S16:27    -6626982 -6626983 -6626981 -6626984
Bias S16:31    -7723652 -7723653 -7723651 -7723651
NDF=87.2000 Chi2=4314.7899
                1        2        3
Abs Contrast      46.956    0.000    0.000
Contrast                  100.000  100.000
Change Chi2       34.280 112404.147 120393.071
Bias S16: 8    -6278608 -6278607 -6278609
NDF=94.2000 Chi2=6254.4250


THE FIXED DOUBLE DIFFERENCE SOLUTION (L1)
Measure of geometry: 0.042728   Wavelength = 0.190294 (m/cycle)
num_meas =  3175      num_used =  3175      rms_resid = 0.017991 (m)
Post-Fit Chisq =  6366.685      NDF    =    7.360

Reference SV: 16              Integer Search Ratio =  99.999
 SV   Ambiguity      FIT  Meas   SV   Ambiguity      FIT  Meas
  1  -7066394.000X 0.096  397    2  -22563752.000X 0.097  390
  8  -6278608.000X 0.082  398   14  -15364295.000X 0.098  398
 16  -1598844.000X 0.073  398   19  -12531831.000X 0.086  398
 27  -6626982.000X 0.082  398   31  -7723652.000X 0.143  398
```

```
 Sigmax (m):     0.022966
 Sigmay (m):     0.019334
 Sigmaz (m):     0.009339
  x    y    z
x 1.00
y-0.84y 1.00
z-0.45z 0.36z 1.00

del_station: -0.000275 0.000257 0.000144
   Station1: FIXED STATION          Station2: UNKNOWN STATION
         (MARCO_1=ET23)                      (112LB)
 Latitude:  -6.27036714  -6 16 13.39370      -6.22845726  -6 13 42.44615
 E-Long  : 319.78136756 319 46 52.92323     319.72576943 319 43 32.76996
 W-Long  :  40.21863244  40 13  7.07677      40.27423057  40 16 27.23004
 E-Height: 367.9524                 373.6040

 Baseline vector:    -3585.7134    -5026.1620    4609.0166

 Mark1_xyz  :  4841593.1449  -4094163.0291  -692028.1500
 Az1 El1 D1 :     307.00046       0.0073     7704.7180
 E1 N1 U1   :    -6152.7298     4637.1903        5.6516
 Mark2_xyz  :  4838007.4315  -4099189.1911  -687419.1334
 Az2 El2 D2 :     127.00651      -0.0767     7704.7180
 E2 N2 U2   :     6153.2251    -4637.1871       -5.6516
Tue Apr 04 09:56:49 2000
```

153LB

CONVERSAO DE DATUM

Datum: WGS-84

Latitude: -6.130345703 E: 356990.7279
Longitude: -40.173348324 N: 9312563.6387
Meridiano Central: 39°00'00" WGr

Datum: SAD-69

E : 357030.0098 Latitude: 6°13'02.02492" S
N : 9312605.3577 Longitude: 40°17'32.18525" WGr

```
Ashtech, Inc. GPPS-L      Program: LINECOMP      Version: 5.2.00
                Tue Apr 04 10:09:30 2000
-------------------------------------------------------------------------
Project information
GPS Survey              |25-character project name  [ The | is in column 26. ]
0870A                   |5-character session name
Project information

Known-station parameters
00                      |Receiver identifier used in "LOGTIMES" file
000000                  |Project station number
112LB                   |4-character short name
FIXED STATION           |25-character long name
_____ _____ _____ _____ |25-character comment field
0                       |Position extraction (0=below,1=U-file,2=proj. file)
S  6 13 42.44615        |Latitude deg-min-sec  (g=good;b=bad)
E 319 43 32.76996       |E-Longitude deg-min-sec (g=good;b=bad)
W  40 16 27.23004       |W-Longitude deg-min-sec (g=good;b=bad)
  373.6040              |Ellipsoidal height  (m) (g=good;b=bad)
    0.0000              |North antenna offset(m)
    0.0000              |East antenna offset (m)
 1.9830  0.0000  0.0000 |Vert antenna offset (m): slant/radius/added_offset
   20.0                 |Temperature (degrees C)
   50.0                 |Humidity (percent)
  1010.0                |Pressure (millibars)
UBAS3A00.087            |Measurement filename (restricted to 24 characters)
Known-station parameters

Unknown-station parameters
00                      |Receiver identifier used in "LOGTIMES" file
000000                  |Project station number
153LB                   |4-character short name
UNKNOWN STATION         |25-character long name
_____ _____ _____ _____ |25-character comment field
0                       |Position extraction (0=below,1=U-file,2=proj. file)
S  6 13  3.45701        |Latitude deg-min-sec  (g=good;b=bad)
E 319 42 26.51664       |E-Longitude deg-min-sec (g=good;b=bad)
W  40 17 33.48336       |W-Longitude deg-min-sec (g=good;b=bad)
  361.1135              |Ellipsoidal height  (m) (g=good;b=bad)
    0.0000              |North antenna offset(m)
    0.0000              |East antenna offset (m)
 2.6100  0.0000  0.0000 |Vert antenna offset (m): slant/radius/added_offset
   20.0                 |Temperature (degrees C)
   50.0                 |Humidity (percent)
  1010.0                |Pressure (millibars)
U153LA00.087            |Measurement filename (restricted to 24 characters)
Unknown-station parameters

Run-time parameters
    1                   |First epoch to process
   -1                   |Final epoch to process (-1 = last available)
15.0                    |Elevation cutoff angle (degrees)
1                       |Data to process (0=Wdln;1=L1;2=L2;3=L1c;6=RpdSt)
0.010000                |Convergence criterion (meters)
07 00 00 00 00 00 00    |Omit these satellites (up to 7)
10                      |Maximum iterations for tisq and disq
00 00 00 00 00 00 00    |Forbidden reference SVs (up to 7)
yes                     |Apply tropo delay correction
Run-time parameters

LINECOMP 5.2.00 7-18-94

FIXED U-File from L1 only receiver.
UNKWN U-File from L1 only receiver.

FIXED U-File used BROADCAST orbits.
UNKWN U-File used BROADCAST orbits.

Common start of two UFILES: 2000/03/27 18:12:10.00
Common end  of two UFILES: 2000/03/27 18:42:35.00
  Selected first epoch:  1
```

Selected last epoch: 366
For SV 1 there are 365 triple-difference measurements.
For SV 2 there are 365 triple-difference measurements.
For SV 8 there are 365 triple-difference measurements.
For SV 16 there are 365 triple-difference measurements.
For SV 18 there are 365 triple-difference measurements.
For SV 19 there are 365 triple-difference measurements.
For SV 27 there are 365 triple-difference measurements.
For SV 31 there are 365 triple-difference measurements.
Epoch interval (seconds): 5.000000

THE TRIPLE DIFFERENCE SOLUTION (L1)
Measure of geometry: 9.186037
num_meas = 2555 num_used = 2550 rms_resid = 0.002862(m)
Post-Fit Chisq = 4817.201 NDF = 5.903

Sigmax (m): 4.641028
Sigmay (m): 4.424283
Sigmaz (m): 1.388100
x y z
x 1.00
y-0.03y 1.00
z 0.61z 0.10z 1.00

def_station: -0.000000 -0.000000 0.000000

	Station1: FIXED STATION (112LB)	Station2: UNKNOWN STATION (153LB)
Latitude:	-6.22845726	-6 13 42.44615	-6.21762602	-6 13 3.45366
E-Long :	319.72576943	319 43 32.76996	319.70736534	319 42 26.51522
W-Long :	40.27423057	40 16 27.23004	40.29263466	40 17 33.48478
E-Height:	373.6040		361.0293	

Baseline vector: -1227.4516 -1629.7022 1192.1726

Mark1_xyz : 4836007.4316 -4099189.1911 -687419.1335
Az1 El1 D1 : 300.45860 -0.3155 2363.0155
E1 N1 U1 : -2036.8406 1197.8695 -12.5747
Mark2_xyz : 4836779.9800 -4100818.8932 -686226.9608
Az2 El2 D2 : 120.46059 0.2943 2363.0155
E2 N2 U2 : 2036.8782 -1197.8668 12.5747

Double-Difference Epochs:
Prn: 1 Start epoch: 2 End epoch: 366
Prn: 2 Start epoch: 2 End epoch: 366
Prn: 8 Start epoch: 2 End epoch: 366
Prn: 16 Start epoch: 2 End epoch: 366
Prn: 18 Start epoch: 2 End epoch: 366
Prn: 19 Start epoch: 2 End epoch: 366
Prn: 27 Start epoch: 2 End epoch: 366
Prn: 31 Start epoch: 2 End epoch: 366

THE FLOAT DOUBLE DIFFERENCE SOLUTION (L1)
Measure of geometry: 0.260336 Wavelength = 0.190294 (m/cycle)
num_meas = 2555 num_used = 2552 rms_resid = 0.018970(m)
Post-Fit Chisq = 16939.383 NDF = 5.907

Reference SV: 16

SV	Ambiguity	FIT	Meas	SV	Ambiguity	FIT	Meas
1	502312.176f	0.088	364	2	3713259.055f	0.085	365
8	-187744.119f	0.070	365	18	1951460.998f	0.087	365
19	-853214.099f	0.087	365	27	-275127.162f	0.063	365
31	205843.319f	0.184	363				

Sigmax (m): 0.271409
Sigmay (m): 0.196883
Sigmaz (m): 0.090814
SigmaN (cy): 0.939623
SigmaN (cy): 0.945410

```
 SigmaN (cy):   1.162829
 SigmaN (cy):   0.618720
 SigmaN (cy):   0.826009
 SigmaN (cy):   1.049865
 SigmaN (cy):   1.197210
 x   y   z   N   N   N   N   N   N   N
x 1.00
y-0.04y 1.00
z-0.13z 0.05z 1.00
N 0.31N 0.90N-0.26N 1.00
N-0.96N-0.14N 0.30N-0.50N 1.00
N-0.94N-0.11N-0.18N-0.34N 0.88N 1.00
N-0.25N 0.64N-0.64N 0.69N 0.01N 0.36N 1.00
N-0.76N 0.29N-0.47N 0.16N 0.58N 0.85N 0.78N 1.00
N-0.91N-0.03N-0.26N-0.23N 0.82N 0.99N 0.48N 0.91N 1.00
N 0.18N 0.97N-0.08N 0.97N-0.36N-0.27N 0.66N 0.19N-0.17N 1.00

del_station: -0.000364 0.000098 -0.000616
   Station1: FIXED STATION          Station2: UNKNOWN STATION
         (112LB)                          (153LB)
 Latitude:  -6.22845726  -6 13 42.44615      -6.21762669  -6 13  3.45607
 E-Long  : 319.72578943 319 43 32.78996     319.70736615 319 42 26.51812
 W-Long  :  40.27423057  40 16 27.23004      40.29263385  40 17 33.48188
 E-Height: 373.6040                361.0548

 Baseline vector:    -1227.3807    -1629.6454    1192.0964

 Mark1_xyz  :  4838007.4316  -4099189.1911   -687419.1335
 Az1 El1 D1 :     300.45815      -0.3149     2362.9010
 E1 N1 U1   :   -2036.7514     1197.7955      -12.5492
 Mark2_xyz  :  4836780.0509  -4100818.8365   -686227.0371
 Az2 El2 D2 :     120.46015       0.2937     2362.9010
 E2 N2 U2   :    2036.7891    -1197.7927       12.5492


AMBIGUITY RESOLUTION
                1        2        3        4
Abs Contrast       34.033    0.004    0.000    0.000
Contrast                   99.988   99.998   99.999
Change Chi2      1726.227 26430.667 32173.206 33390.153
Bias S16: 1       502312   502313   502313   502313
Bias S16: 2      3713259  3713260  3713260  3713259
Bias S16: 8      -187744  -187744  -187743  -187743
Bias S16:18      1951461  1951461  1951462  1951462
Bias S16:19      -853214  -853214  -853213  -853213
Bias S16:27      -275127  -275127  -275126  -275126
NDF=70.8000 Chi2=16939.3629
                1        2        3
Abs Contrast       50.013    0.000    0.000
Contrast                   100.000  100.000
Change Chi2        0.699 125140.625 126326.627
Bias S16:31       205843   205842   205844
NDF=76.8000 Chi2=18665.6100


THE FIXED DOUBLE DIFFERENCE SOLUTION (L1)
Measure of geometry: 0.027341   Wavelength = 0.190294 (m/cycle)
num_meas =  2555      num_used =  2549      rms_resid = 0.019916(m)
Post-Fit Chisq = 18649.544        NDF    =   5.900

Reference SV: 16              Integer Search Ratio =  99.966
 SV   Ambiguity      FIT   Meas   SV   Ambiguity      FIT   Meas
  1    502312.000X 0.091  364    2    3713259.000X 0.069  365
  8   -187744.000X 0.074  365   18    1951461.000X 0.080  365
 19   -853214.000X 0.093  365   27    -275127.000X 0.076  365
 31    205843.000X 0.189  360

 Sigmax (m):   0.027684
 Sigmay (m):   0.023196
 Sigmaz (m):   0.013125
 x   y   z
```

x 1.00
y-0.85y 1.00
z-0.45z 0.42z 1.00

del_station: -0.000210 0.000320 0.000084

	Station1: FIXED STATION (112LB)	Station2: UNKNOWN STATION (153LB)
Latitude:	-6.22845726	-6 13 42.44615	-6.21762695	-6 13 3.45703
E-Long :	319.72576943	319 43 32.76996	319.70736577	319 42 26.51676
W-Long :	40.27423057	40 16 27.23004	40.29263423	40 17 33.48324
E-Height:	373.6040		361.1022	

Baseline vector: -1227.3744 -1629.7059 1192.0619

Mark1_xyz :	4836007.4316	-4099189.1911	-687419.1335
Az1 El1 D1 :	300.45702	-0.3138	2362.9221
E1 N1 U1 :	-2036.7935	1197.7660	-12.5018
Mark2_xyz :	4836780.0572	-4100818.8970	-686227.0716
Az2 El2 D2 :	120.45901	0.2925	2362.9221
E2 N2 U2 :	2036.8312	-1197.7632	12.5018

Tue Apr 04 10:09:52 2000

189 LB

CONVERSAO DE DATUM

Datum: WGS-84

Latitude: -6.115216792 E: 356153.5424
Longitude: -40.180054565 N: 9314751.1879
Meridiano Central: 39°00'00" WGr

Datum: SAD-69

E : 356192.8283 Latitude: 6°11'50.73629" S
N : 9314792.8976 Longitude: 40°17'59.24744" WGr

```
Ashtech. Inc. GPPS-L        Program: LINECOMP        Version: 5.2.00
                  Tue Apr 04 10:09:52 2000
_____________________________________________________________________
Project information
GPS Survey              |25-character project name  [ The | is in column 26. ]
0870A                   |5-character session name
Project information

Known-station parameters
00                      |Receiver identifier used in "LOGTIMES" file
000000                  |Project station number
112LB                   |4-character short name
FIXED STATION           |25-character long name
___ ___ ___ _____________|25-character comment field
0                       |Position extraction (0=below,1=U-file,2=proj. file)
S  6 13 42.44615        |Latitude deg-min-sec  (g=good;b=bad)
E 319 43 32.76996       |E-Longitude deg-min-sec (g=good;b=bad)
W  40 16 27.23004       |W-Longitude deg-min-sec (g=good;b=bad)
  373.6040              |Ellipsoidal height  (m) (g=good;b=bad)
    0.0000              |North antenna offset(m)
    0.0000              |East antenna offset (m)
 1.9830  0.0000  0.0000 |Vert antenna offset (m): slant/radius/added_offset
   20.0                 |Temperature (degrees C)
   50.0                 |Humidity (percent)
 1010.0                 |Pressure (millibars)
UBAS3A00.087            |Measurement filename (restricted to 24 characters)
Known-station parameters

Unknown-station parameters
00                      |Receiver identifier used in "LOGTIMES" file
000000                  |Project station number
189LB                   |4-character short name
UNKNOWN STATION         |25-character long name
___ ___ ___ _____________|25-character comment field
0                       |Position extraction (0=below,1=U-file,2=proj. file)
S  6 11 52.16752        |Latitude deg-min-sec  (g=good;b=bad)
E 319 41 59.45476       |E-Longitude deg-min-sec (g=good;b=bad)
W  40 18  0.54524       |W-Longitude deg-min-sec (g=good;b=bad)
  368.5780              |Ellipsoidal height  (m) (g=good;b=bad)
    0.0000              |North antenna offset(m)
    0.0000              |East antenna offset (m)
 2.4270  0.0000  0.0000 |Vert antenna offset (m): slant/radius/added_offset
   20.0                 |Temperature (degrees C)
   50.0                 |Humidity (percent)
 1010.0                 |Pressure (millibars)
U189LA00.087            |Measurement filename (restricted to 24 characters)
Unknown-station parameters

Run-time parameters
    1                   |First epoch to process
   -1                   |Final epoch to process (-1 = last available)
15.0                    |Elevation cutoff angle (degrees)
1                       |Data to process (0=Wdln;1=L1;2=L2;3=L1c;6=RpdSt)
0.010000                |Convergence criterion (meters)
07 00 00 00 00 00 00    |Omit these satellites (up to 7)
10                      |Maximum iterations for tisq and dlsq
00 00 00 00 00 00 00    |Forbidden reference SVs (up to 7)
yes                     |Apply tropo delay correction
Run-time parameters

LINECOMP 5.2.00 7-18-94

FIXED U-File from L1 only receiver.
UNKWN U-File from L1 only receiver.

FIXED U-File used BROADCAST orbits.
UNKWN U-File used BROADCAST orbits.

Common start of two UFILES: 2000/03/27 19:01:40.00
Common end  of two UFILES: 2000/03/27 19:32:10.00
   Selected first epoch:  1
```

```
   Selected last  epoch:  367
 For SV  1 there are  366 triple-difference measurements.
 For SV  2 there are  366 triple-difference measurements.
 For SV  8 there are  366 triple-difference measurements.
 For SV 13 there are  366 triple-difference measurements.
 For SV 16 there are  366 triple-difference measurements.
 For SV 18 there are  366 triple-difference measurements.
 For SV 19 there are  366 triple-difference measurements.
 For SV 27 there are  366 triple-difference measurements.
 For SV 31 there are  366 triple-difference measurements.
 Epoch interval (seconds): 5.000000


THE TRIPLE DIFFERENCE SOLUTION (L1)
Measure of geometry: 9.428246
num_meas =  2928      num_used =  2911      rms_resid = 0.002697(m)
Post-Fit Chisq =  2970.415       NDF    =   6.738


  Sigmax (m):    2.957862
  Sigmay (m):    3.713224
  Sigmaz (m):    1.397745
  x    y    z
x 1.00
y 0.19y 1.00
z-0.23z 0.30z 1.00

del_station: -0.000000 0.000000 -0.000000
    Station1: FIXED STATION          Station2: UNKNOWN STATION
          (112LB)                              (189LB)
 Latitude:  -6.22845726  -6 13 42.44615       -6.19782412  -6 11 52.16682
 E-Long  : 319.72576943 319 43 32.76996       319.69984947 319 41 59.45810
 W-Long  :  40.27423057  40 16 27.23004        40.30015053  40 18  0.54190
 E-Height: 373.6040                  368.6702

 Baseline vector:    -1579.0258    -2422.2181     3368.4693

 Mark1_xyz  :  4836007.4316  -4099189.1911   -687419.1335
 Az1 El1 D1 :    319.74156      -0.0837      4439.2622
 E1 N1 U1   :   -2868.6499    3367.8362       -4.9338
 Mark2_xyz  :  4836428.4057  -4101611.4092   -684050.6641
 Az2 El2 D2 :    139.74437       0.0437      4439.2622
 E2 N2 U2   :    2868.8096   -3367.8317        4.9336

Double-Difference Epochs:
  Prn:  1  Start epoch:   2  End epoch:  367
  Prn:  2  Start epoch:   2  End epoch:  367
  Prn:  8  Start epoch:   2  End epoch:  367
  Prn: 13  Start epoch:   2  End epoch:  367
  Prn: 16  Start epoch:   2  End epoch:  367
  Prn: 18  Start epoch:   2  End epoch:  367
  Prn: 19  Start epoch:   2  End epoch:  367
  Prn: 27  Start epoch:   2  End epoch:  367
  Prn: 31  Start epoch:   2  End epoch:  367


THE FLOAT DOUBLE DIFFERENCE SOLUTION (L1)
Measure of geometry: 0.261456   Wavelength = 0.190294 (m/cycle)
num_meas =  2928      num_used =  2924      rms_resid = 0.019776(m)
Post-Fit Chisq = 12830.312       NDF    =   6.769

Reference SV: 18
 SV    Ambiguity      FIT   Meas    SV    Ambiguity      FIT   Meas
  1   -6663753.677f 0.089   366     2    5041185.985f 0.112   366
  8   -8378886.425f 0.078   366    13   -5426643.418f 0.092   366
 16  -10920262.631f 0.049   366    19  -10088367.724f 0.137   362
 27   -8686160.500f 0.084   366    31   -8156629.394f 0.152   366

 Sigmax (m):    0.168135
 Sigmay (m):    0.207429
 Sigmaz (m):    0.098448
```

```
 SigmaN (cy):   0.556568
 SigmaN (cy):   1.006159
 SigmaN (cy):   0.787951
 SigmaN (cy):   0.776068
 SigmaN (cy):   0.660876
 SigmaN (cy):   0.481252
 SigmaN (cy):   0.653025
 SigmaN (cy):   0.798529
 x  y  z  N  N  N  N  N  N  N  N
x 1.00
y-0.08y 1.00
z 0.00z-0.07z 1.00
N 0.13N 0.82N 0.43N 1.00
N-0.50N-0.76N 0.37N-0.57N 1.00
N-0.86N-0.36N-0.20N-0.57N 0.71N 1.00
N-0.90N-0.22N-0.26N-0.48N 0.61N 0.98N 1.00
N-0.25N-0.48N 0.84N-0.04N 0.79N 0.26N 0.16N 1.00
N-0.81N 0.33N-0.48N-0.09N 0.06N 0.70N 0.80N-0.29N 1.00
N-0.88N-0.22N-0.31N-0.50N 0.58N 0.97N 0.99N 0.11N 0.81N 1.00
N-0.18N 0.98N-0.06N 0.81N-0.68N-0.25N-0.11N-0.42N 0.42N-0.11N 1.00

del_station: -0.000361 -0.001496 0.000045
   Station1: FIXED STATION          Station2: UNKNOWN STATION
           (112LB)                          (189LB)
 Latitude: -6.22845726 -6 13 42.44615      -6.19782442 -6 11 52.16792
 E-Long  : 319.72578943 319 43 32.76996     319.69984843 319 41 59.45435
 W-Long  : 40.27423057 40 16 27.23004       40.30015157 40 18 0.54565
 E-Height: 373.6040                 368.5857

 Baseline vector:   -1579.1673   -2422.2494   3368.4448

 Mark1_xyz :  4836007.4316 -4099189.1911  -687419.1335
 Az1 El1 D1 :   319.74015    -0.0848    4439.3110
 E1 N1 U1  :  -2868.7613   3387.8044     -5.0183
 Mark2_xyz :  4836428.2643 -4101611.4405  -684050.6886
 Az2 El2 D2 :   139.74295     0.0448    4439.3110
 E2 N2 U2  :   2868.9250  -3387.7978      5.0183


AMBIGUITY RESOLUTION
                1       2       3       4
Abs Contrast       4.254   0.058   0.020   0.014
Contrast                 94.440  97.102  97.711
Change Chi2     5920.448 13596.944 15392.614 16020.836
Bias S18: 1     -6663753 -6663754 -6663754 -6663753
Bias S18: 2      5041186  5041187  5041185  5041185
Bias S18:13     -5426644 -5426643 -5426643 -5426643
Bias S18:16    -10920262 -10920262 -10920264 -10920263
Bias S18:19    -10088368 -10088368 -10088367 -10088367
Bias S18:31     -8156629 -8156630 -8156629 -8156628
NDF=81.1000 Chi2=12830.3123
                1       2       3       4
Abs Contrast       7.442   3.256   0.998   0.207
Contrast                 65.973  81.858  92.917
Change Chi2     4812.365 6454.835 8651.079 11425.854
Bias S18: 1     -6663753 -6663754 -6663754 -6663754
Bias S18: 2      5041186  5041187  5041186  5041186
Bias S18:16    -10920262 -10920262 -10920263 -10920263
Bias S18:19    -10088368 -10088368 -10088367 -10088368
Bias S18:31     -8156629 -8156630 -8156629 -8156630
NDF=81.1000 Chi2=12830.3123
                1       2       3       4
Abs Contrast      19.035   7.621   1.597   0.559
Contrast                 71.360  90.233  95.515
Change Chi2     2741.392 4775.807 7815.180 9714.238
Bias S18: 1     -6663754 -6663753 -6663754 -6663753
Bias S18: 2      5041187  5041186  5041186  5041185
Bias S18:16    -10920262 -10920262 -10920263 -10920263
Bias S18:19    -10088368 -10088368 -10088367 -10088368
NDF=81.1000 Chi2=12830.3123
                1       2       3       4
```

```
Abs Contrast      29.225   19.478   14.113    8.188
Contrast             62.448   70.362   80.419
Change Chi2     1651.634 2692.473 3449.539 4638.626
Bias S18: 1     -6663754 -6663754 -6663753 -6663753
Bias S18: 2      5041186  5041187  5041185  5041186
Bias S18:19    -10088368 -10088368 -10088368 -10088368
NDF=81.1000 Chi2=12830.3123
              1        2        3        4
Abs Contrast      32.241   15.622    8.085    1.704
Contrast             71.010   82.815   95.305
Change Chi2     1382.187 3224.359 4677.983 7738.962
Bias S18: 1     -6663754 -6663753 -6663754 -6663753
Bias S18:19    -10088368 -10088368 -10088367 -10088367
NDF=81.1000 Chi2=12830.3123
              1        2        3        4
Abs Contrast      41.545    9.765    0.076    0.000
Contrast             86.130   99.854  100.000
Change Chi2     624.539 4287.381 13330.934 24319.459
Bias S18:19    -10088368 -10088367 -10088369 -10088366
NDF=81.1000 Chi2=12830.3123


THE FIXED DOUBLE DIFFERENCE SOLUTION (L1)
Measure of geometry: 0.799974   Wavelength = 0.190294 (m/cycle)
num_meas = 2928      num_used = 2923      rms_resid = 0.019711(m)
Post-Fit Chisq = 12746.182      NDF    =   6.766

Reference SV: 18              Integer Search Ratio =  94.440
 SV   Ambiguity     FIT  Meas   SV   Ambiguity     FIT  Meas
  1   -6663753.677f 0.089  366    2   5041185.985f 0.112  366
  8   -8378886.425f 0.078  366   13   -5426643.418f 0.092  366
 16   -10920262.631f 0.049  366   19   -10088367.724f 0.134  361
 27   -8686160.500f 0.084  366   31   -8156829.394f 0.153  366

 Sigmax (m):    0.651843
 Sigmay (m):    0.478538
 Sigmaz (m):    0.315555
 x   y   z
x 1.00
y-0.85y 1.00
z-0.78z 0.70z 1.00

del_station: -0.000039 0.000010 0.000050
   Station1: FIXED STATION          Station2: UNKNOWN STATION
         (112LB)                          (189LB)
Latitude:  -6.22845726  -6 13 42.44615      -6.19782442  -6 11 52.16792
E-Long  : 319.72576943 319 43 32.76996      319.69984843 319 41 59.45435
W-Long  :  40.27423057  40 16 27.23004       40.30015157  40 18  0.54565
E-Height: 373.6040                  368.5857

 Baseline vector:    -1579.1673    -2422.2494    3368.4448

Mark1_xyz  :  4836007.4316 -4099189.1911  -687419.1335
Az1 El1 D1 :    319.74015     -0.0846     4439.3110
E1 N1 U1   :   -2868.7613    3387.8044     -5.0183
Mark2_xyz  :  4836428.2643 -4101611.4405  -684050.6887
Az2 El2 D2 :    139.74295      0.0448     4439.3110
E2 N2 U2   :    2868.9249    -3387.7978      5.0183
Tue Apr 04 10:10:12 2000
```

CANASTRA

ESTAÇÃO	N.º	Cad.	Folha	Quadric.	Projeto	Ordem	Estab.	Reoc.
CANASTRA		182		SB-24	Meridiano 40º	1.º	1964	

Estado	Município	Lugar	Terra	Datum	Folha	Conf.
C E	Catarina	Lagoa do Pessoa		SAD-69		

Latitude	Longitude	Altitude	N (UTM)	E (UTM)
6º 06' 55,541''	40º 01' 04,928''	695,86 m	9 323 926,803	387 352,239

PONTO VISADO	DIREÇÃO	AZIMUTE MAG.	AZIMUTE VERDADEIRO	DISTÂNCIA
CARCARÁ	00º 00' 00,00''		332º 45' 26,62''	22 074,66 m
Ref. "A"	214 04 59	21º		6,12 m
Ref. "B"	331 01 45	144		8,03 m
ARNEIROZ			32 23 11,45	28 471,69 m
VERDE			200 46 11,98	24 113,98 m
LOURENÇO			144 45 03,86	28 345,87 m
PIRAJÁ			86 08 58,36	15 619,53 m
ATERRO			8 43 52,50	9 503,17 m

LOCALIZAÇÃO: Na parte central da Serra da Canastra, alongada no sentido ND — SE, distante cerca de 13 km a oeste da cidade de Catarina.
Terreno de: José de Sousa Pessoa.
Vizinho conhecedor da Estação: Luis Leuzeano.

DESCRIÇÃO: O Marco de Centro é uma chapa estampada CANASTRA-1964, cravada em uma pedra de 90 X 70 cm e que se salienta 45 cm do nível do solo.
Os Marcos de Referência são também chapas cravadas em pedras.

ITINERÁRIO: Parte-se da Igreja da cidade de Catarina e toma-se a estrada para a localidade de Lagoa do Pessoa. Com 0,3 km — junto ao cemitério — segue-se pela estrada da direita em direção a Tauá. Com 8,8 km atravessa-se um rio e sobe-se com Az 5º. Com 14,5 km chega-se à casa do Sr. José de Sousa Pessoa, na localidade de Lagoa do Pessoa, local onde deve ficar o veículo. Nesse localidade, da casa do Sr. Manoel Fresco, avista-se o Vértice, com Az 310º. A pé, segue-se por um caminho em direção à localidade de Delgado. Com uma hora e meia passa-se ao pereda de um açude e depois atravessa-se uns dois roçados. Com duas horas e meia de caminhada chega-se ao local do Vértice.

ATERRO

ESTAÇÃO	N.º	Cad.	Folha	Quadric.	Projeto	Ordem	Estab.	Reoc.
ATERRO		183		SB-24	Meridiano 40º	1.º	1964	

Estado	Município	Lugar	Terra	Datum	Folha	Conf.
C E	Ameiroz			SAD-69		

Latitude	Longitude	Altitude	N (UTM)	E (UTM)
6º 12' 02,769''	40º 01' 41,162''	724,16 m	9 314 489,308	388 256,807

PONTO VISADO	DIREÇÃO	AZIMUTE MAG.	AZIMUTE VERDADEIRO	DISTÂNCIA
CARCARÁ	00º 00' 00,00''		313º 15' 19,15''	15 808,41 m
Ref. "A"	230 02 02	26º		7,12 m
Marco de Azimute	336 29 13,0	133	289 44 32,2	± 1 km
Ref. "B"	357 28 42	152		7,45 m
ARNEIROZ			43 31 18,38	21 308,42 m
CANASTRA			186 43 56,38	9 503,17 m
PIRAJÁ			119 42 26,05	18 692,40 m

LOCALIZAÇÃO: Na parte mais alta da Serra do Alerto, distante cerca de 18 km a sudoeste da cidade de Catarina e 22 km a nordeste de Ameiroz.
Terreno de: Antônio Patrola.
Vizinhos conhecedores da Estação: Antônio Evaristo de Medeiros e Nabor Roberto da Silva.

DESCRIÇÃO: O Marco de Centro é uma chapa estampada ATERRO-1964, cravada em uma pedra de 1,00 X 0,70 m e que se salienta 30 cm do nível do solo.
Os Marcos de Referência e de Azimute são também chapas cravadas em pedras.

ITINERÁRIO: Parte-se da Igreja da cidade de Catarina e toma-se a estrada para a localidade de Lagoa do Pessoa. Na saída da cidade, junto ao cemitério, toma-se a estrada da direita, Az 250º. Com 8,8 km atravessa-se um rio e sobe-se com Az 5º. Com 14,3 km chega-se à Lagoa do Pessoa e prossegue-se pela estrada para Ameiroz. Com 24,0 km — depois de se atravessar um rio — deixa-se a estrada para Ameiroz e toma-se à esquerda, Az 228º, passando por uma porteira, atravessando o mesmo rio e tomando a estrada para a localidade de Alerto. Com 31,0 km chega-se a essa localidade e à casa do Sr. Damião Alves da Silva, onde se deixa o veículo. O Marco de Azimute encontra-se a uns 70 metros, Az 86º, dessa casa e a uns 20 metros ao sul da casa do Sr. Antônio Evaristo de Medeiros, conhecedor da Estação. A pé, segue-se por um caminho e com uma hora, aproximadamente, chega-se ao local do Vértice.

3 – COORDENADAS DOS PONTOS DE AMARRAÇÃO DO EIXO DA BARRAGEM

000063

SEDE DO CONSÓRCIO: Rua Leonardo Mota, nº 699 – Aldeota – Fortaleza – Ceará - CEP: 60.170-040 - Brasil

BARRAGEM ARNEIROZ II

COORDENADAS DOS PONTOS DE AMARRAÇÃO DOS VÉRTICES DO EIXO DO BOQUEIRÃO

PONTO	COORDENADA ESTE	COORDENADA NORTE	COTA	DESCRIÇÃO
2763	365.214.829	9.306.185.636	375.540	E-10
2653	365.246.472	9.306.301.402	375.890	E-4
2829	365.206.819	9.306.370.910	370.840	E 0
1221	365.127.628	9.306.509.926	370.420	E 8
1467	365.231.838	9.306.791.243	368.190	E 23
2202	364.871.350	9.307.435.621	363.780	E 60
2370	364.875.865	9.307.635.087	368.580	E 70
2381	364.935.599	9.307.633.733	367.240	E 70/3
2585	364.941.510	9.307.893.664	373.380	E 83

000065

4 – RELATÓRIO DA ESTAÇÃO TOTAL DA LOCAÇÃO DO EIXO DA BARRAGEM

SEDE DO CONSÓRCIO: Rua Leonardo Mota, nº 699 – Aldeota – Fortaleza – Ceará - CEP: 60.170-040 - Brasil

Nº DO PONTO	COORD. ESTE	COORD. NORTE	COTA	DESCRIÇÃO
2763	365.214.829	9.306.185.636	375.540	E-10
2744	365.220.105	9.306.204.942	375.730	E-9
2729	365.225.379	9.306.224.233	375.780	E-8
2715	365.230.648	9.306.243.513	375.860	E-7
2703	365.235.928	9.306.262.827	376.090	E-6
2691	365.241.194	9.306.282.097	376.190	E-5
2653	365.246.472	9.306.301.402	375.890	E-4
2636	365.236.556	9.306.318.779	374.060	E-3
2618	365.226.644	9.306.336.147	372.300	E-2
2849	365.216.723	9.306.353.524	371.420	E-1
2829	365.206.819	9.306.370.910	370.840	E0
1312	365.196.917	9.306.388.285	370.240	E1
1135	365.187.030	9.306.405.663	369.730	E2
1155	365.177.123	9.306.423.053	369.510	E3
1171	365.167.233	9.306.440.402	368.990	E4
1185	365.157.330	9.306.457.777	368.600	E5
1200	365.147.423	9.306.475.178	368.280	E6
1211	365.137.530	9.306.492.541	369.540	E7
1221	365.127.628	9.306.509.926	370.420	E8
1257	365.134.577	9.306.528.672	370.830	E9
1277	365.141.523	9.306.547.414	371.250	E10
2810	365.148.503	9.306.566.184	371.360	E11
1314	365.155.437	9.306.584.938	371.360	E12
1331	365.162.368	9.306.603.674	372.190	E13
1349	365.169.313	9.306.622.454	371.920	E14
1369	365.176.278	9.306.641.197	372.060	E15
1389	365.183.219	9.306.659.962	372.360	E16
312	365.190.171	9.306.678.717	372.180	E17
1393	365.197.110	9.306.697.462	372.150	E18
1410	365.204.061	9.306.716.218	371.650	E19
1426	365.210.989	9.306.734.985	371.050	E20
1441	365.217.946	9.306.753.740	370.310	E21
1454	365.224.885	9.306.772.499	369.130	E22
1467	365.231.838	9.306.791.243	368.190	E23
1487	365.222.085	9.306.808.699	366.760	E24
1497	365.212.331	9.306.826.159	365.400	E25
1516	365.202.557	9.306.843.626	363.570	E26
1535	365.192.802	9.306.861.088	361.300	E27
1554	365.183.052	9.306.878.518	358.780	E28
1571	365.173.263	9.306.895.984	356.330	E29
1588	365.163.519	9.306.913.431	353.390	E30
1686	365.153.746	9.306.930.901	348.860	E31
1706	365.143.983	9.306.948.343	347.370	E32
1724	365.134.209	9.306.965.803	345.080	E33
1744	365.124.450	9.306.983.251	344.810	E34
1763	365.114.691	9.307.000.690	344.980	E35
1781	365.104.924	9.307.018.161	343.450	E36
1800	365.095.159	9.307.035.605	343.560	E37
1819	365.085.418	9.307.053.043	343.330	E38
1836	365.075.709	9.307.070.624	341.310	E39
1854	365.065.044	9.307.088.435	340.180	E40
1871	365.056.123	9.307.105.410	343.890	E41
1888	365.046.364	9.307.122.855	343.310	E42
1905	365.036.593	9.307.140.337	342.290	E43
1922	365.026.837	9.307.157.783	347.190	E44

1939	365.017.087	9.307.175.196	348.600	E45
1954	365.007.313	9.307.192.669	349.300	E46
1972	364.997.550	9.307.210.122	349.270	E47
1991	364.987.780	9.307.227.587	351.560	E48
2010	364.978.022	9.307.245.032	353.500	E49
2029	364.968.258	9.307.262.485	355.380	E50
2047	364.958.494	9.307.279.944	356.960	E51
2064	364.948.727	9.307.297.378	358.560	E52
2081	364.938.926	9.307.314.841	359.670	E53
2098	364.929.173	9.307.332.304	360.610	E54
2115	364.919.406	9.307.349.761	361.160	E55
2132	364.909.639	9.307.367.217	361.830	E56
2149	364.899.874	9.307.384.655	362.210	E57
2166	364.890.110	9.307.402.103	362.610	E58
2185	364.880.336	9.307.419.567	363.180	E59
2202	364.871.350	9.307.435.621	363.780	E60
4847	364,871,803	9.307.455.605	363.780	E61
2237	364.872.257	9.307.475.626	364.160	E62
2250	364.872.709	9.307.495.602	363.800	E63
2266	364.873.162	9.307.515.582	364.870	E64
2283	364.873.616	9.307.535.600	365.440	E65
2300	364.874.068	9.307.555.588	365.490	E66
2317	364.874.522	9.307.575.588	365.230	E67
2334	364.874.975	9.307.595.581	366.480	E68
2353	364.875.427	9.307.615.562	367.740	E69
2370	364.875.865	9.307.635.087	368.580	E70
2379	364.895.845	9.307.634.634	368.452	E70/1
2380	364.915.836	9.307.634.181	367.526	E70/2
2381	364.935.599	9.307.633.733	367.240	E70/3
2387	364.936.053	9.307.653.736	368.270	E71
2404	364.936.508	9.307.673.722	368.890	E72
2421	364.936.963	9.307.693.715	369.410	E73
2437	364.937.417	9.307.713.711	369.450	E74
2453	364.937.872	9.307.733.698	369.680	E75
2470	364.938.327	9.307.753.695	370.080	E76
2487	364.938.781	9.307.773.691	370.110	E77
2503	364.939.236	9.307.793.687	370.310	E78
2520	364.939.691	9.307.813.679	371.960	E79
2536	364.940.145	9.307.833.671	372.770	E80
2552	364.940.600	9.307.853.680	373.470	E81
2568	364.941.055	9.307.873.657	374.030	E82
2585	364.941.510	9.307.893.664	373.380	E83
2536	364.940.145	9.307.833.671	372.770	E80
2552	364.940.600	9.307.853.680	373.470	E81
2568	364.941.055	9.307.873.657	374.030	E82
2585	364.941.510	9.307.893.664	373.380	E83

0000068

5 - LEVANTAMENTO DA CALHA DO RIO E DO RIACHO DO SANGRADOURO

SEDE DO CONSÓRCIO: Rua Leonardo Mota, nº 699 – Aldeota – Fortaleza – Ceará - CEP: 60.170-040 - Brasil

A S T O P - ASSESSORIA, TOPOGRAFIA E PROJETOS LTDA.
Rua: Conego Pennafort, 359 - Sala 01 - Parquelandia
C.G.C. (MF): 00.110.838/0001-38 CEP: 60.455-620
TELEFONE: (085) 223-9632 - FORTALEZA - CEARA

C A L C U L O de P O L I G O N A L

Servico : BARRAGEM ARNEIROZ II. LEVANT. DA CALHA DO RIO
Local : RIO JAGUARIBE. FAZENDA CAICARA
Municipio : ARNEIROZ
Estado : CEARA UF. : CE

Aparelho : WILD T1 A Operador : JOSE RAIMUNDO
Cadernetas : UNICA poligonais : LINHA "A"

Saida :
Estacao : E37 Coordenada X : 365095.159 Coordenada Y : 9307035.605 Azimute : 330x44'31.82

Chegada :
Estacao : E1 Coordenada X : 365196.917 Coordenada Y : 9306388.290 Azimute : 330x21'29.45

ESTACAO	PONTO VISADO	ANGULO	DISTANCIA	AZIMUTE	COORDENADA ESTE	COORDENADA NORTE
E37	1A	270x00'00.00	61.770	60x44'40.64	365149.026	9307065.825
1A	2A	180x00'00.00	138.190	60x44'49.46	365269.538	9307133.429
2A	3A	180x00'00.00	50.200	60x44'58.29	365313.317	9307157.985
3A	4A	180x00'00.00	50.000	60x45'07.11	365356.923	9307182.442
4A	5A	200x55'00.00	50.000	81x40'15.93	365406.373	9307189.693
5A	6A	180x00'00.00	50.000	81x40'24.76	365455.824	9307196.941
6A	7A	180x00'00.00	50.000	81x40'33.58	365505.275	9307204.188
7A	8A	180x00'00.00	50.000	81x40'42.40	365554.726	9307211.432
8A	9A	270x00'00.00	50.090	171x40'51.23	365561.970	9307161.924
9A	10A	180x00'00.00	50.090	171x41'00.05	365569.212	9307112.416
10A	11A	180x00'00.00	50.070	171x41'08.87	365576.449	9307062.927
11A	12A	180x00'00.00	49.990	171x41'17.70	365583.672	9307013.517
12A	13A	180x00'00.00	48.970	171x41'26.52	365590.746	9306965.115
13A	14A	180x00'00.00	51.170	171x41'35.34	365598.135	9306914.537
14A	15A	180x00'00.00	19.980	171x41'44.17	365601.020	9306894.789
15A	16A	180x00'00.00	29.750	171x41'52.99	365605.313	9306865.383
16A	17A	180x00'00.00	50.180	171x42'01.81	365612.553	9306815.784

FORTALEZA - CE 19/04/2000

- CREA :

A S T O P - ASSESSORIA, TOPOGRAFIA E PROJETOS LTDA.
Rua: Conego Pennafort, 359 - Sala 01 - Parquelandia
C.G.C. (MF): 00.110.838/0001-38 CEP: 60.455-620
TELEFONE: (085) 223-9632 - FORTALEZA - CEARA

C A L C U L O de P O L I G O N A L

Servico : BARRAGEM ARNEIROZ II. LEVANT. DA CALHA DO RIO
Local : RIO JAGUARIBE. FAZENDA CAICARA
Municipio : ARNEIROZ
Estado : CEARA UF. : CE

Aparelho : WILD T1 A Operador : JOSE RAIMUNDO
Cadernetas : UNICA poligonais : LINHA "A"

Saida :
Estacao : E37 Coordenada X : 365095.159 Coordenada Y : 9307035.605 Azimute : 330x44'31.82

Chegada :
Estacao : E1 Coordenada X : 365196.917 Coordenada Y : 9306388.290 Azimute : 330x21'29.45

ESTACAO	PONTO VISADO	ANGULO	DISTANCIA	AZIMUTE	COORDENADA ESTE	COORDENADA NORTE
17A	18A	90x00'00.00	49.980	81x42'10.64	365661.988	9306823.004
18A	19A	180x00'00.00	49.990	81x42'19.46	365711.432	9306830.224
19A	20A	270x00'00.00	49.980	171x42'28.28	365718.637	9306780.821
20A	21A	180x00'00.00	49.990	171x42'37.11	365725.841	9306731.408
21A	22A	237x00'00.00	14.790	228x42'45.93	365714.723	9306721.660
22A	23A	180x00'00.00	35.000	228x42'54.75	365688.411	9306698.593
23A	24A	203x00'00.00	49.980	251x43'03.57	365640.932	9306682.931
24A	25A	180x00'00.00	25.400	251x43'12.40	365616.803	9306674.973
25A	26A	180x00'00.00	23.910	251x43'21.22	365594.089	9306667.483
26A	27A	180x00'00.00	49.920	251x43'30.04	365546.665	9306651.846
27A	28A	180x00'00.00	49.990	251x43'38.87	365499.175	9306636.190
28A	29A	180x00'00.00	50.050	251x43'47.69	365451.626	9306620.517
29A	30A	180x00'00.00	34.550	251x43'56.51	365418.802	9306609.699
30A	31A	180x00'00.00	50.050	251x44'05.34	365371.253	9306594.030
31A	32A	150x00'00.00	49.090	221x44'14.16	365338.558	9306557.439
32A	33A	180x00'00.00	50.500	221x44'22.98	365304.922	9306519.799
33A	34A	107x47'00.00	60.690	149x31'31.81	365335.688	9306467.551

FORTALEZA - CE 19/04/2000 ----------

- CREA :

A S T O P - ASSESSORIA, TOPOGRAFIA E PROJETOS LTDA.
Rua: Conego Pennafort, 359 - Sala 01 - Parquelandia
C.G.C. (MF): 00.110.838/0001-38 CEP: 60.455-620
TELEFONE: (085) 223-9632 - FORTALEZA - CEARA

C A L C U L O de P O L I G O N A L

Servico : BARRAGEM ARNEIROZ II. LEVANT. DA CALHA DO RIO
Local : RIO JAGUARIBE. FAZENDA CAICARA
Municipio : ARNEIROZ
Estado : CEARA UF. : CE

Aparelho : WILD T1 A Operador : JOSE RAIMUNDO
Cadernetas : UNICA poligonais : LINHA "A"

Saida :
Estacao : E37 Coordenada X : 365095.159 Coordenada Y : 9307035.605 Azimute : 330x44'31.82

Chegada :
Estacao : E1 Coordenada X : 365196.917 Coordenada Y : 9306388.290 Azimute : 330x21'29.45

ESTACAO	PONTO VISADO	ANGULO	DISTANCIA	AZIMUTE	COORDENADA ESTE	COORDENADA NORTE
34P	E1	270x42'00.00	159.800	240x13'40.63	365196.917	9306388.290
E1	E2	270x07'40.00	0.000	330x21'29.45	365196.917	9306388.290

FORTALEZA - CE 19/04/2000 ----------

- CREA :

100071

6 – RELATÓRIO DA ESTAÇÃO TOTAL DA LOCAÇÃO DA LINHA DE BASE (LB)

Nº DO PONTO	COORD. ESTE	COORD. NORTE	COTA	DESCRIÇÃO
1763	365.114.691	9.307.000.690	344.979	E-35
4877	365.009.997	9.306.942.117	345.750	0LB
4878	364.905.260	9.306.883.534	349.320	1LB
4879	364.800.523	9.306.824.955	350.140	2LB
4880	364.695.789	9.306.766.377	348.680	3LB
4881	364.591.043	9.306.707.788	347.740	4LB
4882	364.532.473	9.306.812.520	347.060	5LB
4889	364.473.906	9.306.917.246	348.960	6LB
4890	364.429.985	9.306.995.789	353.700	7LB
4891	364.415.346	9.307.021.971	354.040	8LB
4892	364.361.623	9.307.117.941	352.210	9ALB
4893	364.356.732	9.307.126.684	351.560	9LB
4894	364.298.136	9.307.231.374	345.340	10LB
4895	364.239.535	9.307.336.084	348.810	11LB
4896	364.134.804	9.307.277.488	351.380	12LB
4897	364.030.103	9.307.218.901	351.750	13LB
4898	363.986.164	9.307.297.420	357.730	14LB
4899	363.971.516	9.307.323.584	358.610	15LB
4900	363.952.840	9.307.356.981	358.400	16LB
4901	363.912.933	9.307.428.315	353.570	17LB
4902	363.854.365	9.307.533.021	347.150	18LB
4903	363.749.630	9.307.474.431	351.220	19LB
4904	363.691.088	9.307.579.163	348.050	20LB
4905	363.632.537	9.307.683.901	350.130	21LB
4906	363.600.664	9.307.740.929	350.360	22LB
4907	363.573.522	9.307.789.525	347.440	23LB
4908	363.560.576	9.307.812.654	347.070	24LB
4909	363.514.975	9.307.894.242	348.130	25LB
4910	363.456.441	9.307.998.978	345.760	26LB
4911	363.430.824	9.308.044.830	345.230	27LB
4912	363.417.419	9.308.068.802	349.690	AUX
4913	363.397.863	9.308.103.689	351.620	28LB
4914	363.377.075	9.308.140.774	354.900	29LB
4915	363.339.169	9.308.208.347	345.560	30LB
4917	363.300.044	9.308.278.125	348.450	31LB
4918	363.241.343	9.308.382.768	349.470	32LB
4919	363.182.647	9.308.487.413	349.990	33LB
4920	363.123.937	9.308.592.085	348.770	34LB
4921	363.065.234	9.308.696.715	349.800	35LB
4922	362.960.569	9.308.638.002	351.160	36LB
4923	362.915.835	9.308.717.795	354.090	37LB
4924	362.901.885	9.308.742.666	351.670	38LB
4925	362.784.528	9.308.951.976	350.160	40LB
4926	362.725.854	9.309.056.622	354.030	41LB
4927	362.667.173	9.309.161.287	356.090	42LB
4928	362.771.869	9.309.219.971	352.370	44LB
4930	362.876.546	9.309.278.628	351.640	45LB
4931	362.947.225	9.309.318.216	350.680	AUX2
4932	362.888.580	9.309.422.890	352.020	46LB
4933	362.922.603	9.309.441.956	351.030	47LB
4934	362.863.941	9.309.546.620	352.010	48LB
4935	362.839.500	9.309.590.231	350.580	49LB
4936	362.805.285	9.309.651.276	349.540	50LB
4937	362.746.570	9.309.755.899	352.290	51LB
4938	362.687.878	9.309.860.547	351.400	52LB

Nº DO PONTO	COORD. ESTE	COORD. NORTE	COTA	DESCRIÇÃO
4939	362.629.193	9.309.965.210	351.094	53LB
4940	362.570.530	9.310.069.851	353.070	54LB
4941	362.511.839	9.310.174.510	352.670	55LB
4942	362.487.904	9.310.217.247	352.220	AUX4
4943	362.453.706	9.310.278.313	347.410	56LB
4945	362.438.970	9.310.270.060	353.430	AUX5
4946	362.383.908	9.310.239.222	358.460	57LB
4947	362.349.008	9.310.219.677	360.080	58LB
4948	362.323.422	9.310.265.380	360.705	59LB
4949	362.290.343	9.310.324.467	356.770	60LB
4950	362.231.682	9.310.429.249	357.660	61LB
4951	362.207.254	9.310.472.884	360.040	62LB
4952	362.173.040	9.310.533.996	361.380	63LB
4953	362.153.489	9.310.568.917	363.890	64LB
4954	362.114.391	9.310.638.750	365.390	65LB
4955	362.055.774	9.310.743.522	364.420	66LB
4956	361.997.157	9.310.848.294	356.500	67LB
4957	361.968.842	9.310.898.915	355.890	68LB
4958	361.938.547	9.310.953.070	351.820	69LB
4959	361.905.877	9.311.011.469	350.760	AUX7
4960	361.879.929	9.311.057.853	350.460	70LB
4961	361.821.305	9.311.162.644	352.300	71LB
4962	361.762.720	9.311.267.457	352.760	72LB
4963	361.704.150	9.311.372.244	354.220	73LB
4964	361.645.563	9.311.477.056	353.660	74LB
4965	361.586.991	9.311.581.841	357.370	75LB
4966	361.528.407	9.311.686.644	369.210	76LB
4967	361.423.645	9.311.628.112	371.780	77LB
4968	361.353.795	9.311.589.086	369.520	78LB
4969	361.318.874	9.311.569.575	366.980	79LB
4970	361.214.051	9.311.511.008	361.950	80LB
4971	361.196.644	9.311.501.280	359.810	AUX8
4972	361.109.369	9.311.452.517	354.442	81LB
4973	361.050.789	9.311.557.309	360.810	82LB
4974	360.992.198	9.311.662.119	367.370	83LB
4975	360.933.611	9.311.766.919	371.620	84LB
4976	360.846.311	9.311.718.138	365.360	85LB
4977	360.724.075	9.311.649.835	357.230	87LB
4978	360.675.236	9.311.737.194	366.450	88LB
4979	360.606.887	9.311.859.451	369.480	89LB
4980	360.548.298	9.311.964.250	374.810	90LB
4981	360.443.540	9.311.905.711	366.540	91LB
4982	360.383.504	9.311.872.163	369.550	92LB
4983	360.338.781	9.311.847.172	368.810	93LB
4984	360.234.014	9.311.788.628	359.550	95LB
4985	360.175.423	9.311.893.426	369.530	97LB
4986	360.136.363	9.311.963.291	374.710	98LB
4987	360.116.832	9.311.998.224	375.690	99LB
4988	360.012.083	9.311.939.689	365.610	100LB
4989	359.952.389	9.311.906.330	363.060	AUX9
4990	359.907.327	9.311.881.147	368.450	101LB
4991	359.863.687	9.311.856.756	371.720	102LB
4992	359.828.759	9.311.837.240	370.110	103LB
4993	359.802.561	9.311.822.600	366.500	104LB
4994	359.697.805	9.311.764.057	357.650	105LB

Nº DO PONTO	COORD. ESTE	COORD. NORTE	COTA	DESCRIÇÃO
4995	359.593.050	9.311.705.514	358.030	106LB
4996	359.555.154	9.311.684.336	358.680	AUX10
4997	359.488.294	9.311.646.970	358.850	107LB
4999	359.383.548	9.311.588.430	358.930	108LB
5000	359.313.711	9.311.549.400	359.920	109LB
5001	359.278.802	9.311.529.890	362.570	110LB
5002	359.174.056	9.311.471.349	363.530	111LB
5003	359.069.293	9.311.412.798	374.040	112LB
5004	359.019.091	9.311.502.578	364.530	AUX12
5005	359.010.720	9.311.517.550	367.200	113LB
5006	358.976.557	9.311.578.664	370.440	114LB
5007	358.952.156	9.311.622.318	367.140	115LB
5008	358.918.000	9.311.683.436	365.460	AUX13
5009	358.893.595	9.311.727.110	361.740	116LB
5011	358.849.683	9.311.805.704	364.030	AUX14
5012	358.835.049	9.311.831.900	363.360	117LB
5013	358.776.519	9.311.939.687	362.290	119LB
5014	358.759.928	9.311.966.395	359.900	AUX15
5016	358.717.995	9.312.041.489	359.190	121LB
5017	358.694.566	9.312.083.451	359.300	AUX16
5018	358.659.573	9.312.063.976	359.000	AUX17
5019	358.624.524	9.312.126.853	358.910	123LB
5020	358.554.538	9.312.087.940	364.230	124LB
5021	358.449.548	9.312.029.573	365.070	126LB
5022	358.344.572	9.311.971.221	370.040	128LB
5023	358.239.593	9.311.912.875	370.180	130LB
5024	358.165.216	9.311.871.542	367.700	AUX18
5025	358.134.601	9.311.854.532	365.090	131LB
5026	358.029.612	9.311.796.203	362.450	132LB
5027	357.971.246	9.311.901.093	362.840	133LB
5028	357.954.532	9.311.931.133	358.350	AUX19
5029	357.912.915	9.312.005.944	358.770	134LB
5030	357.854.562	9.312.110.853	360.370	135LB
5031	357.796.215	9.312.215.765	362.580	137LB
5032	357.737.889	9.312.320.653	363.070	138LB
5033	357.679.559	9.312.425.563	383.270	140LB
5034	357.621.230	9.312.530.484	371.020	141LB
5035	357.596.942	9.312.574.178	374.810	142LB
5036	357.562.919	9.312.635.393	368.160	143LB
5037	357.494.905	9.312.757.784	369.540	145LB
5038	357.446.349	9.312.845.171	372.900	146LB
5039	357.376.979	9.312.805.174	373.230	147LB
5040	357.342.284	9.312.785.173	368.260	148LB
5041	357.255.566	9.312.735.187	364.210	149LB
5042	357.238.005	9.312.725.066	360.540	150LB
5043	357.116.809	9.312.655.224	362.250	152LB
5044	357.030.010	9.312.605.358	360.700	153LB
5045	356.989.176	9.312.678.282	364.380	AUX1
5046	356.971.385	9.312.710.054	366.720	154LB
5047	356.952.831	9.312.743.188	366.190	AUX2
5048	356.912.763	9.312.814.741	361.800	155LB
5049	356.854.134	9.312.919.436	361.510	156LB
5050	356.797.811	9.313.020.013	360.670	157LB
5051	356.773.505	9.313.063.413	361.060	AUX3
5052	356.736.863	9.313.128.840	359.780	158LB

Nº DO PONTO	COORD. ESTE	COORD. NORTE	COTA	DESCRIÇÃO
5053	356.760.784	9.313.142.221	361.780	AUX4
5054	356.841.480	9.313.187.362	366.110	AUX5
5055	356.757.537	9.313.337.242	366.310	AUX6
5056	356.665.589	9.313.501.409	370.630	162LB
5057	356.606.957	9.313.606.090	372.180	163LB
5058	356.459.406	9.313.523.662	361.680	164LB
5059	356.415.584	9.313.499.180	364.680	AUX7
5060	356.397.169	9.313.488.892	367.400	165LB
5061	356.383.194	9.313.513.840	368.710	AUX8
5062	356.338.537	9.313.593.561	362.090	167LB
5063	356.373.491	9.313.613.120	361.920	168LB
5064	356.460.921	9.313.662.039	366.750	169LB
5065	356.530.306	9.313.700.863	369.600	170LB
5066	356.503.863	9.313.748.063	375.300	171LB
5067	356.485.029	9.313.781.681	376.120	AUX9
5068	356.471.659	9.313.805.547	373.760	172LB
5069	356.366.784	9.313.746.944	365.050	173LB
5070	356.336.904	9.313.800.275	366.780	AUX10
5071	356.308.137	9.313.851.616	366.490	177LB
5072	356.249.483	9.313.956.297	362.100	179LB
5073	356.200.603	9.314.043.531	360.500	180LB
5074	356.249.109	9.314.070.679	364.180	181LB
5075	356.327.808	9.314.114.725	366.030	182LB
5076	356.409.793	9.314.160.612	367.910	183LB
5077	356.356.046	9.314.256.523	367.910	AUX12
5078	356.351.139	9.314.265.281	364.440	184LB
5079	356.395.224	9.314.289.957	366.130	185LB
5080	356.455.722	9.314.323.821	367.250	186LB
5081	356.373.923	9.314.469.778	366.880	187LB
5082	356.315.972	9.314.573.179	366.010	188LB
5083	356.192.828	9.314.792.898	367.570	189LB
5084	356.098.274	9.314.961.608	368.760	190LB
5085	355.917.958	9.315.283.332	368.320	198LB
5086	355.876.743	9.315.185.358	365.350	199LB

7 – RELATÓRIO DA ESTAÇÃO TOTAL DA LOCAÇÃO DA LINHA DE BASE (LB1)

Nº DO PONTO	COORD. ESTE	COORD. NORTE	COTA	DESCRIÇÃO
4909	363514.9750	9307894.2420	348.13	25LB
5517	363453.4794	9307860.0678	350.48	1LB1
5518	363409.8367	9307835.6530	347.01	2LB1
5156	363305.2868	9307776.6505	347.51	3LB1
5155	363297.9578	9307789.7512	347.49	AUX-1
5154	363193.2381	9307731.1676	347.12	AUX-2
5151	362948.3382	9307576.9727	351.06	11LB1
5150	362937.3757	9307570.8403	353.87	AUX-5
5148	362886.3771	9307542.3102	252.72	12LB1
5147	362852.0206	9307523.0902	353.67	AUX-6
5149	362781.6484	9307483.7216	351.77	AUX-7
5145	362664.4683	9307693.1870	350.95	15LB1
5144	362551.0194	9307629.7195	356.84	16LB1
5143	362456.0040	9307576.5646	359.41	AUX-8
5142	362412.2613	9307552.0928	358.67	17LB1
5141	362307.5337	9307493.5043	353.34	18LB1
5140	362202.8080	9307434.9177	349.85	19LB1
5139	362098.0763	9307376.3271	350.29	20LB1
5138	361993.3566	9307317.7426	350.35	21LB1
5137	361888.6210	9307259.1490	351.20	22LBS
5136	361783.8963	9307200.5624	353.09	23LB1
5117	361679.1686	9307141.9739	356.79	24LB1
5116	361609.3525	9307102.9162	359.21	25LB1
5115	361574.4469	9307083.3893	359.50	26LB1
5114	361539.5444	9307063.8635	359.50	AUX-9
5113	361487.1735	9307034.5647	355.51	27LB1
5112	361469.7083	9307024.7938	353.69	28LB1
5110	361392.0201	9306981.3329	352.57	AUX-10
5108	361260.5019	9306907.7546	353.81	31LB1
5107	361155.5472	9306849.0391	355.92	32LB1
5106	361111.6016	9306927.5923	361.16	33LB1
5105	361096.9557	9306953.7727	360.71	34LB1
5104	360992.2240	9306895.1832	359.93	35LB1
5103	360887.5003	9306836.5976	361.39	36LB1
5102	360782.7777	9306778.0120	364.07	38LB1
5101	360746.4089	9306757.6665	364.09	AUX-13
5100	360678.0510	9306719.4255	362.41	39LB1
5099	360609.8811	9306681.2894	363.51	AUX-14
5098	360573.3223	9306660.8369	362.37	40LB1

000078

8 – RELATÓRIO DA ESTAÇÃO TOTAL DA LOCAÇÃO DA LINHA DE BASE (LB2)

000079

Nº DO PONTO	COORD. ESTE	COORD. NORTE	COTA	DESCRIÇÃO
5117	361679.1686	9307141.9739	356.79	24LB1
5118	361620.5790	9307246.7036	359.97	1LB2
5119	361605.9332	9307272.8830	359.34	2LB2
5120	361581.5243	9307316.5157	357.23	3LB2
5121	361529.9468	9307408.7107	353.41	4LB2
5122	361464.3502	9307525.9660	354.28	5LB2
5123	361405.7606	9307630.6967	360.96	6LB2
5124	361370.8741	9307611.1798	359.38	7LB2
5125	361301.0350	9307572.1091	354.70	8LB2
5126	361242.4454	9307676.8388	357.66	9LB2
5127	361137.7177	9307618.2512	361.31	10LB2
5128	361095.5623	9307693.6041	362.98	AUX-1
5129	361079.1332	9307722.9709	363.34	11LB2
5130	361030.3095	9307810.2453	366.27	12LB2
5131	361020.5376	9307827.7126	365.87	13LB2
5132	360961.9590	9307932.4213	366.13	14LB2
5133	360903.3675	9308037.1549	365.67	15LB2
5134	360844.7799	9308141.8786	369.17	16LB2

000081

9 – RELATÓRIO DA ESTAÇÃO TOTAL DA LOCAÇÃO DA LINHA DE BASE (LBJ)

Nº DO PONTO	COORD. ESTE	COORD. NORTE	COTA	DESCRIÇÃO
4925	362784.5280	9308951.9760	350.16	40LB
4846	362671.1202	9308888.4435	350.70	1LBJ
4848	362566.4105	9308829.7839	350.12	2LBJ
4849	362466.0954	9308773.5863	350.19	3LBJ
4850	362396.2982	9308734.4836	351.91	4LBJ
4851	362361.4027	9308714.9347	351.08	5LBJ
4852	362300.3021	9308824.0020	353.91	6LBJ
4853	362241.6526	9308928.6917	356.37	7LBJ
4854	362212.3308	9308981.0325	354.63	8LBJ
4855	362187.8849	9309024.6692	351.56	9LBJ
4856	362126.7904	9309133.7255	352.82	10LBJ
4857	362068.1418	9309238.4152	363.07	11LBJ
4858	362034.8157	9309297.9040	364.46	12LBJ
4859	362009.4932	9309343.1059	362.74	13LBJ
4860	361959.1652	9309432.9436	356.88	AUX-1
4861	361950.8507	9309447.7855	354.20	14LBJ
4862	361881.0675	9309408.6928	358.63	15LBJ
4863	361741.4843	9309330.4964	362.82	17LBJ
4864	361636.7976	9309271.8498	367.14	18LBJ
4865	361532.1009	9309213.1973	367.84	19LBJ
4866	361497.1954	9309193.6434	371.87	20LBJ
4867	361427.3962	9309154.5417	373.55	21LBJ
4868	361375.0534	9309125.2189	372.54	22LBJ
4869	361270.3657	9309066.5723	368.51	23LBJ
4870	361209.2917	9309032.3576	366.20	24LBJ
4871	361149.9650	9308999.1214	370.32	25LBJ
4872	361085.1945	9308962.8365	364.67	AUX-2
4873	361045.2623	9308940.4659	367.94	26LBJ
4874	360943.1899	9308883.2847	371.46	27LBJ
4875	360803.6077	9308805.0892	365.33	30LBJ
4883	360799.2401	9308802.6423	365.40	AUX-3
4885	360778.4548	9308839.7431	373.10	AUX-4
4884	360782.8223	9308842.1901	378.42	AUX-5
4886	360767.5877	9308869.3846	376.05	31LBJ
118	360626.9331	9309119.9784	384.85	.
119	360626.9331	9309119.9784	384.85	.
120	360648.1381	9309082.4304	384.94	.
121	360648.1381	9309082.4304	384.94	.
122	360648.1371	9309082.4314	384.94	.
4887	360730.2972	9308935.9493	377.76	33LBJ
4888	360642.3188	9309092.9929	385.30	35LBJ
4916	360627.6590	9309119.1613	385.56	36LBJ
4929	360608.1071	9309154.0629	381.78	37LBJ
4944	360569.0104	9309223.8520	381.23	38LBJ
4998	360549.4605	9309258.7486	378.09	39LBJ
5010	360515.2508	9309319.8175	375.59	40LBJ
5015	360451.7122	9309433.2364	366.90	42LBJ
5087	360373.1960	9309389.2507	366.70	43LBJ
5088	360324.1856	9309361.7941	365.88	AUX-6
5089	360287.1567	9309341.0498	365.82	44LBJ
5090	360243.2020	9309316.4250	365.29	45LBJ
5091	360192.7304	9309288.1508	366.86	AUX-7
5092	360138.5103	9309257.7754	369.86	46LBJ
5093	360197.1619	9309153.0798	370.62	47LBJ
177	360781.8361	9308842.3924	373.42	.

178	360781.8361	9308842.3924	373.42	.
179	360777.4691	9308839.9444	373.09	.
5094	360089.5445	9309099.9899	366.79	48LBJ
5095	359973.4926	9309130.5290	370.44	49LBJ
5096	359970.0355	9309117.3898	371.59	AUX-8
5097	359912.4224	9308898.4302	369.35	51LBJ

10 – RELATÓRIO DA ESTAÇÃO TOTAL DO LEVANTAMENTO DAS ESTRADAS

000084

SEDE DO CONSÓRCIO: Rua Leonardo Mota, nº 699 – Aldeota – Fortaleza – Ceará - CEP: 60.170-040 - Brasil

Nº DO PONTO	COORD. ESTE	COORD. NORTE	COTA	DESCRIÇÃO
5168	361835.0809	9305836.1575	389.92	ESTRADA
5169	361905.1648	9305852.8601	390.68	ESTRADA
5170	361975.7459	9305857.3946	390.75	ESTRADA
5171	362042.7905	9305872.9760	390.55	ESTRADA
5172	362149.9017	9305895.1110	388.99	ESTRADA
5173	362183.0520	9305905.0433	388.12	ESTRADA
5174	362253.7643	9305915.0538	386.73	ESTRADA
5175	362322.6688	9305917.0657	386.64	ESTRADA
5176	362432.0637	9305998.0582	387.19	ESTRADA
5177	362535.4744	9306043.7610	388.65	ESTRADA
5178	362599.2541	9306072.4182	388.57	ESTRADA
5179	362664.5718	9306118.3269	388.58	ESTRADA
5180	362783.7188	9306174.0561	388.47	ESTRADA
5181	362853.4350	9306187.9538	387.97	ESTRADA
5182	362883.3366	9306199.0549	387.73	ESTRADA
5183	362945.5163	9306236.4234	387.31	ESTRADA
5184	363058.0608	9306293.9471	386.83	ESTRADA
5185	363174.1295	9306404.3970	385.57	ESTRADA
5186	363116.3901	9306329.7825	386.45	ESTRADA
5187	363280.6086	9306575.9592	384.44	ESTRADA
5188	363289.7984	9306604.9880	383.72	ESTRADA
5189	363314.9385	9306644.3802	382.89	ESTRADA
5190	363350.9624	9306673.5548	382.00	ESTRADA
5191	363375.5839	9306688.9480	381.53	ESTRADA
5192	363432.6430	9306714.9167	381.07	ESTRADA
5193	363458.3895	9306738.3957	380.91	ESTRADA
5194	363483.3198	9306769.6649	380.74	ESTRADA
5195	363508.9836	9306824.4899	380.06	ESTRADA
5196	363526.6910	9306856.3008	378.60	ESTRADA
5197	363544.5567	9306902.3446	377.76	ESTRADA
5198	363566.9204	9306926.5794	377.10	ESTRADA
5199	363586.3414	9306948.0008	375.99	ESTRADA
5200	363625.9005	9306995.5696	375.06	ESTRADA
5201	363641.7212	9307007.0309	374.09	ESTRADA
5202	363659.9278	9307018.3877	373.10	ESTRADA
5203	363695.9010	9307032.0023	371.40	ESTRADA
5204	363739.2285	9307046.7942	369.79	ESTRADA
5205	363749.0677	9307051.9129	369.40	ESTRADA
5206	363763.2623	9307054.6386	368.88	ESTRADA
5207	363813.8735	9307053.5611	367.07	ESTRADA
5208	363859.3494	9307055.1171	365.07	ESTRADA
5209	363902.4762	9307062.9531	362.93	ESTRADA
5210	363937.3939	9307074.2709	361.22	ESTRADA
5211	363977.5392	9307092.7156	359.39	ESTRADA
5212	364037.5365	9307136.7686	356.78	ESTRADA
5213	364063.4740	9307160.5475	355.64	ESTRADA
5214	364100.5833	9307191.7769	353.98	ESTRADA
5217	364227.1704	9307286.5793	347.48	ESTRADA
5218	364260.3055	9307269.8286	345.21	ESTRADA
5219	364172.7996	9307334.4360	348.30	ESTRADA
5220	364206.9950	9307310.3350	348.20	ESTRADA
5222	364109.5101	9307366.4738	346.33	ESTRADA
5223	363965.2937	9307472.0024	349.67	ESTRADA
5224	364004.8920	9307456.2132	349.92	ESTRADA
5225	364047.6640	9307430.3292	349.06	ESTRADA

5226	363872.5152	9307487.2151	347.79	ESTRADA
5227	363819.5689	9307507.3424	348.63	ESTRADA
5229	363779.7966	9307540.1927	347.93	ESTRADA
5230	363738.8557	9307549.0663	346.69	ESTRADA
5231	363720.8179	9307554.1895	346.82	ESTRADA
5236	363702.0992	9307568.5578	347.41	ESTRADA
5237	363665.9239	9307618.5443	348.46	ESTRADA
5238	363637.3700	9307644.9550	349.56	ESTRADA
5239	363607.8879	9307657.2018	350.45	ESTRADA
5241	363572.3590	9307670.6381	350.67	ESTRADA
5242	363540.1764	9307685.0856	349.41	ESTRADA
5243	363517.5784	9307689.2869	348.90	ESTRADA
5244	363453.7555	9307702.8388	347.48	ESTRADA
5245	363428.4944	9307710.8897	348.44	ESTRADA
5247	363379.1985	9307737.1232	348.42	ESTRADA
5248	363317.2921	9307756.8596	347.45	ESTRADA
5249	363288.2538	9307772.3484	347.56	ESTRADA
5250	363277.1589	9307789.9300	347.41	ESTRADA
5251	363238.4481	9307833.6730	346.75	ESTRADA
5252	363195.4826	9307870.2471	349.54	ESTRADA
5253	363152.5152	9307954.2901	352.95	ESTRADA
5257	363145.2615	9308006.8328	350.68	ESTRADA
5260	363130.1748	9308124.1723	357.06	ESTRADA
5261	363105.2678	9308170.9741	357.53	ESTRADA
5263	363077.2933	9308216.2127	354.30	ESTRADA
5264	363050.6324	9308250.7419	353.57	ESTRADA
5265	362985.2029	9308304.5572	351.37	ESTRADA
5266	362962.0871	9308339.4416	349.63	ESTRADA
5267	362935.0023	9308408.9669	350.17	ESTRADA
5268	362931.9507	9308436.5936	350.84	ESTRADA
5269	362936.4329	9308449.9985	350.93	ESTRADA
5270	362950.7110	9308476.1672	350.86	ESTRADA
5271	362961.8573	9308511.8796	350.85	ESTRADA
5272	362962.9300	9308527.7904	351.07	ESTRADA
5273	362949.6157	9308569.2565	352.36	ESTRADA
5274	362925.9679	9308613.1140	353.06	ESTRADA
5275	362909.8141	9308635.3238	353.05	ESTRADA
5276	362879.8675	9308667.0417	352.92	ESTRADA
5277	362848.4366	9308688.7981	351.92	ESTRADA
5278	362841.4203	9308700.5737	351.41	ESTRADA
5279	362847.0852	9308738.7044	350.71	ESTRADA
5280	362881.5264	9308769.5474	351.27	ESTRADA
5281	362893.9424	9308773.7145	351.58	ESTRADA
5282	362905.3171	9308772.4918	350.74	ESTRADA
5283	362917.7098	9308788.3029	349.46	ESTRADA
5284	362899.7451	9308789.3581	352.08	ESTRADA
5285	362926.2393	9308820.1909	345.67	ESTRADA
5286	363133.3864	9308927.9086	347.40	ESTRADA
5287	363147.0649	9308951.3184	348.69	ESTRADA
5288	363153.4402	9308982.9219	349.90	ESTRADA
5289	363148.9044	9309013.5030	350.78	ESTRADA
5290	363151.2863	9309034.4624	351.69	ESTRADA
5291	363157.8749	9309050.0889	352.66	ESTRADA
5292	363194.0426	9309095.8124	355.05	ESTRADA
5293	363204.7716	9309113.0009	356.05	ESTRADA
5294	363207.7546	9309126.0842	358.86	ESTRADA

5295	363224.6274	9309163.5703	358.67	ESTRADA
5296	363231.7962	9309171.2286	359.11	ESTRADA
5297	363254.4583	9309184.7683	360.23	ESTRADA
5298	363320.6152	9309231.2689	365.86	ESTRADA
5299	363379.2405	9309253.8632	369.76	ESTRADA
5300	363404.5649	9309268.6713	371.36	ESTRADA
5301	363446.4962	9309295.6695	374.11	ESTRADA
5302	363481.1044	9309322.0135	376.06	ESTRADA
5303	362887.8243	9308871.9619	350.98	ESTRADA
5304	362865.7733	9308961.6300	351.10	ESTRADA
5305	362824.3232	9309038.4197	351.12	ESTRADA
5306	362813.2814	9309082.1153	350.96	ESTRADA
5307	362809.5204	9309112.4572	350.96	ESTRADA
5308	362797.3722	9309128.4110	350.95	ESTRADA
5309	362743.1786	9309160.3387	352.39	ESTRADA
5310	362671.7522	9309192.6603	356.24	ESTRADA
5311	362657.2225	9309211.2917	357.48	ESTRADA
5312	362589.1188	9309400.9796	362.69	ESTRADA
5313	362567.0664	9309446.7318	365.25	ESTRADA
5314	362518.3695	9309545.4351	364.66	ESTRADA
5315	362501.6262	9309582.6260	365.15	ESTRADA
5316	362483.2325	9309614.0773	366.03	ESTRADA
5317	362451.0776	9309665.8398	366.10	ESTRADA
5318	362431.0826	9309704.7345	364.51	ESTRADA
5319	362410.3051	9309749.4213	362.95	ESTRADA
5320	362386.8117	9309782.0658	361.97	ESTRADA
5321	362329.4212	9309831.3372	360.49	ESTRADA
5322	362283.4841	9309865.2679	360.12	ESTRADA
5323	362247.4571	9309895.0863	360.59	ESTRADA
5324	362196.2841	9309951.0683	363.56	ESTRADA
5325	362171.9148	9309970.9210	364.63	ESTRADA
5326	362144.3103	9309999.0394	366.54	ESTRADA
5327	362036.7755	9310123.9495	373.19	ESTRADA
5328	361985.7780	9310164.7924	369.56	ESTRADA
5329	361946.7649	9310190.1145	366.04	ESTRADA
5330	361909.3481	9310225.1893	368.73	ESTRADA
5331	361883.5768	9310245.4233	372.45	ESTRADA
5332	361860.1843	9310255.9907	375.43	ESTRADA
5333	361843.4211	9310268.1186	377.65	ESTRADA
5334	361829.6898	9310288.1578	379.14	ESTRADA
5335	361817.7497	9310309.0916	379.92	ESTRADA
5336	361810.4595	9310316.8523	380.23	ESTRADA
5337	361780.1510	9310331.8914	381.30	ESTRADA
5338	361798.3803	9310324.9092	380.62	ESTRADA
5339	361726.6021	9310345.2529	382.01	ESTRADA
5340	361706.3081	9310353.8496	381.19	ESTRADA
5341	361685.6532	9310367.1535	380.62	ESTRADA
5450	364368.9899	9307181.4692	348.42	ESTRADA
5451	364417.5187	9307137.7499	349.47	ESTRADA
5452	364446.3176	9307120.1332	349.15	ESTRADA
5453	364475.7614	9307106.4553	349.42	ESTRADA
5454	364506.9388	9307082.6200	349.16	ESTRADA
5455	364554.0714	9307037.9000	348.17	ESTRADA
5456	364601.8609	9307014.2149	346.73	ESTRADA
5457	364636.5355	9306978.1468	345.94	ESTRADA
5458	364660.3807	9306944.8312	345.87	ESTRADA

5459	364690.8390	9306915.9881	343.98	ESTRADA
5460	364723.0468	9306898.3246	344.33	ESTRADA
5461	364765.7026	9306888.5336	346.30	ESTRADA
5462	364852.2007	9306872.1535	350.04	ESTRADA
5463	364874.5429	9306877.1482	349.87	ESTRADA
5464	364931.0489	9306902.9541	347.78	ESTRADA
5465	364981.5826	9306940.1593	346.69	ESTRADA
5466	365008.0445	9306948.3211	345.53	ESTRADA
5467	365133.1244	9306969.3619	344.97	ESTRADA
5519	364875.7272	9306865.5750	350.12	E-2B
5520	364722.0330	9306894.8018	344.57	E-3B
5521	364612.1886	9307017.1135	346.50	E-4B
5522	364462.3786	9307102.8374	350.11	E-5B
5523	364207.8622	9307307.1398	348.41	1E
5524	364025.8153	9307449.1333	349.79	E-6B
5525	363805.4306	9307535.8347	348.92	E-7B
5526	363422.7845	9307711.4180	348.86	E-9B
5527	363592.8358	9307673.8953	350.97	E-8B
5528	363155.5021	9307906.5044	352.92	E-10B
5529	363127.2585	9308144.0160	357.61	E-11B
5530	363107.0820	9308171.7977	357.65	E-12B
5531	363047.9538	9308256.8195	353.41	E-13B
5532	362971.9476	9308315.8782	351.21	E-14B
5533	362928.2470	9308424.6794	350.85	E-15B
5534	362909.6646	9308641.8118	352.90	E-17B
5535	362853.1172	9308699.8670	352.30	E-18B
5536	362653.3404	9309215.2186	357.75	E-19B
5537	362584.6412	9309415.8657	363.63	E-20B
5538	362555.4479	9309470.1125	366.23	E-21B
5539	362484.2101	9309616.8071	366.14	E-22B
5540	362447.6961	9309668.0346	366.08	E-23B
5541	362393.3599	9309778.5043	362.26	E-24B
5542	362230.4302	9309908.7073	361.52	E-25B
5543	362088.0509	9310065.7596	369.86	E-26B
5544	362031.6868	9310133.6216	373.83	E-27B
5545	361831.6057	9310289.3376	379.13	E-28B
5546	361798.9347	9310326.5250	380.84	E-29B
5547	361725.4638	9310343.8482	382.14	E-30B
284	361249.8301	9305640.0984	392.54	.
285	361327.4701	9305646.3144	393.58	.
5157	361250.0691	9305639.7870	392.54	25E
5158	361270.0564	9305641.1933	394.02	ESTRADA
5159	361327.4701	9305646.3144	393.58	24E
5160	361354.6043	9305649.1596	394.07	23E
5162	361371.4219	9305656.0707	394.99	ESTRADA
5163	361511.4683	9305730.6750	393.96	22E
5165	361531.6468	9305737.1573	393.31	ESTRADA
5166	361622.3402	9305747.2891	391.67	21E
5167	361621.8126	9305749.3472	391.44	ESTRADA
5343	361634.4001	9310396.7494	378.31	ESTRADA
5344	361619.3393	9310401.8969	377.43	ESTRADA
5345	361570.6186	9310433.1053	374.93	ESTRADA
5346	361526.8263	9310449.0795	375.37	ESTRADA
5347	361454.5881	9310456.5714	378.56	ESTRADA
5348	361421.2088	9310455.5692	379.67	ESTRADA
5349	361374.0344	9310449.6922	380.64	ESTRADA

5350	361345.1170	9310443.2789	380.83	ESTRADA
5351	361241.5523	9310414.7501	381.24	ESTRADA
5352	361172.6018	9310386.9982	382.11	ESTRADA
5353	361114.7219	9310365.9537	382.74	ESTRADA
5354	361056.1364	9310359.4594	383.58	ESTRADA
5355	360948.6230	9310374.8924	382.33	ESTRADA
5356	360895.7282	9310375.7368	382.50	ESTRADA
5357	360826.2569	9310374.3600	381.17	ESTRADA
5358	360786.5986	9310385.9533	383.02	ESTRADA
5359	360744.9992	9310380.1950	384.39	ESTRADA
5360	360666.1303	9310367.9144	386.21	ESTRADA
5361	360622.7202	9310375.7535	387.61	ESTRADA
5362	360531.9328	9310404.1267	390.75	ESTRADA
5363	360491.8045	9310420.1700	392.31	ESTRADA
5364	360452.3541	9310431.0972	393.09	ESTRADA
5365	360402.6911	9310452.7968	393.70	ESTRADA
5366	360341.9525	9310484.4970	393.95	ESTRADA
5367	360300.5839	9310503.3517	394.44	ESTRADA
5368	360164.2239	9310558.7075	396.20	ESTRADA
5369	360115.7772	9310581.7758	397.24	ESTRADA
5370	360083.9543	9310599.0332	398.13	ESTRADA
5371	360056.5049	9310618.9576	398.95	ESTRADA
5372	359961.5455	9310630.1948	401.33	ESTRADA
5373	359992.5981	9310675.4605	400.82	ESTRADA
5374	359915.2513	9310736.2266	399.24	ESTRADA
5375	359891.7099	9310756.1401	397.92	ESTRADA
5376	359837.2555	9310809.9488	395.12	ESTRADA
5377	359819.8890	9310833.6018	394.32	ESTRADA
5378	359741.3628	9310991.4552	389.97	ESTRADA
5379	359701.1473	9311049.3026	386.54	ESTRADA
5380	359675.8196	9311093.3985	383.03	ESTRADA
5381	359624.5284	9311148.2944	378.58	ESTRADA
5382	359589.9649	9311171.7275	376.65	ESTRADA
5383	359529.0077	9311222.2167	372.98	ESTRADA
5384	359506.9797	9311243.7849	371.60	ESTRADA
5385	359466.5749	9311287.6953	368.31	ESTRADA
5386	359371.8823	9311362.1104	359.23	ESTRADA
5387	359352.1637	9311372.1750	358.92	ESTRADA
5388	359331.5411	9311378.5468	359.62	ESTRADA
5389	359292.8753	9311409.0888	362.95	ESTRADA
5390	359268.1059	9311428.9126	363.17	ESTRADA
5391	359237.1975	9311457.3528	362.90	ESTRADA
5392	359222.6054	9311473.8702	361.60	ESTRADA
5393	359210.2491	9311494.1391	360.34	ESTRADA
5394	359055.8889	9311608.8601	360.53	ESTRADA
5395	359025.0530	9311626.6003	360.39	ESTRADA
5396	358949.6644	9311722.6159	362.04	ESTRADA
5398	358965.2015	9311709.9113	362.42	ESTRADA
5399	358906.1725	9311740.1961	359.94	ESTRADA
5400	358853.9996	9311770.4443	363.05	ESTRADA
5401	358824.3087	9311792.4382	364.50	ESTRADA
5402	358802.5247	9311783.7113	365.81	ESTRADA
5403	358730.4761	9311678.6061	370.67	ESTRADA
5404	358708.0975	9311663.1313	371.75	ESTRADA
5405	358711.8505	9311654.3674	371.10	ESTRADA
5406	358681.9850	9311673.5254	373.90	ESTRADA

5407	358662.0357	9311689.3770	372.82	ESTRADA
5408	358647.7416	9311710.7824	372.82	ESTRADA
5409	358621.7931	9311759.9964	369.92	ESTRADA
5410	358598.3250	9311798.1039	366.06	ESTRADA
5411	358539.1494	9311855.4657	369.62	ESTRADA
5412	358455.1167	9311874.0213	372.20	ESTRADA
5413	358399.2930	9311866.6924	372.24	ESTRADA
5414	358329.1122	9311854.7717	372.27	ESTRADA
5415	358313.9780	9311853.6023	371.64	ESTRADA
5416	358257.6132	9311863.0844	367.47	ESTRADA
5417	358205.0416	9311864.7017	366.89	ESTRADA
5418	358160.9707	9311869.4720	366.38	ESTRADA
5548	361553.7089	9310442.8542	375.01	E-31B
5549	361454.1636	9310459.0965	379.13	E-32B
5550	361344.5224	9310445.0311	380.96	E-33B
5551	361201.9243	9310397.6003	381.68	E-34B
5552	361080.2597	9310356.5227	383.30	E-35B
5553	360918.7234	9310376.5314	382.75	E-36B
5554	360712.1304	9310372.5686	385.23	E-37B
5555	360632.8525	9310364.2011	387.23	E-38B
5556	360450.6354	9310427.9866	393.34	E-39B
5557	360300.8644	9310505.2346	394.63	E-40B
5558	360114.2338	9310579.9152	397.49	E-41B
5559	359990.4846	9310673.4230	401.01	E-42B
5560	359976.3799	9310691.6823	401.19	E-43B
5561	359877.5283	9310766.5634	397.27	E-44B
5562	359818.3339	9310833.0232	394.40	E-45B
5563	359739.6506	9310990.6656	389.93	E-46B
5564	359664.4062	9311108.7661	382.04	E-47B
5565	359508.4420	9311245.2885	371.52	E-48B
5566	359407.7302	9311344.3460	361.99	E-49B
5567	359313.4301	9311391.0950	361.15	E-50B
5568	359235.9302	9311456.0971	363.10	E-51B
5569	359205.4575	9311500.2582	360.33	E-52B
5570	359085.8678	9311574.3821	360.43	E-53B
5571	359063.1251	9311614.2555	361.27	E-54B
5572	358963.8441	9311708.4836	362.56	E-55B
5573	358811.8644	9311799.9101	365.11	E-56B
5574	358712.6062	9311653.3472	371.03	E-57B
5575	358659.6555	9311688.6746	374.03	E-58B
5576	358592.3601	9311806.8503	366.19	E-59B
5577	358502.9848	9311883.0822	371.66	E-60B
5578	358329.1729	9311853.3197	372.42	E-61B
5420	357981.3572	9311858.7489	361.64	ESTRADA
5421	357871.4904	9311902.5805	364.11	ESTRADA
5422	357822.8620	9311913.6169	364.46	ESTRADA
5423	357713.0031	9312012.9675	360.51	ESTRADA
5424	357603.7530	9312063.8610	363.86	ESTRADA
5425	357537.8055	9312100.1984	364.89	ESTRADA
5426	357509.3934	9312125.4150	365.04	ESTRADA
5427	357454.5588	9312174.1978	363.65	ESTRADA
5428	357416.5073	9312202.2502	363.84	ESTRADA
5429	357373.9018	9312251.6446	364.68	ESTRADA
5430	357086.3988	9312555.7607	364.02	ESTRADA
5431	357013.8840	9312621.1447	361.67	ESTRADA
5432	356952.6943	9312673.9009	365.66	ESTRADA

5433	356945.6559	9312693.4726	366.23	ESTRADA
5434	356797.3062	9312861.7102	365.25	ESTRADA
5435	356767.0105	9312918.9883	366.69	ESTRADA
5436	356775.0139	9312950.5524	365.60	ESTRADA
5437	356811.9357	9313005.3548	361.31	ESTRADA
5438	356847.0424	9313025.7446	359.52	ESTRADA
5439	356862.3363	9313050.6560	358.59	ESTRADA
5440	356885.6041	9313075.8446	361.67	ESTRADA
5441	356887.4830	9313092.2842	362.96	ESTRADA
5442	356890.2454	9313149.8235	367.12	ESTRADA
5443	356956.2247	9313164.0941	367.00	ESTRADA
5444	356991.2369	9313220.3960	367.75	ESTRADA
5445	356996.6335	9313291.7827	369.28	ESTRADA
5446	356960.2086	9313326.3472	370.73	ESTRADA
5447	356957.0217	9313395.3500	373.38	ESTRADA
5448	356777.5417	9313296.6968	365.59	ESTRADA
5449	356810.2305	9313248.7812	366.14	ESTRADA
5579	357836.2034	9311932.7468	364.48	E-62B
5580	357514.3954	9312138.3629	365.45	E-63B
5581	357318.8244	9312301.1155	365.81	E-64B
5582	356760.3817	9312919.8148	366.97	E-66B
5583	356960.3213	9313158.1392	366.88	E-68B
5342	361655.8318	9310386.7694	379.41	ESTRADA

11 – RELATÓRIO DA ESTAÇÃO TOTAL DO LEVANTAMENTO DA REDE ELÉTRICA

Nº DO PONTO	COORD. ESTE	COORD. NORTE	COTA	DESCRIÇÃO
5468	365302.2181	9306736.6234	369.78	POSTE
5215	364123.0799	9307177.1816	353.21	POSTE
5216	364136.8121	9307238.1824	352.03	POSTE
5221	364153.2760	9307310.6796	350.29	POSTE
5228	363801.7764	9307552.3926	349.51	POSTE
5232	363764.1465	9307488.2754	350.53	POSTE
5233	363709.5170	9307516.3011	347.69	POSTE
5234	363654.5326	9307544.3369	351.01	POSTE
5235	363615.8607	9307583.6600	352.23	POSTE
5240	363602.7389	9307665.9020	350.78	POSTE
5246	363475.7788	9307738.3627	346.61	POSTE
5254	363153.0876	9307930.1460	353.45	POSTE
5255	363113.9550	9307953.4391	354.46	POSTE
5256	363130.5785	9307989.8702	351.94	POSTE
5258	363117.0881	9308048.2814	352.39	POSTE
5259	363102.2225	9308107.3769	356.43	POSTE
5262	363088.9577	9308170.4989	358.38	POSTE
5469	364822.5594	9306780.8364	351.29	POSTE
5470	364444.4854	9306990.9706	352.68	POSTE
5471	364477.0760	9307053.4940	350.69	POSTE
5472	364503.7650	9307104.8348	348.37	POSTE
5473	364438.5552	9307084.0020	351.59	POSTE
5474	363972.3577	9307454.8688	350.68	POSTE
5475	363210.4745	9307758.2296	347.09	POSTE
5476	363056.3390	9308146.4056	358.25	POSTE
5477	362622.4314	9309240.9338	358.84	POSTE
5478	363376.8938	9309799.4538	370.00	POSTE
5479	363425.4417	9309837.6595	369.91	POSTE
5480	363532.8162	9309677.1244	371.85	POSTE
5481	363482.9436	9309643.7670	372.10	POSTE
5482	362720.4759	9310935.8130	379.19	POSTE
5483	362389.1697	9311191.9033	370.91	POSTE
5484	362419.1854	9311250.8543	372.34	POSTE
5485	362448.1916	9311307.2015	374.94	POSTE
5486	362475.4968	9311359.7802	376.78	POSTE
5487	362505.7997	9311414.9851	379.37	POSTE
5488	362534.8660	9311467.3823	381.95	POSTE
5489	362563.7001	9311519.4716	383.64	POSTE
5490	362425.1193	9311383.3469	376.38	POSTE
5491	362132.0959	9311518.4583	374.70	POSTE
5586	364822.2582	9306780.0154	351.30	E-2C
5584	365211.1606	9306734.5677	371.06	E20=0C
5585	365181.7396	9306747.4546	369.63	E-1C
5592	363152.4484	9307929.5951	353.48	E-8C
5591	363475.1677	9307737.8128	346.65	E-7C
5590	363602.3068	9307665.2301	350.82	E-6C
5589	363971.8235	9307454.2069	350.70	E-5C
5588	364152.5339	9307310.2177	350.23	E-4C
5587	364437.9680	9307083.3561	351.69	E-3C
5593	363055.6560	9308146.0807	358.30	E-10C
5594	362621.7994	9309240.8710	358.84	E-11C
5595	362682.1261	9309286.5199	359.02	E-12C
5596	363376.4709	9309800.0259	370.04	E-13C
5597	362721.1121	9310936.4519	379.19	E-14C
5598	362474.0136	9311358.5595	376.73	E-15C

5599	362174.3101	9311498.2325	376.22	E-16C
5419	358145.3692	9311871.8046	365.60	POSTE
5492	361431.8833	9311704.7347	374.31	POSTE
5493	361314.1716	9311735.9712	375.25	POSTE
5494	361023.9225	9311812.9309	373.98	POSTE
5495	361039.7164	9311880.7562	377.05	POSTE
5496	361051.2099	9311930.0715	378.90	POSTE
5497	361065.2029	9311990.0623	381.26	POSTE
5498	360533.1704	9311945.2674	372.24	POSTE
5499	360501.9273	9311829.4060	370.50	POSTE
5500	360151.3571	9312034.1205	378.38	POSTE
5501	360029.2208	9312062.7200	371.62	POSTE
5502	359682.4596	9312164.5529	381.40	POSTE
5503	359372.2384	9312219.7103	378.94	POSTE
5504	359398.3541	9312261.0202	378.54	POSTE
5505	359455.0218	9312281.1430	376.70	POSTE
5506	358730.6194	9312360.9291	370.31	POSTE
5507	358692.9366	9312340.4179	368.53	POSTE
5508	358582.2699	9312517.5417	371.58	POSTE
5509	358624.2594	9312562.5869	374.64	POSTE
5510	358665.1710	9312606.4758	375.10	POSTE
5511	358484.3590	9312565.0915	372.49	POSTE
5512	358349.7562	9311871.8809	372.65	POSTE
5600	361313.8925	9311735.4332	375.25	E-17C
5601	361194.7647	9311766.4760	374.79	E-18C
5602	360907.9161	9311845.1620	376.45	E-19C
5603	360648.5794	9311915.0745	374.85	E-20C
5604	360165.3801	9312029.7663	378.64	E-21C
5605	359682.5007	9312165.3589	381.38	E-22C
5606	359316.7499	9312230.2143	378.69	E-23C
5607	359118.5032	9312265.7115	375.83	E-24C
5608	358731.3711	9312333.9489	369.94	E-25C
5609	358694.1833	9312339.4026	368.61	E-26C
5610	358350.3251	9311871.2208	372.60	E-27C
5513	357916.5558	9311788.6450	366.08	POSTE
5514	357937.9718	9311608.5160	373.97	POSTE
5515	357928.8504	9311919.9011	363.58	POSTE
5516	357922.4664	9311851.1456	363.34	POSTE
5611	357916.9927	9311788.2249	365.96	E-28C

12 – RELATAÇÃO DA ESTAÇÃO TOTAL DO LEVANTAMENTO DAS JAZIDAS

SEDE DO CONSÓRCIO: Rua Leonardo Mota, nº 699 – Aldeota – Fortaleza – Ceará - CEP: 60.170-040 - Brasil

Nº DO PONTO	COORD. ESTE	COORD. NORTE	COTA	DESCRIÇÃO
699	363768.5401	9306306.8926	371.99	.
700	363832.8556	9306432.8430	368.18	.
701	363863.6731	9306337.7100	367.30	.
702	363958.8061	9306368.5275	363.44	.
703	364053.9391	9306399.3450	362.73	.
330	363948.8199	9306399.1995	358.35	.
331	363980.6460	9306354.8216	366.53	.
332	363989.3593	9306397.3066	361.19	.
333	363953.2767	9306383.7185	361.25	.
334	363930.4163	9306344.5806	364.46	.
335	363864.0035	9306291.6739	369.93	.
336	363820.1951	9306317.7347	369.65	.
337	363849.4147	9306369.8593	365.99	.
338	363847.5093	9306408.3431	364.69	.
339	363773.5495	9306412.9382	371.58	.
340	363759.3383	9306370.8503	372.92	.
341	363740.0961	9306282.3248	373.13	.
342	363843.9801	9306274.7611	372.11	.
343	363906.4995	9306254.0436	368.17	.
344	363982.9488	9306284.0445	371.95	.
345	364011.9000	9306353.8584	368.31	.
346	364066.1581	9306405.3831	362.28	.
347	364055.2804	9306431.7459	359.50	.
348	363998.7983	9306407.2178	359.08	.
349	363922.7747	9306411.7593	362.07	.
350	363862.4363	9306433.6972	367.76	.
351	363803.9326	9306421.1597	370.12	.
354	363815.7868	9306448.1242	370.49	.
355	363815.7868	9306448.1242	370.49	.
356	363912.9798	9306472.1542	366.94	.
5627	363810.0087	9306409.0161	373.27	1G
5628	363815.7868	9306448.1242	370.49	E-5E
5643	363719.4741	9307045.1998	370.49	5-E
5644	363819.3890	9307053.3855	366.84	4-E

Nº DO PONTO	COORD. ESTE	COORD. NORTE	COTA	DESCRIÇÃO
628	360781.3289	9305349.2309	383.19	
629	360881.3289	9305349.2309	387.41	
630	360981.3289	9305349.2309	390.68	
631	361081.3289	9305349.2309	392.52	
632	361181.3289	9305349.2309	394.10	
633	360781.3289	9305449.2309	380.16	
634	360881.3289	9305449.2309	384.10	
635	360981.3289	9305449.2309	388.31	
636	361081.3289	9305449.2309	392.52	
637	361181.3289	9305449.2309	394.58	
638	360781.3289	9305549.2309	382.98	
639	360881.3289	9305549.2309	385.35	
640	360981.3289	9305549.2309	389.30	
641	361081.3289	9305549.2309	392.20	
644	360781.3289	9305649.2309	385.49	
646	360981.3289	9305649.2309	388.49	
647	361081.3289	9305649.2309	390.15	
648	361181.3289	9305649.2309	391.42	
649	361281.3289	9305649.2309	392.87	
650	360781.3289	9305749.2309	382.26	
651	360881.3289	9305749.2309	382.99	
652	360981.3289	9305749.2309	384.14	
653	361081.3289	9305749.2309	385.58	
654	361181.3289	9305749.2309	387.82	
655	361281.3289	9305749.2309	390.27	
656	361381.3289	9305749.2309	393.19	
657	361481.3289	9305749.2309	393.69	
658	361581.3289	9305749.2309	392.37	
659	360681.3289	9305849.2309	376.61	
660	360781.3289	9305849.2309	377.61	
661	360881.3289	9305849.2309	378.45	
662	360981.3289	9305849.2309	379.53	
663	361081.3289	9305849.2309	380.97	
664	361181.3289	9305849.2309	382.41	
665	361281.3289	9305849.2309	387.58	
666	361381.3289	9305849.2309	391.03	
667	361481.3289	9305849.2309	391.68	
668	360681.3289	9305949.2309	376.49	
669	360781.3289	9305949.2309	376.24	
670	360881.3289	9305949.2309	376.44	
671	360981.3289	9305949.2309	376.52	
672	361081.3289	9305949.2309	376.61	
673	361181.3289	9305949.2309	377.80	
674	361281.3289	9305949.2309	379.96	
675	361381.3289	9305949.2309	386.80	
676	360581.3289	9306049.2309	380.26	
677	360681.3289	9306049.2309	377.08	
678	360781.3289	9306049.2309	375.39	
679	360881.3289	9306049.2309	375.01	
680	360981.3289	9306049.2309	374.86	
681	361081.3289	9306049.2309	374.72	
682	361181.3289	9306049.2309	374.68	
683	361281.3289	9306049.2309	374.76	
684	360581.3289	9306149.2309	378.64	
685	360681.3289	9306149.2309	376.83	

686	360781.3289	9306149.2309	376.29	
687	360881.3289	9306149.2309	375.75	
688	360981.3289	9306149.2309	375.21	
689	361081.3289	9306149.2309	374.83	
691	361281.3289	9306149.2309	374.54	
692	360581.3289	9306249.2309	378.28	
693	360681.3289	9306249.2309	377.74	
694	360781.3289	9306249.2309	377.20	
695	360881.3289	9306249.2309	376.66	
696	360981.3289	9306249.2309	376.12	
697	361081.3289	9306249.2309	375.58	
245	360708.8301	9305704.8794	384.28	
246	360708.8301	9305704.8794	384.28	
247	360486.5171	9306295.2204	379.21	
248	360566.2141	9306077.5684	380.44	
249	360605.7051	9305961.5664	380.39	
250	360605.7051	9305961.5664	380.39	
251	360639.1831	9305868.7114	375.37	
252	360606.1471	9305915.6604	378.68	
253	360606.1471	9305915.6604	378.68	
254	360708.8301	9305704.8794	384.28	
255	360774.3491	9305257.2954	385.94	
256	360762.0761	9305442.2124	379.31	
257	360745.0411	9305634.7454	385.11	
258	360708.8301	9305704.8794	384.28	
259	360745.0411	9305634.7454	385.11	
260	360734.8561	9305670.1324	384.71	
261	360765.3531	9305685.3554	385.17	
262	360728.9611	9305689.9144	383.86	
263	360760.7891	9306009.3144	375.14	
264	360853.7471	9305820.9174	379.00	
265	360891.4841	9305717.5604	384.75	
266	360891.4841	9305717.5604	384.75	
267	360892.5241	9305710.9344	385.07	
268	360935.7791	9305635.9294	387.96	
269	360914.3221	9305632.1624	387.69	
270	360728.9611	9305689.9144	383.86	
271	360904.8301	9305665.8374	386.99	
272	360905.1411	9305662.0534	386.91	
273	360904.8301	9305665.8374	386.99	
274	360944.6791	9305639.3284	388.09	
275	361184.4101	9305286.7964	393.76	
276	361153.2041	9305464.9524	395.03	
277	361153.2041	9305464.9524	395.03	
278	361122.2591	9305640.1894	391.15	
279	361021.1311	9305843.8464	389.39	
280	360944.6791	9305639.3284	388.09	
281	361120.0801	9305652.6074	390.64	
282	361120.2241	9305655.2014	390.47	
283	361120.0801	9305652.6074	390.64	
287	361330.1671	9306069.7324	374.39	
288	361385.5441	9305967.6254	386.25	
289	361385.5441	9305967.6254	386.25	
290	361423.0281	9305895.0814	391.42	
291	361440.2631	9305863.0474	392.75	
292	361440.2631	9305863.0474	392.75	

294	361622.0761	9305747.6874	391.67	.
5163	361511.4683	9305730.6750	393.96	22E
5651	361276.2077	9306036.9609	377.40	FURO-20
5652	361295.1016	9305899.0035	386.99	L-PROPRIEDADE
5653	361296.5496	9305890.5401	387.59	AUX-3
5654	361301.5805	9305851.6910	389.48	FURO-19
5655	361316.2040	9305742.1295	393.88	AUX-2
5656	361593.7781	9305575.4208	392.04	FURO-2
5657	361338.5234	9305512.6073	392.73	AUX-1
5658	361344.9719	9305442.0458	396.25	FURO-4
5659	361347.3465	9305410.0153	396.51	AUX-4
5660	361359.7260	9305262.3614	396.14	FURO-5
5661	361369.3373	9305147.7261	394.07	AUX-5
5662	361383.8474	9305097.0127	392.16	FURO-6
5161	361328.8509	9305626.3506	393.12	FURO-02
286	361238.2681	9306246.1764	374.71	.
690	361181.3289	9306149.2309	374.69	.
698	361181.3289	9306249.2309	375.04	.
5648	361177.7084	9306420.9799	371.86	FURO-22
5649	361203.3688	9306307.0299	376.95	AUX-6
5650	361226.6953	9306227.8224	372.68	FURO-21

Nº DO PONTO	COORD. ESTE	COORD. NORTE	COTA	DESCRIÇÃO
262	360728.9611	9305689.9144	383.86	
552	359853.8849	9304760.1758	394.53	
553	359353.8849	9304860.1758	389.62	
554	359653.8849	9304860.1758	392.73	
555	359753.8849	9304860.1758	393.23	
556	359853.8849	9304860.1758	395.23	
557	359953.8849	9304860.1758	391.39	
558	360053.8849	9304860.1758	384.77	
559	359353.8849	9304960.1758	388.70	
560	359453.8849	9304960.1758	389.50	
561	359553.8849	9304960.1758	388.31	
562	359653.8849	9304960.1758	387.09	
563	359753.8849	9304960.1758	388.06	
564	359853.8849	9304960.1758	391.31	
565	359953.8849	9304960.1758	388.25	
566	360053.8849	9304960.1758	386.09	
567	359353.8849	9305060.1758	387.75	
568	359453.8849	9305060.1758	387.32	
569	359553.8849	9305060.1758	386.33	
570	359653.8849	9305060.1758	385.81	
571	359753.8849	9305060.1758	382.90	
572	359853.8849	9305060.1758	386.45	
573	359953.8849	9305060.1758	389.84	
574	360053.8849	9305060.1758	390.69	
575	359353.8849	9305160.1758	387.57	
576	359453.8849	9305160.1758	386.36	
577	359553.8849	9305160.1758	388.76	
578	359653.8849	9305160.1758	387.85	
579	359753.8849	9305160.1758	383.51	
580	359853.8849	9305160.1758	380.78	
581	359953.8849	9305160.1758	384.72	
582	360053.8849	9305160.1758	388.66	
583	359353.8849	9305260.1758	388.80	
584	359453.8849	9305260.1758	389.94	
585	359553.8849	9305260.1758	389.26	
586	359653.8849	9305260.1758	388.18	
587	359753.8849	9305260.1758	385.46	
588	359853.8849	9305260.1758	379.29	
589	359953.8849	9305260.1758	376.95	
590	360053.8849	9305260.1758	380.72	
591	359353.8849	9305360.1758	387.61	
592	359453.8849	9305360.1758	389.14	
593	359553.8849	9305360.1758	388.42	
607	359353.8849	9305560.1758	384.77	
608	359453.8849	9305560.1758	388.36	
609	359553.8849	9305560.1758	387.38	
610	359653.8849	9305560.1758	386.08	
611	359753.8849	9305560.1758	382.56	
612	359853.8849	9305560.1758	377.92	
613	359953.8849	9305560.1758	375.52	
614	359353.8849	9305660.1758	388.25	
615	359453.8849	9305660.1758	388.48	
616	359553.8849	9305660.1758	387.77	
617	359653.8849	9305660.1758	384.19	
618	359753.8849	9305660.1758	381.12	

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620	359953.8849	9305660.1758	376.92	
621	359353.8849	9305760.1758	388.87	
622	359453.8849	9305760.1758	389.22	
623	359553.8849	9305760.1758	386.73	
624	359653.8849	9305760.1758	384.87	
625	359753.8849	9305760.1758	383.02	
626	359853.8849	9305760.1758	381.16	
627	359953.8849	9305760.1758	379.31	
180	359263.9381	9305744.9214	387.01	
181	359266.1281	9305706.4254	388.62	
182	359269.0951	9305576.6264	381.51	
183	359270.6941	9305385.1384	386.32	
184	359270.6941	9305385.1384	386.32	
185	359271.2191	9305360.5674	386.34	
186	359270.1141	9305219.9354	387.86	
187	359270.1141	9305219.9354	387.86	
188	359256.8581	9304737.8714	388.27	
189	359263.8131	9304944.4424	388.33	
190	359269.1431	9305147.9784	387.22	
191	359437.2251	9305798.6714	389.62	
192	359446.3001	9305618.0604	388.23	
193	359456.4691	9305399.9804	388.63	
194	359454.8171	9305446.5694	388.75	
195	359456.4691	9305399.9804	388.63	
196	359460.6981	9305286.2224	390.26	
197	359460.6981	9305286.2224	390.26	
198	359462.7411	9305258.8134	390.01	
199	359462.2821	9305248.5234	389.73	
200	359269.1431	9305147.9784	387.22	
201	359342.4471	9305158.3664	387.72	
202	359481.1611	9304882.4644	391.40	
203	359471.6201	9305075.6404	387.13	
204	359465.9361	9305176.2934	386.03	
205	359465.9361	9305176.2934	386.03	
206	359580.3541	9305193.1224	389.40	
207	359632.6251	9305573.1164	386.57	
208	359645.4921	9305396.7224	387.14	
209	359580.3541	9305193.1224	389.40	
210	359581.7491	9305193.1824	389.41	
211	359745.8931	9304813.4394	395.40	
212	359713.2241	9305010.1574	384.29	
213	359679.7841	9305206.7894	388.38	
214	360089.7031	9304887.9134	382.51	
215	360076.8661	9305074.8924	391.20	
216	360076.8661	9305074.8924	391.20	
217	360069.4431	9305177.4744	388.43	
218	360069.4431	9305177.4744	388.43	
219	360023.9131	9305770.8174	378.21	
220	360038.2691	9305591.5964	372.31	
221	360019.0461	9305451.8904	375.35	
222	360096.3781	9305417.3084	375.70	
223	360092.9541	9305412.3934	373.36	
224	360029.3051	9305310.1084	373.45	
225	360063.4951	9305258.6754	381.27	
226	359679.7841	9305206.7894	388.38	
227	360063.4951	9305258.6754	381.27	

228	359872.8121	9305233.4434	377.30	.
229	359915.1311	9304616.0524	393.82	.
230	359905.3071	9304718.9104	393.98	.
231	359905.3071	9304718.9104	393.98	.
232	359899.0551	9304829.1604	394.99	.
233	359894.5381	9304900.8104	395.25	.
234	359894.5381	9304900.8104	395.25	.
235	359886.7471	9305018.6584	389.97	.
236	359872.8121	9305233.4434	377.30	.
237	359864.9831	9305347.5784	381.31	.
238	359860.4061	9305411.4414	378.12	.
239	359864.9831	9305347.5784	381.31	.
240	359826.3751	9305533.2064	378.10	.
241	359818.2021	9305533.1364	378.48	.
242	359847.5641	9305598.3474	378.21	.
243	359745.3981	9305519.5314	383.91	.
244	359745.3981	9305519.5314	383.91	.

Nº DO PONTO	COORD. ESTE	COORD. NORTE	COTA	DESCRIÇÃO
34	360321.9751	9307495.4234	368.43	
35	360381.3401	9307547.7764	370.19	
36	360381.3401	9307547.7764	370.19	
46	361075.8141	9308144.7814	369.81	
50	361080.9571	9308149.2174	370.05	
51	361080.9571	9308149.2174	370.05	
52	360879.0861	9308381.8624	375.40	
53	360879.0861	9308381.8624	375.40	
56	360911.3651	9308417.1884	374.36	
57	360911.3651	9308417.1884	374.36	
59	360851.5521	9308357.2314	375.16	
60	360830.7681	9308336.4384	374.60	
61	360830.7681	9308336.4384	374.60	
63	360659.0181	9308170.9134	375.52	
70	360104.8571	9307615.7944	376.59	
71	360104.8571	9307615.7944	376.59	
74	359824.7891	9307328.2824	375.34	
75	359824.7891	9307328.2824	375.34	
81	359468.2951	9307920.7074	395.52	
83	359582.9701	9308044.0504	393.89	
84	359582.9701	9308044.0504	393.89	
85	359620.2521	9308085.4014	395.26	
86	359620.2521	9308085.4014	395.26	
88	359738.3601	9308210.5294	392.08	
89	359738.3601	9308210.5294	392.08	
90	359741.2651	9308213.8884	391.94	
92	359908.1281	9308393.6184	391.81	
93	359960.4901	9308448.3704	386.81	
94	359960.4901	9308448.3704	386.81	
96	359998.9651	9308488.9684	387.54	
97	359998.9651	9308488.9684	387.54	
98	360058.4401	9308553.2654	387.08	
99	360058.4401	9308553.2654	387.08	
101	360155.3851	9308656.0424	385.41	
102	360155.3851	9308656.0424	385.41	
103	360224.6161	9308730.0054	379.34	
104	360224.6161	9308730.0054	379.34	
106	360323.7481	9308837.3724	385.30	
107	360323.4261	9308836.9724	385.28	
108	360323.7481	9308837.3724	385.30	
110	360477.3921	9309004.0724	388.21	
111	360477.3921	9309004.0724	388.21	
113	360580.9601	9309116.3874	385.32	
114	360580.9601	9309116.3874	385.32	
116	360611.8441	9309150.1544	381.73	
117	360611.8441	9309150.1544	381.73	
126	360721.6461	9309077.7554	383.64	
131	360176.2191	9308436.3324	394.50	
132	360176.2191	9308436.3324	394.50	
134	360103.9451	9308352.6144	394.36	
137	359875.2831	9308075.1594	385.15	
143	359763.1631	9307939.6504	390.53	
144	359434.7941	9307552.5954	390.07	
145	359434.7941	9307552.5954	390.07	
149	359698.9231	9307539.8524	378.63	

153	359975.4741	9307887.9674	381.42
154	359975.4741	9307887.9674	381.42
155	359996.2421	9307915.0084	381.82
157	360092.9801	9308033.7864	382.84
158	360092.9801	9308033.7864	382.84
160	360254.4331	9308232.0914	384.66
161	360254.4331	9308232.0914	384.66
165	360478.2511	9308498.3904	379.81
166	360478.2511	9308498.3904	379.81
167	360562.8991	9308599.7014	382.46
168	360562.8991	9308599.7014	382.46
169	360570.8511	9308609.5124	382.01
171	360640.4141	9308695.5404	379.46
172	360640.4141	9308695.5404	379.46
175	360772.3591	9308859.1604	375.73
176	360772.3591	9308859.1604	375.73
357	359835.0450	9307254.5831	374.31
358	359935.0450	9307254.5831	370.50
359	360035.0450	9307254.5831	365.03
360	359735.0450	9307354.5831	376.69
361	359835.0450	9307354.5831	373.79
362	359935.0450	9307354.5831	367.44
363	360035.0450	9307354.5831	366.14
364	360135.0450	9307354.5831	364.53
365	359635.0450	9307454.5831	380.49
366	359735.0450	9307454.5831	377.49
367	359835.0450	9307454.5831	370.84
368	359935.0450	9307454.5831	368.54
369	360035.0450	9307454.5831	370.16
370	360135.0450	9307454.5831	368.46
371	360235.0450	9307454.5831	365.71
372	359435.0450	9307554.5831	390.00
373	359535.0450	9307554.5831	385.32
374	359635.0450	9307554.5831	380.71
375	359735.0450	9307554.5831	375.70
376	359835.0450	9307554.5831	370.08
377	359935.0450	9307554.5831	370.10
378	360035.0450	9307554.5831	373.91
379	360135.0450	9307554.5831	372.78
380	360235.0450	9307554.5831	371.48
381	360335.0450	9307554.5831	369.36
382	359335.0450	9307654.5831	393.08
383	359435.0450	9307654.5831	387.30
384	359535.0450	9307654.5831	379.35
385	359635.0450	9307654.5831	374.91
386	359735.0450	9307654.5831	373.10
387	359835.0450	9307654.5831	369.62
388	359935.0450	9307654.5831	371.63
389	360035.0450	9307654.5831	374.96
390	360135.0450	9307654.5831	374.35
391	360235.0450	9307654.5831	369.50
392	360335.0450	9307654.5831	369.87
393	360435.0450	9307654.5831	369.61
394	359335.0450	9307754.5831	390.64
395	359435.0450	9307754.5831	384.60
396	359535.0450	9307754.5831	377.29

397	359635.0450	9307754.5831	374.38	
398	359735.0450	9307754.5831	372.48	
399	359835.0450	9307754.5831	372.36	
400	359935.0450	9307754.5831	374.00	
401	360035.0450	9307754.5831	377.12	
402	360135.0450	9307754.5831	372.32	
403	360235.0450	9307754.5831	369.72	
404	360335.0450	9307754.5831	370.99	
405	360435.0450	9307754.5831	369.75	
406	360535.0450	9307754.5831	365.14	
407	359435.0450	9307854.5831	385.44	
408	359535.0450	9307854.5831	386.63	
409	359635.0450	9307854.5831	380.66	
410	359735.0450	9307854.5831	377.65	
411	359835.0450	9307854.5831	381.03	
412	359935.0450	9307854.5831	378.07	
413	360035.0450	9307854.5831	378.56	
414	360135.0450	9307854.5831	374.93	
415	360235.0450	9307854.5831	373.28	
416	360335.0450	9307854.5831	372.28	
417	360435.0450	9307854.5831	369.92	
418	360535.0450	9307854.5831	365.37	
419	360635.0450	9307854.5831	363.24	
420	359535.0450	9307954.5831	389.31	
421	359635.0450	9307954.5831	385.57	
422	359735.0450	9307954.5831	390.86	
423	359835.0450	9307954.5831	388.30	
424	359935.0450	9307954.5831	385.63	
425	360035.0450	9307954.5831	381.10	
426	360135.0450	9307954.5831	377.85	
427	360235.0450	9307954.5831	377.56	
428	360335.0450	9307954.5831	373.69	
429	360435.0450	9307954.5831	370.09	
430	360535.0450	9307954.5831	365.99	
431	360635.0450	9307954.5831	365.78	
432	360735.0450	9307954.5831	366.75	
433	360835.0450	9307954.5831	366.57	
434	359635.0450	9308054.5831	394.26	
435	359735.0450	9308054.5831	392.79	
436	359835.0450	9308054.5831	391.75	
437	359935.0450	9308054.5831	383.82	
438	360035.0450	9308054.5831	382.14	
439	360135.0450	9308054.5831	380.90	
440	360235.0450	9308054.5831	376.77	
441	360335.0450	9308054.5831	372.98	
442	360435.0450	9308054.5831	369.39	
443	360535.0450	9308054.5831	369.58	
444	360635.0450	9308054.5831	371.43	
445	360735.0450	9308054.5831	371.51	
446	360835.0450	9308054.5831	367.20	
447	360935.0450	9308054.5831	366.52	
448	359735.0450	9308154.5831	393.03	
449	359835.0450	9308154.5831	387.74	
450	359935.0450	9308154.5831	385.83	
451	360035.0450	9308154.5831	384.09	
452	360135.0450	9308154.5831	379.91	

453	360235.0450	9308154.5831	375.92	
454	360335.0450	9308154.5831	377.97	
455	360435.0450	9308154.5831	375.14	
456	360535.0450	9308154.5831	376.14	
457	360635.0450	9308154.5831	376.11	
458	360735.0450	9308154.5831	371.51	
459	360835.0450	9308154.5831	367.92	
460	360935.0450	9308154.5831	368.18	
461	361035.0450	9308154.5831	369.72	
462	359835.0450	9308254.5831	389.22	
463	359935.0450	9308254.5831	387.94	
464	360035.0450	9308254.5831	388.68	
465	360135.0450	9308254.5831	385.67	
466	360235.0450	9308254.5831	386.02	
467	360335.0450	9308254.5831	381.78	
468	360435.0450	9308254.5831	381.09	
469	360535.0450	9308254.5831	378.04	
470	360635.0450	9308254.5831	374.95	
471	360735.0450	9308254.5831	370.99	
472	360835.0450	9308254.5831	370.27	
473	360935.0450	9308254.5831	372.55	
474	361035.0450	9308254.5831	371.22	
475	361135.0450	9308254.5831	367.66	
476	359935.0450	9308354.5831	390.93	
477	360035.0450	9308354.5831	393.00	
478	360135.0450	9308354.5831	392.62	
479	360235.0450	9308354.5831	389.03	
480	360335.0450	9308354.5831	382.99	
481	360435.0450	9308354.5831	380.08	
482	360535.0450	9308354.5831	377.08	
483	360635.0450	9308354.5831	373.20	
484	360735.0450	9308354.5831	372.89	
485	360835.0450	9308354.5831	375.11	
486	360935.0450	9308354.5831	373.78	
487	361035.0450	9308354.5831	369.55	
488	361135.0450	9308354.5831	366.40	
489	361235.0450	9308354.5831	368.41	
490	360035.0450	9308454.5831	389.41	
491	360135.0450	9308454.5831	392.68	
492	360235.0450	9308454.5831	386.75	
493	360335.0450	9308454.5831	381.47	
494	360435.0450	9308454.5831	379.02	
495	360535.0450	9308454.5831	377.72	
496	360635.0450	9308454.5831	376.72	
497	360735.0450	9308454.5831	378.09	
498	360835.0450	9308454.5831	375.88	
499	360935.0450	9308454.5831	371.37	
500	361035.0450	9308454.5831	365.48	
501	361135.0450	9308454.5831	365.39	
502	361235.0450	9308454.5831	365.94	
503	361335.0450	9308454.5831	366.05	
504	361435.0450	9308454.5831	363.62	
505	360135.0450	9308554.5831	385.16	
506	360235.0450	9308554.5831	382.47	
507	360335.0450	9308554.5831	383.31	
508	360435.0450	9308554.5831	382.33	

509	360535.0450	9308554.5831	381.18	.
510	360635.0450	9308554.5831	379.98	.
511	360735.0450	9308554.5831	377.66	.
512	360835.0450	9308554.5831	372.32	.
513	360935.0450	9308554.5831	366.84	.
514	361035.0450	9308554.5831	362.46	.
515	361135.0450	9308554.5831	362.26	.
516	361235.0450	9308554.5831	363.02	.
517	361335.0450	9308554.5831	360.59	.
518	360235.0450	9308654.5831	380.74	.
519	360335.0450	9308654.5831	385.43	.
520	360435.0450	9308654.5831	386.05	.
521	360535.0450	9308654.5831	381.20	.
522	360635.0450	9308654.5831	379.43	.
523	360735.0450	9308654.5831	374.07	.
524	360835.0450	9308654.5831	367.79	.
525	360935.0450	9308654.5831	366.69	.
526	361035.0450	9308654.5831	363.16	.
527	361135.0450	9308654.5831	359.64	.
528	360335.0450	9308754.5831	384.93	.
529	360435.0450	9308754.5831	383.41	.
530	360535.0450	9308754.5831	378.43	.
531	360635.0450	9308754.5831	375.60	.
532	360735.0450	9308754.5831	370.33	.
533	360835.0450	9308754.5831	370.14	.
534	360935.0450	9308754.5831	367.39	.
535	361035.0450	9308754.5831	365.02	.
536	360435.0450	9308854.5831	380.43	.
538	360635.0450	9308854.5831	375.36	.
539	360735.0450	9308854.5831	375.46	.
540	360835.0450	9308854.5831	373.82	.
541	360935.0450	9308854.5831	370.71	.
542	360435.0450	9308954.5831	385.82	.
543	360535.0450	9308954.5831	381.77	.
544	360635.0450	9308954.5831	377.00	.
545	360735.0450	9308954.5831	377.42	.
546	360835.0450	9308954.5831	376.41	.
547	360535.0450	9309054.5831	386.43	.
548	360635.0450	9309054.5831	382.08	.
549	360735.0450	9309054.5831	382.50	.
550	360635.0450	9309154.5831	382.04	.
551	360735.0450	9309154.5831	381.97	.
5663	360677.3321	9309219.3754	377.60	FURO-55
5664	360543.9061	9309076.9964	386.52	FURO-54
5665	360404.3071	9308923.8534	384.47	FURO-53
5666	360261.2371	9308769.4834	380.25	FURO-52
5667	360121.9061	9308620.5384	384.94	FURO-51
5668	359979.7521	9308467.1764	386.20	FURO-50
5669	359823.0411	9308301.9544	390.31	FURO-49
5670	359675.3661	9308144.8934	394.62	FURO-48
5671	359526.8081	9307983.6094	389.20	FURO-47
5672	359408.4061	9307854.3744	384.16	FURO-46
5673	359266.6911	9307697.9554	395.79	FURO-45
5674	359434.7941	9307552.5954	390.07	FURO-34
5675	359573.0121	9307714.9824	373.99	FURO-35
5676	359707.3811	9307872.8634	377.71	FURO-36

5677	359841.8941	9308035.7984	392.37	FURO-37
5678	359976.4701	9308199.5254	386.09	FURO-38
5679	360110.2741	9308360.0784	393.74	FURO-39
5680	360243.0031	9308516.4694	382.78	FURO-40
5681	360391.3831	9308684.9994	387.70	FURO-41
5682	360535.0450	9308854.5831	375.38	FURO-42
5683	360678.5181	9309028.1284	378.18	FURO-43
5684	360766.4969	9309135.4830	383.22	FURO-44
5685	359597.6121	9307410.3374	381.62	FURO-23
5686	359721.3461	9307563.8754	376.43	FURO-24
5687	359840.3161	9307717.9264	369.03	FURO-25
5688	359959.1471	9307867.3954	378.47	FURO-26
5689	360079.8401	9308017.3674	380.64	FURO-27
5690	360203.4021	9308169.7324	376.90	FURO-28
5691	360320.2471	9308308.0114	384.06	FURO-29
5692	360446.5131	9308461.0704	378.64	FURO-30
5693	360575.5301	9308615.2294	380.23	FURO-31
5694	360693.8051	9308762.2514	370.66	FURO-32
5695	359713.3471	9307309.9314	376.61	FURO-12
5696	359763.9661	9307265.8434	373.39	FURO-12
5697	359905.7551	9307411.5084	366.75	FURO-13
5698	360058.2331	9307567.2864	375.00	FURO-14
5699	360215.5741	9307728.4864	368.99	FURO-15
5700	360370.3201	9307882.7674	372.93	FURO-16
5701	360506.7391	9308020.4234	367.05	FURO-17
5702	360629.8021	9308142.1814	376.28	FURO-18
5703	360768.6871	9308277.0074	369.25	FURO-19
5704	360894.2071	9308400.2244	374.84	FURO-20
5705	361030.5821	9308535.1194	362.48	FURO-21
5706	361162.1701	9308664.9304	359.64	FURO-22
5707	361479.9761	9308488.1764	360.73	FURO-11
5708	361305.6151	9308339.9064	369.98	FURO-10
5709	361154.6281	9308211.9844	368.23	FURO-9
5710	360999.9381	9308079.3444	366.26	FURO-8
5711	360845.2631	9307951.1644	366.38	FURO-7
5712	360724.4781	9307847.3764	361.42	FURO-6
5713	360570.2321	9307713.0324	363.44	FURO-5
5714	360419.1291	9307580.4454	370.24	FURO-4
5715	360268.0661	9307448.6104	364.56	FURO-3
5716	360064.9471	9307270.3474	363.14	FURO-2
5717	359913.4401	9307135.7984	373.60	FURO-1

Nº DO PONTO	COORD. ESTE	COORD. NORTE	COTA	DESCRIÇÃO
5612	364660.5863	9307136.0132	343.44	JAZIDA
5613	364621.8324	9307089.4592	342.43	JAZIDA
5614	364041.0496	9307531.8028	342.30	JAZIDA
5615	364096.8175	9307561.4007	343.17	JAZIDA
5616	363852.8542	9307585.5117	343.25	JAZIDA
5617	363892.5678	9307656.6154	342.64	JAZIDA
5618	363585.9511	9308091.0150	345.54	JAZIDA
5619	364575.6414	9307080.5770	347.06	E-1I
5620	364240.5142	9307311.1652	348.57	E-2I
5621	364004.3572	9307474.1113	349.86	E-3I
5622	363872.7452	9307564.0470	346.83	E-4I
5623	363838.1644	9307556.5851	349.39	E-5I
5624	363350.1716	9308106.0040	354.60	E-7I
5625	363365.5200	9308120.5274	354.49	E-8I
5626	363592.5678	9307669.4884	351.03	E-6I