

เอกสารอ้างอิง

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เอกสารประกอบการบรรยายโครงการฝึกอบรมการรังวัดดาราศาสตร์และการรังวัด
หมุดหลักฐานแผนที่ของกรมที่ดิน ภาควิชาวิศวกรรมสำรวจ จุฬาลงกรณ์มหาวิทยาลัย,
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ชลวิทย์ เทพาศักดิ์ "การแปลงค่าพิกัดระบบ โซลด์เนอรั่มเป็นระบบยูทีเอ็ม" วิทยานิพนธ์ตาม
หลักสูตรปริญญาวิศวกรรมศาสตรมหาบัณฑิต ภาควิชาวิศวกรรมสำรวจ คณะวิศวกรรม
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กับพื้นหลักฐานอินเดียน 2497" วิทยานิพนธ์ตามหลักสูตรปริญญาวิศวกรรมศาสตรมหา
บัณฑิต ภาควิชาวิศวกรรมสำรวจ คณะวิศวกรรมศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย,
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ภาคผนวก ก.

ตัวอย่างผลการคำนวณค่าพิกัดบนพื้นหลักฐานดาวเทียม
แบบทรานสโลเคชัน ด้วยโปรแกรม MAGNET

ก1. คำอธิบายตารางการคำนวณในส่วนข้อมูลภายนอก ทั้งแบบทรานสโลเคชัน และแบบ
โครงข่าย

MAGNET - VERSION HP80133				MAGNAVOX NETWORK PROGRAM			
SITE NO.	PIVT	LSS	OUT NSPT HYPR	PRINT OPTIONS	.....WINDOW.....		
① 1 ② 34 ③ 1 ④ 1502			⑤ 6 ⑥ 1 ⑦ 0	⑧ 0000000	⑨ 1 0: 0 366 23:59		
UNIT PNUM SNUM SKIP				ELEV RMS			
⑩ 0 ⑪ 0 ⑫ 0 ⑬ 0				⑭ 5.00 ⑮ 17.0			
SITE	LATITUDE	CNST	LONGITUDE	CNST	ALTITUDE	CNST	⑰ MIN MAX
⑯ 1	N 33 50 25.620	-1.00	W 118 20 10.264	-1.00	1.09	-1.00	1 18
2	N 34 7 16.569	-1.00	W 117 41 19.192	-1.00	442.78	-1.00	1 33
SITE	T DELAY	CNST	FREQ	CNST	FOOT	CNST	TROPO CNST
⑱ 1	.00010	.00100	0.00	-1.00	-1.00		2.34 .20
2	.00010	.00100	0.00	-1.00	-1.00		2.22 .20
ORBITAL CONSTRAINTS-	ALONG TRACK	HEIGHT	CROSS TRACK				
	⑲ 24.00	4.00	9.00				

980-5672

- (1) จำนวนสถานีทั้งหมดที่ใช้คำนวณ
- (2) จำนวนเส้นวงโคจรของสถานีทั้งหมดรวมกัน
- (3) ชื่อของสถานีที่เป็นหลักในการคำนวณ
- (4) ชื่อเครื่องมือที่ใช้รับสัญญาณ
- (5) ส่วนที่แสดงผลการคำนวณ
- (6) จำนวนสถานีที่ใช้คำนวณจับคู่

- (7) เลือกวิธีคำนวณพิกัดตำแหน่งแบบ Hyperbolic หรือ Pseudo-range
- (8) เป็นตัวเลขที่เลือกรูปแบบของการแสดงผล
- (9) วันและเวลาของข้อมูลที่จะถูกคำนวณทางเครื่องพิมพ์หรือเก็บในเครื่องคอมพิวเตอร์
- (11) เป็นจำนวนเส้นวงโคจรที่เริ่มคำนวณแต่ละครั้ง
- (12) จำนวนสถานีที่จะให้คำนวณ
- (13) จำนวนข้อมูลที่จะให้ข้ามไปก่อนคำนวณ
- (14) ค่าระดับมีหน่วยเป็นองศา ใช้ในการพิจารณาข้อมูลในการคำนวณ
- (15) ค่า Root Mean Square ที่ยอมให้ในการคำนวณ
- (16) ค่าพิกัดประมาณของละติจูด ลองจิจูด ความสูง และค่า Constraint ของพิกัดแต่ละค่า
- (17) จำนวนเส้นวงโคจรที่น้อยและมากที่สุดของแต่ละสถานี
- (18) แสดงค่า Time delay ความถี่ และ tropospheric พร้อมทั้งค่า Constraint
- (19) เป็นค่า Constraint ของวงโคจรใน 3 ทิศทาง

ก.๒ ค่ายอธิบายตารางแสดงผลการคำนวณ ทั้งแบบกราฟและตัวเลข และแบบโครงข่าย

MAGNET - VERSION HP80133 ① MAGNAVOX NETWORK PROOF
 DATE - 20 MAY 80 TIME 15:43

SITE NO. PIVT LSS OUT NSPT HYPR PRINT OPTIONSWINDOW.....
 1 34 1 1502 6 1 0 0000000 1 0: 0 366 23:
 UNIT PNUM SNUM SKIP ELEV RM8
 0 0 0 0 5.00 17.0

SITE LATITUDE CNST LONGITUDE CNST ALTITUDE CNST MIN
 1 N 33 50 25.620 -1.00 W 118 20 10.264 -1.00 1.09 -1.00 1
 2 N 34 7 16.569 -1.00 W 117 41 19.192 -1.00 442.78 -1.00 1

SITE T DELAY CNST FREQ CNST FOOT CNST TROPO CNST
 1 .00010 .00100 0.00 -1.00 -1.00 2.34 .20
 2 .00010 .00100 0.00 -1.00 -1.00 2.22 .20

ORBITAL CONSTRAINTS- ALONG TRACK HEIGHT CROSS TRACK
 24.00 4.00 9.00

SELECTED SITES 1 2 ②

TIE SAT PASS/S PASS/S
 1 ③140 ④19/ 2 ⑤
 2 120 1/ 1 20/ 2
 3 140 21/ 2 2/ 1
 4 130 22/ 2 3/ 1
 5 130 4/ 1 23/ 2
 6 200 24/ 2
 7 200 25/ 2
 8 120 5/ 1 26/ 2
 9 140 6/ 1 27/ 2
 10 140 7/ 1 28/ 2
 11 130 8/ 1 29/ 2
 12 200 30/ 2
 13 200 31/ 2
 14 120 9/ 1 32/ 2
 15 140 33/ 2 10/ 1
 16 140 11/ 1
 17 130 12/ 1
 18 120 13/ 1
 19 140 14/ 1
 20 120 15/ 1
 21 140 16/ 1
 22 130 17/ 1
 23 130 18/ 1

ITERATION MOVEMENT 1 ⑥

SITE TDLAY DRIFT DEL LAT DEL LON DEL ANT RADIAL
 1 .10 ⑦ 0.00 ⑧ -1.44 -2.33 2.22 ⑨ 3.53 ⑩
 2 .10 0.00 -1.07 -2.94 1.96 3.69

ITERATION MOVEMENT 2

SITE TDLAY DRIFT DEL LAT DEL LON DEL ANT RADIAL
 1 .10 .03 -.04 -3.33 -.98 3.47
 2 .10 .10 -.19 -3.30 -.65 3.37

2 STATION SOLUTION USING 761 DOPPLER COUNTS RMS = 8.45
 SIGMA-CROSS CORRELATION MATRIX

3.31
 -.01 1.58
 -.10 -.07 .98
 -.00 -.00 .01 .00
 1.00 .02 -.12 .00 3.32
 .01 .99 .11 .00 .01 1.58
 -.10 -.03 .99 .01 -.12 -.08 .96
 .00 .00 -.01 .00 .00 -.00 -.01 .00

SITE	DOP	NW	NE	SW	SE	S1	S2
1	431	3	3	3	4	13	6
2	330	3	4	2	3	6	12

SITE	LATITUDE	LONGITUDE	ANTENNA	GEO X	GEO Y	GEO Z
1	N 33 50 25.527	W 118 20 10.350	4.85	2517105.52	-4667703.22	3531760.36
2	N 34 7 16.480	W 117 41 19.312	446.58	-2456275.48	-4680750.57	3557837.75

SITE	TDLAY	DRIFT	DEL LAT	DEL LON	DEL ANT	RADIAL
1	.10	.01	-2.88	-2.22	3.76	5.23
2	.10	.13	-2.75	-3.08	3.80	5.61

CHORD MEASUREMENTS

SITE	1
2	67459.38

980-5676

- (1) เป็นชนิดของเครื่องคำนวณ
- (2) ชื่อสถานีที่ใช้จับคู่
- (3) แสดงจำนวนเส้นวงโคจรที่ใช้จับคู่
- (4) หมายเลขดาวเทียม
- (5) แสดงถึงเส้นวงโคจรที่จับคู่ของสถานีที่ใช้จับคู่
- (6) การคำนวณปรับแก้วงรอบที่ 1
- (7) แสดงค่า Time delay เมื่อสิ้นสุดการคำนวณ
- (8) เป็นค่าของ Oscillator มีหน่วยเป็น hertz/day

- (9) เป็นค่าความต่างของพิกัดละติจูด ลองจิจูด และความสูง โดยประมาณกับที่คำนวณได้ มีหน่วยเป็นเมตร
- (10) เป็นค่าความต่างทางระยะของตำแหน่งที่ต้องการ โดยประมาณกับระยะที่คำนวณได้ มีหน่วยเป็นเมตร
- (11) เป็นค่าดอปเพลอร์แคานต์รวมของทุกสถานี
- (12) เป็นค่า Root Mean Squares ที่คำนวณได้ หน่วยเป็นเซนติเมตร
- (13)-(33) เป็นการแสดงค่าความสัมพันธ์ของสถานีที่คำนวณร่วมกันทางสถิติ
- (34) ชื่อสถานี
- (35) เป็นค่าดอปเพลอร์แคานต์ของแต่ละสถานี
- (36) จำนวนเส้นวงโคจรในแต่ละทิศทาง
- (37) เป็นจำนวนเส้นวงโคจรของดาวเทียมในรูปเมทริก
- (38) เป็นค่าพิกัดทางละติจูด ลองจิจูด ที่คำนวณได้
- (39) ค่าความสูงเหนือรูปทรงรีที่เสาอากาศรับสัญญาณ
- (40) ค่าพิกัดในระบบ Geocentric
- (41) ค่า Time delay ที่คำนวณได้ หน่วยเป็นมิลลิวินาที
- (42) ค่าความถี่ Oscillator หน่วยเป็น hertz/day
- (43) ค่าพิกัดที่คลาดเคลื่อนจากค่าประมาณที่ให้ไว้ตอนแรก
- (44) ระยะสถานีที่คลาดเคลื่อนจากที่ให้ไว้ตอนแรก หน่วยเป็นเมตร
- (45) ระยะห่างระหว่างสถานี หน่วยเป็นเมตร

ตารางที่ ก 2. การคำนวณค่าพิกัดบนพื้นหลักฐานดาวเทียม แมทธานสไลเคชั่น

MAGNET - VERSION IBM 83200

MAGNAVY REFERENCE NUMBER
DATE 17/1/1980 14:03:12

SITE NO.	PIVT	LSS	OUT	NSPT	HYPR	PRINT OPTIONS	WINDOW
10	224	1 1502	6	2	1	111 0100 0000	21 0 100 20100
UNIT	RNUM	SNUM	SKIP			ELEV	RMS
0	0	0	0			5.20	30.0

SITE	LATITUDE	CNST	LONGITUDE	CNST	ALTITUDE	CNST	MIN	MAX
1	N 15 3 13.334	.000	E 103 56 15.364	.000	130.62	.000	147	147
2	N 14 58 3.267	-1.000	E 103 32 17.549	-1.000	152.55	-1.000	144	154
3	N 15 20 27.377	-1.000	E 103 17 2.846	-1.000	122.68	-1.000	187	227
4	N 15 5 7.000	-1.000	E 103 43 21.531	-1.000	152.92	-1.000	223	279
5	N 15 20 49.008	-1.000	E 103 30 19.431	-1.000	110.01	-1.000	300	310
6	N 14 52 31.991	-1.000	E 103 30 36.277	-1.000	150.00	-1.000	320	363
7	N 15 16 33.304	-1.000	E 103 39 22.404	-1.000	165.17	-1.000	364	405
8	N 15 11 9.919	-1.000	E 103 29 33.767	-1.000	148.80	-1.000	426	448
9	N 15 11 43.578	-1.000	E 103 38 5.902	-1.000	137.06	-1.000	441	471
10	N 15 32 34.575	-1.000	E 103 32 7.103	-1.000	102.63	-1.000	477	523

SITE	T DELAY	CNST	FREQ	CNST	FOOT	CNST	TRCEN	CNST
1	.0001	.0010	.00	-1.00	.00	.00	2.00	.00
2	.0001	.0010	.00	-1.00	.00	.00	2.00	.00
3	.0001	.0010	.00	-1.00	.00	.00	2.00	.00
4	.0001	.0010	.00	-1.00	.00	.00	2.00	.00
5	.0001	.0010	.00	-1.00	.00	.00	2.00	.00
6	.0001	.0010	.00	-1.00	.00	.00	2.00	.00
7	.0001	.0010	.00	-1.00	.00	.00	2.00	.00
8	.0001	.0010	.00	-1.00	.00	.00	2.00	.00
9	.0001	.0010	.00	-1.00	.00	.00	2.00	.00
10	.0001	.0010	.00	-1.00	.00	.00	2.00	.00

ORBITAL CONSTRAINTS- ALONG TRACK HEIGHT CROSS TRACK
24.00 4.00 9.00

SELECTED SITES 1 2

ITE	SAT	PASS/S	PASS/S
1	130	1/ 1	144/ 2
2	480	2/ 1	145/ 2
3	480	3/ 1	146/ 2
4	320	4/ 1	147/ 2
5	300	5/ 1	148/ 2
6	500	6/ 1	149/ 2
7	500	7/ 1	150/ 2
8	220	9/ 1	151/ 2
9	130	10/ 1	152/ 2
10	480	11/ 1	153/ 2
11	480	12/ 1	154/ 2
12	500	13/ 1	155/ 2
13	110	14/ 1	157/ 2
14	130	15/ 1	158/ 2
15	480	16/ 1	159/ 2
16	130	17/ 1	160/ 2
17	480	18/ 1	161/ 2
18	300	19/ 1	162/ 2
19	500	20/ 1	163/ 2

ตารางที่ ก.2 (ต่อ)

20	500	21/	1	164/	2
21	200	22/	1	165/	2
22	150	23/	1	166/	2
23	150	24/	1	167/	2
24	430	25/	1	168/	2
25	500	26/	1	170/	2
26	110	27/	1	171/	2
27	500	28/	1	172/	2
28	200	29/	1	173/	2
29	150	30/	1	175/	2
30	200	31/	1	176/	2
31	150	32/	1	177/	2
32	430	33/	1	178/	2
33	500	34/	1	179/	2
34	500	35/	1	180/	2
35	110	36/	1	181/	2
36	500	37/	1	182/	2
37	200	38/	1	183/	2
38	110	39/	1	184/	2
39	200	40/	1	185/	2
40	150	41/	1	186/	2

ITERATION MOVEMENT 1

SITE	TOLAY	DRIFT	DEL. LAT	DEL. LON	DEL. HT	SPATIAL
1	.10	.00	.00	.00	.00	.00
2	.10	.00	1.05	-1.05	-1.00	1.00

TSORO CHECK INDICATES POOR DATA - SITE 2 TIE 20
NO PASSES AVAILABLE FOR TIE 20

ITERATION MOVEMENT 2

SITE	TOLAY	DRIFT	DEL. LAT	DEL. LON	DEL. HT	SPATIAL
1	.10	.00	.00	.00	.00	.00
2	.10	.00	.00	.05	-1.05	1.00

ตารางที่ ก.2 (ต่อ)

2 STATION SOLUTION USING 2349. DOPPLER COUNTS RMS = 4.99

SIGMA-CROSS CORRELATION MATRIX

.00	.					
.00	.00					
.00	.00	.00				
.00	.00	.00	.10			
.00	.00	.00	.02	.19		
.00	.00	.00	-.05	.16	.13	

VARIANCE-COVARIANCE MATRIX

.00						
.00	.00					
.00	.00	.00				
.00	.00	.00	.01			
.00	.00	.00	.00	.04		
.00	.00	.00	.00	.00	.02	

SITE	DOP	NW	NE	SW	SE	S1	S2
1	1162	14	10	8	7	39	39
2	1187	14	10	8	7	39	39

SITE	LATITUDE	LONGITUDE	HEIGHT	GEOD X	GEOD Y	GEOD Z
1	N 15 3 13.354	E 103 56 15.364	130.82	-1483914.77	5973091.13	1645872.76
2	N 14 58 3.304	E 103 32 17.549	133.53	-1442776.74	5981991.77	1636869.43

SITE	TOLAY	DRIFT	DEL. LAT	DEL. LONG	DEL. HT	RADIAL
1	.10	.00	.00	.00	.00	.20
2	.10	.00	1.14	.30	-1.02	1.53

CHORD MEASUREMENTS

SITE	1
2	43997.89

ตารางที่ ก.2 (ต่อ)

STATION NAME 10274

40 SATELLITE PASSES AVAILABLE FOR THE SOLUTION
 39 SATELLITE PASSES USED IN THE SOLUTION
 1162 DOPPLER INTERVALS USED
 24 PASSES TRAVELLING NORTH
 15 PASSES TRAVELLING SOUTH
 22 PASSES WEST OF THE RECEIVER
 17 PASSES EAST OF THE RECEIVER

POSITION AT ANTENNA ELECTRICAL CENTER				AT MARKER			
LATITUDE	N 15 3 13.334	(1 SIGMA	.00 M)	N 15 3 13.334			
LONGITUDE	E 103 56 15.364	(	.00 M)	E 103 56 15.364			
HEIGHT ABOVE ELLIPSOID	130.82	(	.00 M)	118.92			
GEOCENTRIC X	-1483914.77	(1 SIGMA	.00 M)	-1483912.00			
GEOCENTRIC Y	5979391.15	(	.00 M)	5979380.00			
GEOCENTRIC Z	1645872.78	(	.00 M)	1645869.60			
ZONE (UTM)	48						
CENTRAL MERIDIAN	E 105						
SCALE (UTM)	.9996						
NORTHING	1664540.47	(1 SIGMA	.00 M)	1664540.47			
EASTING	385807.08	(	.00 M)	385807.08			
FALSE NORTHING	.00						
FALSE EASTING	500000.00						

ANTENNA OFFSET FROM THE MARKER

NORTHING	.00
EASTING	.00
HEIGHT	11.90

NOTE: GEODETIC POSITIONS ARE EXPRESSED IN SATELLITE DATUM
 SEMI-MAJOR AXIS 6378135.0, FLATTENING COEFFICIENT 298.260

ตารางที่ ก.2 (ต่อ)

STATION NAME

7269

40 SATELLITE PASSES AVAILABLE FOR THE SOLUTION
 39 SATELLITE PASSES USED IN THE SOLUTION
 1187 DOPPLER INTERVALS USED
 24 PASSES TRAVELLING NORTH
 15 PASSES TRAVELLING SOUTH
 22 PASSES WEST OF THE RECEIVER
 17 PASSES EAST OF THE RECEIVER

POSITION AT ANTENNA ELECTRICAL CENTER

AT MARKER

LATITUDE	N 14 58 3.304	(1 SIGMA	.10 M)	N 14 58 3.304
LONGITUDE	E 105 32 17.749	(	.19 M)	E 105 32 17.749
HEIGHT ABOVE ELLIPSOID	153.53	(	.15 M)	153.53

GEOCENTRIC X	-1442776.74	(1 SIGMA	.19 M)	-1442776.12
GEOCENTRIC Y	5991991.77	(	.13 M)	5991991.23
GEOCENTRIC Z	1676669.43	(	.10 M)	1676669.77

ZONE (UTM)	48			
CENTRAL MERIDIAN	E 105			
SCALE (UTM)	.9996			
NORTHING	1655258.25	(1 SIGMA	.10 M)	1655258.25
EASTING	342807.97	(	.19 M)	342807.97
FALSE NORTHING	.00			
FALSE EASTING	500000.00			

ANTENNA OFFSET FROM THE MARKER

NORTHING	.00
EASTING	.00
HEIGHT	2.71

NOTE: GEODETIC POSITIONS ARE EXPRESSED IN SATELLITE 1984
 SEMI-MAJOR AXIS 6378135.0, FLATTENING COEFFICIENT 298.256

ตารางที่ ก.2 (ต่อ)

MAGNET - VERSION IBM 83200

DATE 1/1/1990 1:56:22

SITE NO.	PIVT	LSS	OUT	NSPT	HYPR	PRINT OPTIONS	WINDOW
2	524	1	1502	6	2	1	111 0100 0000
UNIT	FNUM	SNUM	SKIP	ELEV	RMS		
0	40	10	0	5.00	50.0		1 01 0 366 20.00

SITE	LATITUDE	CNST	LONGITUDE	CNST	ALTITUDE	CNST	MIN	MAX
1	N 15 3 13.334	.00	E 103 56 15.364	.00	140.82	.00	1	140
2	N 14 58 3.267	-1.00	E 103 32 17.549	-1.00	154.59	-1.00	144	181
3	N 15 20 27.377	-1.00	E 103 17 2.846	-1.00	122.68	-1.00	187	271
4	N 15 5 7.009	-1.00	E 103 43 21.531	-1.00	150.92	-1.00	225	273
5	N 15 20 49.008	-1.00	E 103 50 19.401	-1.00	121.57	-1.00	260	310
6	N 14 52 31.991	-1.00	E 103 50 36.277	-1.00	150.20	-1.00	308	365
7	N 15 16 53.304	-1.00	E 103 29 23.406	-1.00	165.12	-1.00	344	421
8	N 15 11 9.919	-1.00	E 103 29 33.767	-1.00	140.55	-1.00	401	450
9	N 15 11 43.578	-1.00	E 103 38 5.908	-1.00	137.56	-1.00	441	477
10	N 15 32 34.575	-1.00	E 103 32 7.103	-1.00	127.98	-1.00	478	501

SITE	T DELAY	CNST	FREQ	CNST	FOOT	CNST	TIME	TIME
1	.0001	.0010	.00	-1.00	.00	.00	2.31	2.00
2	.0001	.0010	.00	-1.00	.00	.00	2.31	2.00
3	.0001	.0010	.00	-1.00	.00	.00	2.31	2.00
4	.0001	.0010	.00	-1.00	.00	.00	2.32	2.00
5	.0001	.0010	.00	-1.00	.00	.00	2.31	2.00
6	.0001	.0010	.00	-1.00	.00	.00	2.31	2.00
7	.0001	.0010	.00	-1.00	.00	.00	2.30	2.00
8	.0001	.0010	.00	-1.00	.00	.00	2.30	2.00
9	.0001	.0010	.00	-1.00	.00	.00	2.31	2.00
10	.0001	.0010	.00	-1.00	.00	.00	2.31	2.00

ORBITAL CONSTRAINTS-	ALONG TRACK	HEIGHT	CROSS TRACK
	24.00	4.00	9.00

SELECTED SITES 1 3

TIE	DAT	PASS/1	PASS/3
1	130	1/ 1	189/ 3
2	480	2/ 1	189/ 3
3	480	3/ 1	190/ 3
4	520	4/ 1	191/ 3
5	500	5/ 1	192/ 3
6	500	7/ 1	193/ 3
7	200	8/ 1	194/ 3
8	200	9/ 1	195/ 3
9	130	10/ 1	196/ 3
10	480	11/ 1	197/ 3
11	480	12/ 1	198/ 3
12	130	14/ 1	200/ 3
13	130	15/ 1	201/ 3
14	480	16/ 1	202/ 3
15	130	17/ 1	203/ 3
16	480	18/ 1	204/ 3
17	500	19/ 1	205/ 3

ตารางที่ ก.2 (ต่อ)

18	500	22/	1	206/	3
19	500	21/	1	208/	3
20	130	23/	1	209/	3
21	130	24/	1	210/	3
22	480	25/	1	211/	3
23	110	27/	1	213/	3
24	500	28/	1	214/	3
25	200	29/	1	215/	3
26	130	30/	1	216/	3
27	200	31/	1	217/	3
28	130	32/	1	218/	3
29	480	33/	1	219/	3
30	500	34/	1	220/	3
31	500	35/	1	221/	3
32	110	36/	1	222/	3
33	500	37/	1	223/	3
34	200	38/	1	224/	3
35	110	39/	1	225/	3
36	200	40/	1	226/	3
37	130	41/	1	227/	3

ITERATION MOVEMENT 1

SITE	TOLAY	DRIFT	DEL. LAT	DEL. LON.	DEL. HI	RADIAL
1	.10	.00	.00	.00	.20	.00
3	.10	.00	1.79	.11	-3.16	.00

ITERATION MOVEMENT 2

SITE	TOLAY	DRIFT	DEL. LAT	DEL. LON.	DEL. HI	RADIAL
1	.10	.00	.00	.00	.00	.00
3	.10	.00	.10	-1.04	-1.07	.00

ตารางที่ ก.2 (ต่อ)

2 STATION SOLUTION USING 2149 DOPPLER COUNTS RMS = 5.12

SIGMA-CROSS CORRELATION MATRIX

.00						
.00	.00					
.00	.00	.00				
.00	.00	.00	.11			
.00	.00	.00	-.03	.21		
.00	.00	.00	-.09	.19	.15	

VARIANCE-COVARIANCE MATRIX

.00						
.00	.00					
.00	.00	.00				
.00	.00	.00	.01			
.00	.00	.00	.00	.04		
.00	.00	.00	.00	.01	.02	

SITE	DDF	NW	NE	SW	SE	31	33
1	1106	14	10	7	6	37	37
3	1043	13	11	7	6	37	37

SITE	LATITUDE	LONGITUDE	HEIGHT	GEO X	GEO Y	GEO Z
1	N 15 3 13.334	E 103 56 15.364	130.82	-1483914.77	5172091.15	1625821.23
3	N 15 20 27.459	E 103 17 2.849	112.45	-1413705.76	5437806.34	1676543.14

SITE	TDLAY	DRIFT	DEL LAT	DEL LON	DEL HT	RANGE
1	.10	.00	.00	.00	.00	22
3	.10	.00	1.92	.03	-1.23	1.76

CHORD MEASUREMENTS

SITE	1°
3	77076.61

ตารางที่ ก.2 (ต่อ)

SIGMA-CROSS CORRELATION MATRIX

		10274					
		.00					
10274		.00	.00				
		.00	.00	.00			
					10295		
		.00	.00	.00	.11		
10295		.00	.00	.00	-.03	.21	
		.00	.00	.00	-.09	.19	.15

VARIANCE-COVARIANCE MATRIX

		10274					
		.00					
10274		.00	.00				
		.00	.00	.00			
					10295		
		.00	.00	.00	.01		
10295		.00	.00	.00	.00	.04	
		.00	.00	.00	.00	.01	.02

ตารางที่ ก.2 (ต่อ)

STATION NAME 10274

37 SATELLITE PASSES AVAILABLE FOR THE SOLUTION
 37 SATELLITE PASSES USED IN THE SOLUTION
 1106 DOPPLER INTERVALS USED
 24 PASSES TRAVELLING NORTH
 13 PASSES TRAVELLING SOUTH
 21 PASSES WEST OF THE RECEIVER
 16 PASSES EAST OF THE RECEIVER

POSITION AT ANTENNA ELECTRICAL CENTER				AT MARKER			
LATITUDE	N 15 3	13.334	(1 SIGMA .00 M)	N 15 3	13.334		
LONGITUDE	E 103 56	15.364	(.00 M)	E 103 56	15.364		
HEIGHT ABOVE ELLIPSOID		130.82	(.00 M)			118.92	
GEOCENTRIC X		-1483914.77	(1 SIGMA .00 M)			-1483914.00	
GEOCENTRIC Y		5979391.15	(.00 M)			5979380.00	
GEOCENTRIC Z		1645872.78	(.00 M)			1645869.00	
ZONE (UTM)		48					
CENTRAL MERIDIAN		E 105					
SCALE (UTM)		.9996					
NORTHING		1664540.47	(1 SIGMA .00 M)			1664540.47	
EASTING		385807.08	(.00 M)			385807.00	
FALSE NORTHING		.00					
FALSE EASTING		500000.00					

ANTENNA OFFSET FROM THE MARKER

NORTHING	.00
EASTING	.00
HEIGHT	11.90

NOTE: GEODETIC POSITIONS ARE EXPRESSED IN SATELLITE DATUM
 SEMI-MAJOR AXIS 6378135.0, FLATTENING COEFFICIENT 298.260

ตารางที่ ก.2 (ต่อ)

STATION NAME 10295

37 SATELLITE PASSES AVAILABLE FOR THE SOLUTION
 37 SATELLITE PASSES USED IN THE SOLUTION
 1043 DOPPLER INTERVALS USED
 24 PASSES TRAVELLING NORTH
 13 PASSES TRAVELLING SOUTH
 20 PASSES WEST OF THE RECEIVER
 17 PASSES EAST OF THE RECEIVER

POSITION AT ANTENNA ELECTRICAL CENTER				AT MARKER			
LATITUDE	N 15 20 27.439	(1 SIGMA	.11 M)	N 15 20 27.439			
LONGITUDE	E 105 17 2.849	(	.21 M)	E 105 17 2.849			
HEIGHT ABOVE ELLIPSOID	119.45	(	.15 M)	117.60			
GEOCENTRIC X	-1413705.76	(1 SIGMA	.21 M)	-1413705.36			
GEOCENTRIC Y	5987806.39	(	.15 M)	5987804.56			
GEOCENTRIC Z	1676543.36	(	.12 M)	1676542.87			
ZONE (UTM)	48						
CENTRAL MERIDIAN	E 105						
SCALE (UTM)	.9996						
NORTHING	1696767.16	(1 SIGMA	.11 M)	1696767.16			
EASTING	315802.35	(	.21 M)	315802.35			
FALSE NORTHING	.00						
FALSE EASTING	500000.00						

ANTENNA OFFSET FROM THE MARKER

NORTHING	.00
EASTING	.00
HEIGHT	1.85

NOTE: GEODETIC POSITIONS ARE EXPRESSED IN SATELLITE DATUM
 SEMI-MAJOR AXIS 6378135.0, FLATTENING COEFFICIENT 299.260

ตารางที่ ก.2 (ต่อ)

MAGNET - VERSION IBM 83200

MAGNAVIX NETWORK PROGRAM
DATE 11/1/1980 4:40:20

SITE	NO.	PIVT	LSS	OUT	NSPT	HYPR	PRINT OPTIONS	.....WINDOW.....
9	524	1	1502	6	2	1	111 0100 0000	1 0: 0 366 23:50
UNIT	PNUM	SNUM	SKIP	ELEV	RMS			
9	34	10	0	5.00	50.0			

SITE	LATITUDE	CNST	LONGITUDE	CNST	ALTITUDE	CNST	MIN	MAX
1	N 15 3 13.334	.00	E 103 56 15.364	.00	130.80	.00	143	143
2	N 14 58 3.267	-1.00	E 103 32 17.549	-1.00	134.55	-1.00	144	186
3	N 15 20 27.377	-1.00	E 103 17 2.846	-1.00	122.68	-1.00	187	227
4	N 15 5 7.009	-1.00	E 103 43 21.531	-1.00	141.92	-1.00	228	279
5	N 15 20 49.008	-1.00	E 103 30 19.401	-1.00	112.31	-1.00	260	319
6	N 14 52 31.991	-1.00	E 103 30 36.277	-1.00	130.90	-1.00	320	367
7	N 15 16 33.304	-1.00	E 103 39 22.404	-1.00	163.17	-1.00	364	405
8	N 15 11 9.919	-1.00	E 103 29 33.767	-1.00	148.85	-1.00	406	440
9	N 15 11 43.578	-1.00	E 103 38 5.908	-1.00	177.36	-1.00	441	477
10	N 15 32 34.575	-1.00	E 103 32 7.103	-1.00	122.95	-1.00	478	523

SITE	T DELAY	CNST	FREQ	CNST	FDOT	CNST	FREQ	CNST
1	.0001	.0010	.00	-1.00	.00	2.31	.20	
2	.0001	.0010	.00	-1.00	.00	2.31	.20	
3	.0001	.0010	.00	-1.00	.00	2.31	.20	
4	.0001	.0010	.00	-1.00	.00	2.30	.20	
5	.0001	.0010	.00	-1.00	.00	2.31	.20	
6	.0001	.0010	.00	-1.00	.00	2.31	.20	
7	.0001	.0010	.00	-1.00	.00	2.30	.20	
8	.0001	.0010	.00	-1.00	.00	2.30	.20	
9	.0001	.0010	.00	-1.00	.00	2.31	.20	
10	.0001	.0010	.00	-1.00	.00	2.31	.20	

ORBITAL CONSTRAINTS-	ALONG TRACK	HEIGHT	CROSS TRACK
	24.00	4.00	9.00

SELECTED SITES 1 10

TIE	SAT	PASS/S.	PASS/S
1	500	107/	1 479/10
2	500	108/	1 481/10
3	200	109/	1 482/10
4	200	110/	1 483/10
5	130	111/	1 484/10
6	480	112/	1 485/10
7	480	113/	1 486/10
8	500	114/	1 487/10
9	300	115/	1 488/10
10	500	116/	1 489/10
11	500	117/	1 490/10
12	110	118/	1 491/10
13	200	119/	1 492/10
14	130	120/	1 493/10
15	480	121/	1 494/10
16	300	122/	1 495/10
17	500	123/	1 496/10
18	500	124/	1 497/10

ตารางที่ ก.2 (ต่อ)

19 110 125/ 1 498/10
 20 200 126/ 1 499/10
 21 130 127/ 1 500/10
 22 480 128/ 1 502/10
 23 300 129/ 1 503/10
 24 480 130/ 1 510/10
 25 300 131/ 1 511/10
 26 110 132/ 1 512/10
 27 200 133/ 1 513/10
 28 110 134/ 1 514/10
 29 200 135/ 1 515/10
 30 130 136/ 1 516/10
 31 480 137/ 1 517/10
 32 300 138/ 1 518/10
 33 110 139/ 1 519/10
 34 500 140/ 1 520/10
 35 110 141/ 1 521/10
 36 200 142/ 1 522/10
 37 130 143/ 1 523/10

RMS RESIDUALS TOO LARGE

FAIL FLAG IS NOW SET ON PASS 515

NO PASSES AVAILABLE FOR TIE 29

ITERATION MOVEMENT 1

SITE	TOLAY	DRIFT	DEL. LAT	DEL. LON	DEL. HT	RADIAL
1	.10	.00	.00	.00	.00	.00
10	.10	.00	-.02	1.75	-1.98	2.01

RMS RESIDUALS TOO LARGE

FAIL FLAG IS NOW SET ON PASS 515

NO PASSES AVAILABLE FOR TIE 29

ITERATION MOVEMENT 2

SITE	TOLAY	DRIFT	DEL. LAT	DEL. LON	DEL. HT	RADIAL
1	.10	.00	.00	.00	.00	.00
10	.10	.00	-.02	.00	.00	.00

ตารางที่ ก.2 (ต่อ)

2 STATION SOLUTION USING 2168. DOPPLER COUNTS RMS = 15.65

SIGMA-CROSS CORRELATION MATRIX

.00					
.00	.00				
.00	.00	.00			
.00	.00	.00	.10		
.00	.00	.00	-.02	.24	
.00	.00	.00	-.01	.19	.14

VARIANCE-COVARIANCE MATRIX

.00					
.00	.00				
.00	.00	.00			
.20	.00	.00	.01		
.00	.00	.00	.00	.06	
.00	.00	.00	.00	.01	.02

SITE	DOP	NW	NE	SW	SE	SI	SD
1	1035	11	7	8	10	36	36
10	1135	11	7	8	10	36	36

SITE	LATITUDE	LONGITUDE	HEIGHT	GEO X	GEO Y	GEO Z
1	N 15 3 13.334	E 103 56 15.364	130.82	-1483914.77	5970767.00	1693227.00
10	N 15 32 34.574	E 103 52 7.163	122.03	-1458551.25	5970767.00	1693227.00

SITE	TDLAY	DRIFT	DEL LAT	DEL LONG	DEL HT	RADIAL
1	.10	.00	.00	.00	.00	.00
10	.10	.00	-.04	1.79	-.05	1.02

CHORD MEASUREMENTS

SITE	1
10	69262.58

ตารางที่ ก.2 (ต่อ)

SIGMA-CROSS CORRELATION MATRIX

		10274						
		.00						
10274		.00	.00					
		.00	.00	.00				
		.00	.00	.00		10296		
		.00	.00	.00	.10			
10296		.00	.00	.00	-.02	.24		
		.00	.00	.00	-.01	.19	.14	

VARIANCE-COVARIANCE MATRIX

		10274						
		.00						
10274		.00	.00					
		.00	.00	.00				
		.00	.00	.00		10296		
		.00	.00	.00	.01			
10296		.00	.00	.00	.00	.06		
		.00	.00	.00	.00	.01	.02	

ตารางที่ ก.2 (ต่อ)

STATION NAME 10274

57 SATELLITE PASSES AVAILABLE FOR THE SOLUTION
 36 SATELLITE PASSES USED IN THE SOLUTION
 1035 DOPPLER INTERVALS USED
 18 PASSES TRAVELLING NORTH
 18 PASSES TRAVELLING SOUTH
 19 PASSES WEST OF THE RECEIVER
 17 PASSES EAST OF THE RECEIVER

POSITION AT ANTENNA ELECTRICAL CENTER				AT MARKER			
LATITUDE	N. 15 3 13.334	(1 SIGMA	.00 M)	N. 15 3 13.334			
LONGITUDE	E 103 56 15.364	(	.00 M)	E 103 56 15.364			
HEIGHT ABOVE ELLIPSOID	130.82	(	.00 M)	118.97			
GEOCENTRIC X	-1483914.77	(1 SIGMA	.00 M)	-1483912.00			
GEOCENTRIC Y	5979391.15	(	.00 M)	5979390.00			
GEOCENTRIC Z	1645872.78	(	.00 M)	1645869.60			
ZONE (UTM)	48						
CENTRAL MERIDIAN	E 105						
SCALE (UTM)	.9996						
NORTHING	1664540.47	(1 SIGMA	.00 M)	1664540.47			
EASTING	385807.08	(	.00 M)	385807.08			
FALSE NORTHING	.00						
FALSE EASTING	500000.00						

ANTENNA OFFSET FROM THE MARKER

NORTHING	.00
EASTING	.00
HEIGHT	11.90

NOTE: GEODETIC POSITIONS ARE EXPRESSED IN SATELLITE DATUM
 SEMI-MAJOR AXIS 6378135.0, FLATTENING COEFFICIENT 298.260

ตารางที่ ก.2 (ต่อ)

STATION NAME 10296

37 SATELLITE PASSES AVAILABLE FOR THE SOLUTION
 36 SATELLITE PASSES USED IN THE SOLUTION
 1133 DOPPLER INTERVALS USED
 18 PASSES TRAVELLING NORTH
 18 PASSES TRAVELLING SOUTH
 19 PASSES WEST OF THE RECEIVER
 17 PASSES EAST OF THE RECEIVER

POSITION AT ANTENNA ELECTRICAL CENTER		AT MARKER	
LATITUDE	N 15 32 34.574 (1 SIGMA 0.10 M)	N 15 32 34.574	
LONGITUDE	E 103 32 7.163 (0.24 M)	E 103 32 7.163	
HEIGHT ABOVE ELLIPSOID	122.03 (0.14 M)	116.73	
GEOCENTRIC X	-1438551.85 (1 SIGMA 0.05 M)	-1438551.32	
GEOCENTRIC Y	5975767.50 (0.13 M)	5975764.70	
GEOCENTRIC Z	1698097.53 (0.11 M)	1698084.00	
ZONE (UTM)	48		
CENTRAL MERIDIAN	E 103		
SCALE (UTM)	0.9996		
NORTHING	1718916.32 (1 SIGMA 0.10 M)	1718916.32	
EASTING	542925.93 (0.24 M)	542925.93	
FALSE NORTHING	.00		
FALSE EASTING	500000.00		

ANTENNA OFFSET FROM THE MARKER

NORTHING	.00
EASTING	.00
HEIGHT	3.24

NOTE: GEODETIC POSITIONS ARE EXPRESSED IN SATELLITE DATUM
 SEMI-MAJOR AXIS 6378135.0, FLATTENING COEFFICIENT 0.00298260

ภาคผนวก ข.

ผลการคำนวณค่าพิสัยบนพื้นหลักฐานดาวเทียม

แบบโครงข่าย ด้วยโปรแกรม MAGNET

ตารางที่ ข 1. การคำนวณค่าพิกัดบนพื้นหลักฐานดาวเทียม แบบโครงข่าย

MAGNET - VERSION IBM 83200

MAGNAVIX NETWORK PROGRAM
DATE 04-17-87 10:09:59

SITE NO.	PIVT	LSS	OUT	NSPT	HYPR	PRINT	OPTIONS	WINDOW
10	524	1	1502	6	2	1	111 0100 0000	1 0: 0 166 23:59
UNIT	PNUM	SNUM	SKIP	ELEV	RMS			
0	0	0	0	5.00	25.0			

SITE	LATITUDE	CNST	LONGITUDE	CNST	ALTITUDE	CNST	MIN	MAY
1	N 15 3 13.334	-1.00	E 103 56 15.364	-1.00	130.82	-1.00	1	14
2	N 14 58 3.267	-1.00	E 103 32 17.549	-1.00	134.55	-1.00	144	186
3	N 15 20 27.377	-1.00	E 103 17 2.846	-1.00	122.68	-1.00	187	237
4	N 15 5 7.009	-1.00	E 103 43 21.531	-1.00	152.92	-1.00	228	279
5	N 15 20 49.008	-1.00	E 103 30 19.401	-1.00	112.31	-1.00	280	319
6	N 14 52 31.991	-1.00	E 103 30 36.277	-1.00	130.20	-1.00	320	365
7	N 15 16 33.304	-1.00	E 103 39 22.404	-1.00	165.17	-1.00	364	405
8	N 15 11 9.919	-1.00	E 103 29 33.767	-1.00	148.85	-1.00	406	440
9	N 15 11 43.578	-1.00	E 103 38 5.908	-1.00	137.86	-1.00	441	477
10	N 15 32 34.575	-1.00	E 103 32 7.103	-1.00	122.98	-1.00	478	515

SITE	T DELAY	CNST	FREQ	CNST	FDOT	CNST	TROPO	CNST
1	.0001	.0010	.00	-1.00	.00	.00	2.31	.20
2	.0001	.0010	.00	-1.00	.00	.00	2.31	.20
3	.0001	.0010	.00	-1.00	.00	.00	2.31	.20
4	.0001	.0010	.00	-1.00	.00	.00	2.30	.20
5	.0001	.0010	.00	-1.00	.00	.00	2.31	.20
6	.0001	.0010	.00	-1.00	.00	.00	2.31	.20
7	.0001	.0010	.00	-1.00	.00	.00	2.30	.20
8	.0001	.0010	.00	-1.00	.00	.00	2.30	.20
9	.0001	.0010	.00	-1.00	.00	.00	2.31	.20
10	.0001	.0010	.00	-1.00	.00	.00	2.31	.20

ORBITAL CONSTRAINTS- ALONG TRACK HEIGHT CROSS TRACK
24.00 4.00 9.00

SELECTED SITES 1 2 3 4 5 6 7 8 9 10

TIE	SAT	PASS/S	PASS/S	PASS/S	PASS/S	PASS/S	PASS/S	PASS/S	PASS/S	PASS/S	PASS/S
1	130	1/	1 144/	2 188/	3						
2	480	2/	1 145/	2 189/	3						
3	480	3/	1 146/	2 190/	3						
4	300	4/	1 147/	2 191/	3						
5	300	5/	1 148/	2 192/	3						
6	500	6/	1 149/	2							
7	500	7/	1 150/	2 193/	3						
8	200	8/	1 194/	3							
9	200	9/	1 151/	2 195/	3 228/	4					
10	130	10/	1 152/	2 196/	3 229/	4					
11	480	11/	1 153/	2 197/	3 230/	4					
12	480	12/	1 154/	2 198/	3 231/	4					
13	300	13/	1 155/	2 232/	4						
14	500	156/	2 199/	3 233/	4						
15	110	14/	1 157/	2 200/	3 234/	4					
16	130	15/	1 158/	2 201/	3 236/	4					
17	480	16/	1 159/	2 202/	3 237/	4					
18	130	17/	1 160/	2 203/	3 238/	4					
19	480	18/	1 161/	2 204/	3 239/	4					
20	300	19/	1 162/	2 205/	3 240/	4					

ตารางที่ ข.1 (ต่อ)

21	500	20/	1	163/	2	206/	3	241/	4
22	500	21/	1	164/	2	208/	3	242/	4
23	200	22/	1	165/	2	243/	4		
24	130	23/	1	166/	2	209/	3	244/	4
25	130	24/	1	167/	2	210/	3	245/	4
26	480	25/	1	168/	2	211/	3	246/	4
27	300	169/	2	212/	3	247/	4		
28	500	26/	1	170/	2	248/	4		
29	110	27/	1	171/	2	213/	3	249/	4
30	500	28/	1	172/	2	214/	3	250/	4
31	200	29/	1	173/	2	215/	3	251/	4
32	130	30/	1	175/	2	216/	3	252/	4
33	200	31/	1	176/	2	217/	3	253/	4
34	130	32/	1	177/	2	218/	3	254/	4
35	480	33/	1	178/	2	219/	3	255/	4
36	300	34/	1	179/	2	220/	3	256/	4
37	500	35/	1	180/	2	221/	3	257/	4
38	110	36/	1	181/	2	222/	3	258/	4
39	500	37/	1	182/	2	223/	3	259/	4
40	200	38/	1	183/	2	224/	3	260/	4
41	110	39/	1	184/	2	225/	3	261/	4
42	200	40/	1	185/	2	226/	3	262/	4
43	130	41/	1	186/	2	227/	3	263/	4
44	480	42/	1	264/	4				
45	300	43/	1	265/	4				
46	300	44/	1	266/	4				
47	500	45/	1	267/	4	280/	5	320/	6
48	500	46/	1	268/	4	281/	5	321/	6
49	110	47/	1	269/	4	282/	5	322/	6
50	200	48/	1	270/	4	283/	5	323/	6
51	130	49/	1	271/	4	284/	5		
52	480	50/	1	272/	4	285/	5	324/	6
53	300	51/	1	273/	4	286/	5	325/	6
54	300	52/	1	274/	4	287/	5	326/	6
55	500	53/	1	275/	4	288/	5	327/	6
56	500	54/	1	276/	4	289/	5	328/	6
57	110	55/	1	277/	4	290/	5	329/	6
58	200	56/	1	278/	4	291/	5	330/	6
59	130	57/	1	279/	4	331/	6		
60	130	58/	1	292/	5	332/	6		
61	300	59/	1	293/	5	334/	6		
62	480	60/	1	294/	5	335/	6		
63	300	61/	1	295/	5	336/	6		
64	500	62/	1	337/	6				
65	200	63/	1	297/	5	338/	6		
66	110	64/	1	298/	5	339/	6	364/	7
67	200	65/	1	299/	5	340/	6	365/	7
68	130	66/	1	300/	5	341/	6	366/	7
69	480	67/	1	301/	5	342/	6	367/	7
70	500	68/	1	302/	5	343/	6	368/	7
71	480	69/	1	303/	5	344/	6	369/	7
72	500	70/	1	304/	5	345/	6	370/	7
73	500	71/	1	346/	6	371/	7		
74	110	347/	6	372/	7				
75	200	72/	1	348/	6	373/	7		
76	130	349/	6	374/	7				
77	130	73/	1	305/	5	350/	6	375/	7
78	480	74/	1	306/	5	351/	6	376/	7

ตารางที่ ข.1 (ต่อ)

79	480	75/	1	307/	5	3527	6	377/	7
80	300	76/	1	308/	5	353/	6	378/	7
81	110	77/	1	310/	5	354/	6	379/	7
82	200	78/	1	311/	5	355/	6	380/	7
83	130	79/	1	356/	6	381/	7		
84	480	80/	1	312/	5	357/	6	382/	7
85	480	81/	1	313/	5	358/	6	383/	7
86	300	82/	1	314/	5	359/	6	384/	7
87	500	83/	1	315/	5	360/	6	385/	7
88	110	316/	5	361/	6	386/	7		
89	200	85/	1	317/	5	362/	6	387/	7
90	130	86/	1	318/	5	363/	6	388/	7
91	480	87/	1	319/	5	389/	7		
92	480	88/	1	390/	7				
93	300	89/	1	391/	7				
94	300	392/	7	441/	9				
95	500	90/	1	393/	7	442/	9		
96	110	91/	1	394/	7	406/	8	443/	9
97	500	92/	1	395/	7	407/	8	444/	9
98	110	93/	1	396/	7	408/	8	445/	9
99	130	94/	1	397/	7	409/	8	446/	9
100	480	95/	1	398/	7	410/	8	447/	9
101	480	96/	1	399/	7	411/	8	448/	9
102	300	97/	1	400/	7	412/	8	449/	9
103	300	98/	1	401/	7	413/	8	450/	9
104	500	99/	1	402/	7	414/	8	451/	9
105	110	100/	1	403/	7	415/	8	452/	9
106	500	101/	1	404/	7	416/	8	453/	9
107	200	102/	1	405/	7	417/	8	454/	9
108	130	103/	1	418/	8	455/	9		
109	480	104/	1	419/	8	456/	9		
110	480	105/	1	420/	8	457/	9		
111	300	106/	1	421/	8	458/	9		
112	300	422/	8	459/	9	478/10			
113	500	107/	1	423/	8	460/	9	479/10	
114	110	424/	8	461/	9	480/10			
115	500	108/	1	425/	8	462/	9	481/10	
116	200	109/	1	426/	8	463/	9	482/10	
117	200	110/	1	427/	8	464/	9	483/10	
118	130	111/	1	428/	8	465/	9	484/10	
119	480	112/	1	429/	8	466/	9	485/10	
120	480	113/	1	430/	8	467/	9	486/10	
121	300	114/	1	431/	8	468/	9	487/10	
122	300	115/	1	432/	8	469/	9	488/10	
123	500	116/	1	433/	8	470/	9	489/10	
124	500	117/	1	434/	8	471/	9	490/10	
125	110	118/	1	435/	8	472/	9	491/10	
126	200	119/	1	436/	8	473/	9	492/10	
127	130	120/	1	474/	9	493/10			
128	480	121/	1	475/	9	494/10			
129	300	122/	1	437/	8	476/	9	495/10	
130	500	123/	1	438/	8	477/	9	496/10	
131	500	124/	1	439/	8	497/10			
132	110	125/	1	440/	8	498/10			
133	200	126/	1	499/10					
134	130	127/	1	500/10					
135	480	128/	1	502/10					
136	300	129/	1	503/10					

ตารางที่ ข.1 (ต่อ)

137	480	130/	1	510/10
138	300	131/	1	511/10
139	110	132/	1	512/10
140	200	133/	1	513/10
141	110	134/	1	514/10
142	200	135/	1	515/10
143	130	136/	1	516/10
144	480	137/	1	517/10
145	300	138/	1	518/10
146	110	139/	1	519/10
147	500	140/	1	520/10
148	110	141/	1	521/10
149	200	142/	1	522/10
150	130	143/	1	523/10

RMS RESIDUALS TOO LARGE

FAIL FLAG IS NOW SET ON PASS 515

NO PASSES AVAILABLE FOR TIE 142

ITERATION MOVEMENT 1

ตารางที่ ข.1 (ต่อ)

SITE	TDLAY	DRIFT	DEL LAT	DEL LON	DEL HT	RADIAL
1	.10	.00	1.27	-.88	1.11	1.40
2	.10	.00	2.30	-1.24	-.12	2.51
3	.10	.00	3.21	-.87	-2.15	3.96
4	.10	.00	1.30	-3.59	1.29	4.03
5	.10	.00	-1.65	-1.07	-.09	1.97
6	.10	.00	-1.84	-1.69	.32	2.52
7	.10	.00	-1.38	-.88	-1.36	2.12
8	.10	.00	2.50	-.42	-1.31	2.86
9	.10	.00	3.58	-.56	-2.16	4.22
10	.10	.00	1.35	1.18	.02	1.79

RMS RESIDUALS TOO LARGE
 FAIL FLAG IS NOW SET ON PASS 515
 NO PASSES AVAILABLE FOR TIE 142

ITERATION MOVEMENT 2

SITE	TDLAY	DRIFT	DEL LAT	DEL LON	DEL HT	RADIAL
1	.10	.00	-.01	.12	.01	.12
2	.10	.00	.11	.01	-.05	.12
3	.10	.00	.07	.19	.04	.21
4	.10	.00	.03	.11	.02	.11
5	.10	.00	-.03	.11	-.01	.11
6	.10	.00	-.03	.16	-.01	.16
7	.10	.00	.01	.16	-.02	.16
8	.10	.00	-.03	.12	-.03	.13
9	.10	.00	-.03	.00	-.02	.03
10	.10	.00	-.03	.10	-.01	.11

RMS RESIDUALS TOO LARGE
 FAIL FLAG IS NOW SET ON PASS 515
 NO PASSES AVAILABLE FOR TIE 142

ITERATION MOVEMENT 3

SITE	TDLAY	DRIFT	DEL LAT	DEL LON	DEL HT	RADIAL
1	.10	.00	.00	.00	.00	.00
2	.10	.00	.00	-.01	.00	.01
3	.10	.00	.00	-.01	.00	.01
4	.10	.00	.00	.00	.00	.00
5	.10	.00	.00	.00	.00	.00
6	.10	.00	.00	.00	.00	.00
7	.10	.00	.00	.00	.00	.00
8	.10	.00	.00	.00	.00	.00
9	.10	.00	.00	.00	.00	.00
10	.10	.00	.00	.00	.00	.00

ตารางที่ ข.1 (ต่อ)

.99	.00	-.04	.99	.00	-.04	.99	.00	-.04	.99	.00	-.04
.99	.00	-.04	.97								
-.01	.90	.03	.00	.82	.01	.00	.81	.00	.01	.83	.02
.00	.82	.01	-.01	.82	.00	-.01	.84	.02	.00	.87	.00
.00	.87	.00	.00	.51							
-.05	-.02	.93	-.05	.00	.86	-.04	.01	.85	-.05	-.01	.88
-.05	.01	.87	-.05	.01	.88	-.05	.00	.88	-.05	.00	.88
-.05	-.01	.89	-.05	.03	.33						

VARIANCE-COVARIANCE MATRIX

.94											
.00	.22										
-.01	.00	.10									
.93	.00	-.01	.94								
.00	.22	.00	.00	.25							
-.01	.00	.10	-.01	.00	.11						
.93	.00	-.01	.94	.00	-.01	.94					
.00	.21	.01	.00	.23	.00	.00	.25				
-.01	.00	.09	-.01	.00	.10	-.01	.00	.11			
.93	.00	-.02	.94	.00	-.02	.94	.00	-.02	.94		
.00	.21	.00	.00	.22	.00	.00	.22	.00	.00	.24	
-.01	.00	.10	-.01	.00	.10	-.01	.00	.10	-.02	.00	.10
.93	.00	-.01	.93	.00	-.01	.93	.00	-.02	.93	.00	-.01
.94											
.00	.21	.01	.00	.21	.00	.00	.21	.00	.00	.21	.00
.00	.25										
-.01	.00	.10	-.01	.00	.09	-.01	.00	.09	-.02	.00	.10
-.02	.00	.11									
.93	.00	-.01	.93	.00	-.01	.93	.00	-.01	.93	.00	-.01
.94	.00	-.01	.94								
.00	.21	.01	.00	.21	.00	.00	.21	.00	.00	.21	.00
.00	.23	.00	.00	.25							
-.01	.00	.10	-.01	.00	.09	.01	.00	.09	.01	.00	.10
-.01	.00	.10	-.01	.00	.11						
.93	.00	-.01	.93	.00	-.01	.93	.00	-.01	.93	.00	-.01
.94	.00	-.01	.94	.00	-.01	.94					
.00	.22	.00	.00	.21	.00	.00	.21	.00	.00	.21	.00
.00	.22	.00	.00	.22	.00	.00	.25				
-.01	.00	.10	-.01	.00	.09	-.01	.00	.09	-.02	.00	.09
-.02	.00	.10	-.01	.00	.10	-.01	.00	.11	-.02	.00	.10
.93	.00	-.01	.93	.00	-.01	.93	.00	-.01	.93	.00	-.01
.93	.00	-.01	.93	.00	-.01	.93	.00	-.01	.93	.00	-.01
.00	.22	.01	.00	.21	.00	.00	.21	.00	.00	.21	.00
.00	.21	.00	.00	.21	.00	.00	.22	.00	.00	.26	
-.01	.00	.10	-.01	.00	.09	-.01	.00	.09	-.02	.00	.09
-.01	.00	.09	-.01	.00	.09	-.01	.00	.10	-.02	.00	.10
.93	.00	-.01	.93	.00	-.01	.93	.00	-.01	.93	.00	-.01
.93	.00	-.01	.93	.00	-.01	.93	.00	-.01	.94	.00	-.01

ตารางที่ ข.1 (ต่อ)

.05														
.00	.21	.00	.00	.21	.00	.00	.21	.00	.00	.21	.00	.00	.21	.00
.00	.21	.00	.00	.21	.00	.00	.22	.00	.00	.23	.00	.00	.23	.00
.00	.25													
-.01	.00	.10	-.01	.00	.09	-.01	.00	.09	.02	.00	.00	.00	.00	.00
-.02	.00	.09	-.01	.00	.09	-.01	.00	.10	-.01	.00	.00	.00	.00	.10
-.02	.00	.11												
.93	.00	-.01	.93	.00	-.01	.93	.00	-.01	.93	.00	-.01	.93	.00	-.01
.93	.00	-.01	.93	.00	-.01	.93	.00	-.01	.94	.00	-.01	.94	.00	-.01
.94	.00	-.01	.94											
.00	.21	.01	.00	.21	.00	.00	.21	.00	.00	.21	.00	.00	.21	.00
.00	.21	.00	.00	.21	.00	.00	.21	.00	.00	.22	.00	.00	.22	.00
.00	.22	.00	.00	.26										
-.01	.00	.10	-.01	.00	.09	-.01	.00	.09	-.02	.00	.00	.00	.00	.00
-.02	.00	.09	-.01	.00	.09	-.01	.00	.09	-.01	.00	.00	.00	.00	.10
-.01	.00	.10	-.01	.00	.11									

SITE	DOP	NW	NE	SW	SE	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10
1	4152	39	36	33	33	141	40	37	49	37	40	38	33	34	35
2	1287	15	10	8	9	40	42	38	35	0	0	0	0	0	0
3	1115	13	11	7	8	37	38	39	32	0	0	0	0	0	0
4	1535	14	13	10	14	49	35	32	51	12	12	0	0	0	0
5	1148	8	12	10	8	37	0	0	12	38	36	21	0	0	0
6	1388	11	14	11	7	40	0	0	12	36	43	25	0	0	0
7	1288	11	13	10	8	38	0	0	0	21	25	42	12	14	15
8	1023	8	9	9	9	33	0	0	0	0	0	12	35	35	19
9	1137	8	10	10	9	34	0	0	0	0	0	14	33	37	19
10	1186	11	7	9	11	36	0	0	0	0	0	0	19	19	38

SITE	LATITUDE	LONGITUDE	HEIGHT	GEO X	GEO Y	GEO Z
1	N 15 3 13.375	E 103 56 15.339	131.95	-1483914.22	5979392.08	1645874.09
2	N 14 58 3.345	E 103 32 17.508	134.38	-1442775.66	5991092.55	1636670.86
3	N 15 20 27.483	E 103 17 2.823	120.56	-1413705.19	5987807.26	1676544.96
4	N 15 5 7.052	E 103 43 21.414	154.22	-1461258.21	5984056.16	1649250.09
5	N 15 20 48.954	E 103 30 19.369	112.20	-1436775.41	5982125.59	1627179.18
6	N 14 52 31.930	E 103 30 36.226	130.51	-1440445.13	5995947.02	1626826.01
7	N 15 16 33.260	E 103 39 22.380	163.79	-1453020.69	5980387.48	1669612.44
8	N 15 11 9.999	E 103 29 33.757	147.51	-1436553.77	5987032.64	1660021.07
9	N 15 11 43.693	E 103 38 5.889	135.18	-1451347.67	5985172.10	1661017.39
10	N 15 32 34.618	E 103 32 7.146	123.00	-1438551.49	5975068.18	1699089.10

SITE	TDLAY	DRIF1	DEL LAT	DEL LON	DEL HT	RADIAL
1	.10	.00	1.26	-1.75	1.13	1.85
2	.10	.00	2.40	-1.23	-1.17	2.71
3	.10	.00	3.28	-1.69	-2.12	1.06
4	.10	.00	1.33	-3.48	1.30	3.95
5	.10	.00	-1.68	-1.96	-1.11	1.94
6	.10	.00	-1.87	-1.54	.31	2.44
7	.10	.00	-1.37	-1.72	-1.38	2.07
8	.10	.00	2.48	-1.29	-1.34	2.83
9	.10	.00	3.56	-1.56	-2.18	4.21
10	.10	.00	1.32	1.28	.02	1.84

ตารางที่ ข.1 (ต่อ)

CHORD MEASUREMENTS

SITE	1	2	3	4	5	6	7
	8	9					
2	43998.37						
3	77076.68	49523.26					
4	23376.72	23726.05	54955.97				
5	56652.77	42122.24	23768.02	37188.05			
6	50037.41	10626.64	56940.80	32579.00	52163.06		
7	38973.12	36397.59	40605.65	22266.20	18005.12	47005.82	
8	50015.22	24668.70	28208.10	27112.71	17847.37	34416.11	20181.94
9	36113.44	27276.89	40982.31	15407.02	21786.51	37863.56	9188.54
	15321.74						
10	69262.52	63665.32	35020.40	54489.95	21927.06	73900.64	32274.06
	39749.89	39910.88					

ตารางที่ ข.1 (ต่อ)

SIGMA-CROSS CORRELATION MATRIX

	10274			10269			10295		
	.97								
10274	.00	.47							
	-.05	.01	.31						
				.97					
10269	.99	.00	-.05	.00	.50				
	-.01	.91	.03	-.04	.02	.33			
							.97		
10295	.99	.00	-.04	.99	.00	-.04	.00	.50	
	-.01	.90	.04	-.01	.90	.02	-.04	.03	.33
	-.05	-.03	.91	-.05	.00	.91			
							.99	-.01	-.05
10272	1.00	.00	-.05	.99	.00	-.05	.99	-.01	-.05
	.00	.92	.02	.00	.91	.00	.00	.90	-.02
	-.05	.00	.94	-.05	.02	.92	.04	.03	.91
							.99	.00	-.05
11058	.99	.00	-.05	.99	.00	-.05	.99	-.01	-.05
	-.01	.91	.04	.00	.84	.01	.00	.83	.00
	-.05	-.02	.93	-.04	.00	.87	-.04	.01	.86
							.99	-.01	.04
11031	1.00	.00	-.05	.99	.00	-.04	.99	-.01	.04
	-.01	.91	.04	.00	.84	.01	.00	.83	.00
	-.05	-.02	.94	-.04	.00	.88	.04	.01	.87
							.99	-.01	-.05
10294	1.00	.00	-.05	.99	-.01	-.04	.99	-.01	-.05
	.00	.92	.03	.00	.84	.00	.00	.83	-.01
	-.05	.00	.93	-.04	.01	.87	-.04	.02	.85
							.99	-.01	-.05
10293	.99	.00	-.05	.99	.00	-.04	.99	-.01	-.05
	-.01	.90	.04	.00	.83	.01	.00	.82	.00
	-.04	-.01	.89	-.04	.00	.83	-.04	.01	.81
							.99	-.01	-.05
11057	.99	.00	-.05	.99	.00	-.05	.99	-.01	-.05
	.00	.91	.03	.00	.83	.00	.00	.82	-.01
	-.04	-.01	.91	-.04	.01	.84	-.04	.02	.83
							.99	-.01	.04
10296	.99	.00	-.05	.99	.00	-.04	.99	-.01	.04
	-.01	.90	.03	.00	.82	.01	.00	.81	.00
	-.05	-.02	.93	-.05	.00	.86	-.04	.01	.85

ตารางที่ ข.1 (ต่อ)

	10272								
	.97								
10272	.00	.49							
	-.05	.01	.32						
				11058					
	.99	.00	-.05	.97					
11058	-.01	.86	.03	.00	.50				
	-.05	.00	.90	-.05	.00	.33			
							11031		
	.99	.00	-.05	.99	.00	-.05	.97		
11031	-.01	.87	.03	.00	.90	.00	.00	.50	
	-.05	-.01	.91	-.05	.00	.93	-.05	.01	.33
	.99	.00	-.05	.99	-.01	-.05	.99	-.01	-.05
10294	.00	.86	.01	.00	.88	-.01	.00	.89	-.01
	-.05	.00	.89	-.05	.01	.91	-.05	.01	.93
	.99	.00	-.05	.99	.00	-.05	.99	.00	-.05
10293	-.01	.84	.02	.00	.83	.01	-.01	.83	.01
	-.05	.00	.85	-.05	.01	.84	-.04	.01	.85
	.99	.00	-.05	.99	.00	-.05	.99	-.01	-.05
11057	.00	.84	.02	.00	.83	.00	.00	.84	.00
	-.05	.00	.86	-.05	.02	.85	-.04	.01	.85
	.99	.00	-.04	.99	.00	-.04	.99	.00	.04
10296	-.01	.83	.02	.00	.82	.01	-.01	.82	.01
	-.05	-.01	.88	-.05	.01	.87	-.05	.01	.88
	10294								
	.97								
10294	.00	.50							
	-.05	.00	.33						
				10293					
	.99	.00	-.05	.97					
10293	-.01	.86	.02	.00	.51				
	-.04	.01	.85	-.05	.02	.34			
							11057		
	.99	.00	-.05	.99	.00	-.04	.97		
11057	.00	.87	.02	.00	.89	.00	.00	.50	
	-.04	.02	.87	-.04	.01	.88	-.05	.01	.34
	.99	.00	-.04	.99	.00	-.04	.99	.00	-.04
1.00									
	10296								
	.97								
10296	.00	.51							
	-.05	.03	.33						

ตารางที่ ข.1 (ต่อ)

VARIANCE-COVARIANCE MATRIX

	10274			10269			10295		
	.94			.94			.94		
10274	.00	.22		.00	.25		.00	.25	
	-.01	.00	.10	-.01	.00	.11	-.01	.00	.11
	.93	.00	-.01	.94	.00	-.01	.94	.00	-.01
10269	.00	.22	.00	.00	.25	.00	.00	.25	.00
	-.01	.00	.10	-.01	.00	.11	-.01	.00	.11
	.93	.00	-.01	.94	.00	-.01	.94	.00	-.01
10295	.00	.21	.01	.00	.23	.00	.00	.25	.00
	-.01	.00	.09	-.01	.00	.10	-.01	.00	.11
	.93	.00	-.02	.94	.00	-.02	.94	.00	-.02
10272	.00	.21	.00	.00	.22	.00	.00	.22	.00
	-.01	.00	.10	-.01	.00	.10	-.01	.00	.10
	.93	.00	-.01	.93	.00	-.01	.93	.00	-.02
11058	.00	.21	.01	.00	.21	.00	.00	.21	.00
	-.01	.00	.10	-.01	.00	.09	-.01	.00	.09
	.93	.00	-.01	.93	.00	-.01	.93	.00	-.01
11031	.00	.21	.01	.00	.21	.00	.00	.21	.00
	-.01	.00	.10	-.01	.00	.09	-.01	.00	.09
	.93	.00	-.01	.93	.00	-.01	.93	.00	-.01
10294	.00	.22	.00	.00	.21	.00	.00	.21	.00
	-.01	.00	.10	-.01	.00	.09	-.01	.00	.09
	.93	.00	-.01	.93	.00	-.01	.93	.00	-.01
10293	.00	.22	.01	.00	.21	.00	.00	.21	.00
	-.01	.00	.10	-.01	.00	.09	-.01	.00	.09
	.93	.00	-.01	.93	.00	-.01	.93	.00	-.01
11057	.00	.21	.00	.00	.21	.00	.00	.21	.00
	-.01	.00	.10	-.01	.00	.09	-.01	.00	.09
	.93	.00	-.01	.93	.00	-.01	.93	.00	-.01
10296	.00	.21	.01	.00	.21	.00	.00	.21	.00
	-.01	.00	.10	-.01	.00	.09	-.01	.00	.09

ตารางที่ ข.1 (ต่อ)

	10272								
	.94								
10272	.00	.24							
	-.02	.00	.10						
				11058					
	.93	.00	-.01	.94					
11058	.00	.21	.00	.00	.25				
	-.02	.00	.10	-.02	.00	.11			
							11031		
	.93	.00	-.01	.94	.00	-.01	.94		
11031	.00	.21	.00	.00	.23	.00	.00	.25	
	-.01	.00	.10	-.01	.00	.10	-.01	.00	.11
	.93	.00	-.01	.94	.00	-.01	.94	.00	-.01
10294	.00	.21	.00	.00	.22	.00	.00	.22	.00
	-.02	.00	.09	-.02	.00	.10	-.01	.00	.10
	.93	.00	-.01	.93	.00	-.01	.93	.00	-.01
10293	.00	.21	.00	.00	.21	.00	.00	.21	.00
	-.02	.00	.09	-.01	.00	.09	-.01	.00	.09
	.93	.00	-.01	.93	.00	-.01	.93	.00	-.01
11057	.00	.21	.00	.00	.21	.00	.00	.21	.00
	-.02	.00	.09	-.02	.00	.09	-.01	.00	.09
	.93	.00	-.01	.93	.00	-.01	.93	.00	-.01
10296	.00	.21	.00	.00	.21	.00	.00	.21	.00
	-.02	.00	.09	-.02	.00	.09	-.01	.00	.09
	10294								
	.94								
10294	.00	.25							
	-.01	.00	.11						
				10293					
	.93	.00	-.01	.95					
10293	.00	.22	.00	.00	.26				
	-.01	.00	.10	-.02	.00	.12			
							11057		
	.93	.00	-.01	.94	.00	-.01	.95		
11057	.00	.22	.00	.00	.23	.00	.00	.25	
	-.01	.00	.10	-.01	.00	.10	-.01	.00	.11
	.93	.00	-.01	.94	.00	-.01	.94	.00	-.01
.96									
	10296								
	.94								
10296	.00	.26							
	-.01	.00	.11						

ตารางที่ ข.1 (ต่อ)

STATION NAME 10274

142 SATELLITE PASSES AVAILABLE FOR THE SOLUTION
 141 SATELLITE PASSES USED IN THE SOLUTION
 4152 DOPPLER INTERVALS USED
 75 PASSES TRAVELLING NORTH
 66 PASSES TRAVELLING SOUTH
 72 PASSES WEST OF THE RECEIVER
 69 PASSES EAST OF THE RECEIVER

POSITION AT ANTENNA ELECTRICAL CENTER				AT MARKER	
LATITUDE	N 15 3 13.375	(1 SIGMA	.97 M)	N 15 3 13.375	
LONGITUDE	E 103 56 15.339	(	.47 M)	E 103 56 15.339	
HEIGHT ABOVE ELLIPSOID	131.95	(	.31 M)	120.05	
GEOCENTRIC X	-1483914.22	(1 SIGMA	.45 M)	-1483911.45	
GEOCENTRIC Y	5979392.08	(	.41 M)	5979380.90	
GEOCENTRIC Z	1645874.28	(	.26 M)	1645871.10	
ZONE (UTM)	48				
CENTRAL MERIDIAN	E 105				
SCALE (UTM)	.9996				
NORTHING	1664541.72	(1 SIGMA	.97 M)	1664541.72	
EASTING	385806.33	(	.47 M)	385806.33	
FALSE NORTHING	.00				
FALSE EASTING	500000.00				

ANTENNA OFFSET FROM THE MARKER

NORTHING	.00
EASTING	.00
HEIGHT	11.90

NOTE: GEODETIC POSITIONS ARE EXPRESSED IN SATELLITE DATUM
 SEMI-MAJOR AXIS 6378135.0, FLATTENING COEFFICIENT 298.260

ตารางที่ ข.1 (ต่อ)

STATION NAME 10269

42 SATELLITE PASSES AVAILABLE FOR THE SOLUTION
 42 SATELLITE PASSES USED IN THE SOLUTION
 1287 DOPPLER INTERVALS USED
 25 PASSES TRAVELLING NORTH
 17 PASSES TRAVELLING SOUTH
 23 PASSES WEST OF THE RECEIVER
 19 PASSES EAST OF THE RECEIVER

POSITION AT ANTENNA ELECTRICAL CENTER			AT MARKER		
LATITUDE	N 14 58 3.345	(1 SIGMA .97 M)	N 14 58 3.345		
LONGITUDE	E 103 32 17.508	(.50 M)	E 103 32 17.508		
HEIGHT ABOVE ELLIPSOID	134.98	(.33 M)	131.67		
GEOCENTRIC X	-1442775.66	(1 SIGMA .48 M)	-1442775.04		
GEOCENTRIC Y	5991992.55	(.42 M)	5991990.00		
GEOCENTRIC Z	1636670.86	(.96 M)	1636670.15		
ZONE (UTM)	48				
CENTRAL MERIDIAN	E 105				
SCALE (UTM)	.9996				
NORTHING	1655259.51	(1 SIGMA .97 M)	1655259.51		
EASTING	342806.75	(.50 M)	342806.75		
FALSE NORTHING	.00				
FALSE EASTING	500000.00				

ANTENNA OFFSET FROM THE MARKER

NORTHING	.00
EASTING	.00
HEIGHT	2.71

NOTE: GEODETIC POSITIONS ARE EXPRESSED IN SATELLITE DATUM
 SEMI-MAJOR AXIS 6378135.0, FLATTENING COEFFICIENT 298.260

ตารางที่ ข.1 (ต่อ)

STATION NAME 10295

39 SATELLITE PASSES AVAILABLE FOR THE SOLUTION
 39 SATELLITE PASSES USED IN THE SOLUTION
 1115 DOPPLER INTERVALS USED
 24 PASSES TRAVELLING NORTH
 15 PASSES TRAVELLING SOUTH
 20 PASSES WEST OF THE RECEIVER
 19 PASSES EAST OF THE RECEIVER

POSITION AT ANTENNA ELECTRICAL CENTER				AT MARKER	
LATITUDE	N 15 20 27.483	(1 SIGMA	1.97 M)	N 15 20 27.483	
LONGITUDE	E 103 17 2.823	(	1.50 M)	E 103 17 2.823	
HEIGHT ABOVE ELLIPSOID	120.56	(	1.33 M)	118.22	
GEOCENTRIC X	-1413705.19	(1 SIGMA	1.69 M)	-1413704.78	
GEOCENTRIC Y	5987807.26	(	1.63 M)	5987805.53	
GEOCENTRIC Z	1676544.96	(	1.97 M)	1676544.48	
ZONE (UTM)	48				
CENTRAL MERIDIAN	E 105				
SCALE (UTM)	0.9996				
NORTHING	1696768.52	(1 SIGMA	1.97 M)	1696768.11	
EASTING	315801.59	(	1.50 M)	315801.54	
FALSE NORTHING	.00				
FALSE EASTING	500000.00				

ANTENNA OFFSET FROM THE MARKER

NORTHING	.00
EASTING	.00
HEIGHT	1.85

NOTE: GEODETIC POSITIONS ARE EXPRESSED IN SATELLITE DATUM
 SEMI-MAJOR AXIS 6378135.0, FLATTENING COEFFICIENT 298.260

ตารางที่ ข.1 (ต่อ)

STATION NAME 10272

51 SATELLITE PASSES AVAILABLE FOR THE SOLUTION
 51 SATELLITE PASSES USED IN THE SOLUTION
 1535 DOPPLER INTERVALS USED
 27 PASSES TRAVELLING NORTH
 24 PASSES TRAVELLING SOUTH
 24 PASSES WEST OF THE RECEIVER
 27 PASSES EAST OF THE RECEIVER

POSITION AT ANTENNA ELECTRICAL CENTER				AT MARKER			
LATITUDE	N 15 5 7.052	(1 SIGMA	.97 M)	N 15 5 7.052			
LONGITUDE	E 103 43 21.414	(	.49 M)	E 103 43 21.414			
HEIGHT ABOVE ELLIPSOID	154.22	(	.32 M)	151.22			
GEOCENTRIC X	-1461258.21	(1 SIGMA	.47 M)	-1461257.50			
GEOCENTRIC Y	5984056.16	(	.42 M)	5984053.35			
GEOCENTRIC Z	1649253.98	(	.96 M)	1649253.19			
ZONE (UTM)	48						
CENTRAL MERIDIAN	E 105						
SCALE (UTM)	.9996						
NORTHING	1668157.64	(1 SIGMA	.97 M)	1668157.64			
EASTING	362716.32	(	.49 M)	362716.32			
FALSE NORTHING	.00						
FALSE EASTING	500000.00						

ANTENNA OFFSET FROM THE MARKER

NORTHING	.00
EASTING	.00
HEIGHT	3.00

NOTE: GEODETIC POSITIONS ARE EXPRESSED IN SATELLITE DATUM
 SEMI-MAJOR AXIS 6378135.0, FLATTENING COEFFICIENT 298.260

ตารางที่ ข.1 (ต่อ)

STATION NAME 11058

38 SATELLITE PASSES AVAILABLE FOR THE SOLUTION
 38 SATELLITE PASSES USED IN THE SOLUTION
 1148 DOPPLER INTERVALS USED
 20 PASSES TRAVELLING NORTH
 18 PASSES TRAVELLING SOUTH
 18 PASSES WEST OF THE RECEIVER
 20 PASSES EAST OF THE RECEIVER

POSITION AT ANTENNA ELECTRICAL CENTER				AT MARKER	
LATITUDE	N 15 20 48.954	(1 SIGMA	.47 M)	N 15 20 48.954	
LONGITUDE	E 103 30 19.369	(	.50 M)	E 103 30 19.369	
HEIGHT ABOVE ELLIPSOID	112.20	(	.33 M)	109.89	
GEOCENTRIC X	-1436775.41	(1 SIGMA	.48 M)	-1436774.89	
GEOCENTRIC Y	5982125.59	(	.43 M)	5982123.47	
GEOCENTRIC Z	1677179.18	(	.96 M)	1677178.57	
ZONE (UTM)	48				
CENTRAL MERIDIAN	E 105				
SCALE (UTM)	.9996				
NORTHING	1697252.24	(1 SIGMA	.97 M)	1697252.24	
EASTING	339563.51	(	.50 M)	339563.51	
FALSE NORTHING	.00				
FALSE EASTING	500000.00				

ANTENNA OFFSET FROM THE MARKER

NORTHING	.00
EASTING	.00
HEIGHT	2.31

NOTE: GEODETIC POSITIONS ARE EXPRESSED IN SATELLITE DATUM
 SEMI-MAJOR AXIS 6378135.0, FLATTENING COEFFICIENT 298.260

ตารางที่ ข.1 (ต่อ)

STATION NAME 11031 •

- 43 SATELLITE PASSES AVAILABLE FOR THE SOLUTION
- 43 SATELLITE PASSES USED IN THE SOLUTION
- 1388 DOPPLER INTERVALS USED
- 25 PASSES TRAVELLING NORTH
- 18 PASSES TRAVELLING SOUTH
- 22 PASSES WEST OF THE RECEIVER
- 21 PASSES EAST OF THE RECEIVER

POSITION AT ANTENNA ELECTRICAL CENTER			AT MARKER
LATITUDE	N 14 52 31.930	(1 SIGMA .97 M)	N 14 52 31.930
LONGITUDE	E 103 30 36.226	(.50 M)	E 103 30 36.226
HEIGHT ABOVE ELLIPSOID	130.51	(.33 M)	127.50
GEOCENTRIC X	-1440445.13	(1 SIGMA .48 M)	-1440444.85
GEOCENTRIC Y	5995247.02	(.42 M)	5995244.19
GEOCENTRIC Z	1626826.95	(.96 M)	1626826.19
ZONE (UTM)	48		
CENTRAL MERIDIAN	E 105		
SCALE (UTM)	.9996		
NORTHING	1645094.52	(1 SIGMA .97 M)	1645094.50
EASTING	339712.59	(.50 M)	339712.59
FALSE NORTHING	.00		
FALSE EASTING	500000.00		

ANTENNA OFFSET FROM THE MARKER

NORTHING	.00
EASTING	.00
HEIGHT	3.01

NOTE: GEODETIC POSITIONS ARE EXPRESSED IN SATELLITE DATUM
SEMI-MAJOR AXIS 6378135.0, FLATTENING COEFFICIENT 298.260

ตารางที่ ข.1 (ต่อ)

STATION NAME 10294

42 SATELLITE PASSES AVAILABLE FOR THE SOLUTION
 42 SATELLITE PASSES USED IN THE SOLUTION
 1288 DOPPLER INTERVALS USED
 24 PASSES TRAVELLING NORTH
 18 PASSES TRAVELLING SOUTH
 21 PASSES WEST OF THE RECEIVER
 21 PASSES EAST OF THE RECEIVER

POSITION AT ANTENNA ELECTRICAL CENTER				AT MARKER	
LATITUDE	N 15 16 33.260	(1 SIGMA	.97 M)	N 15 16 33.260	
LONGITUDE	E 103 39 22.380	(	.50 M)	E 103 39 22.380	
HEIGHT ABOVE ELLIPSOID	163.79	(	.33 M)	160.99	
GEOCENTRIC X	-1453020.65	(1 SIGMA	.48 M)	-1453019.92	
GEOCENTRIC Y	5980387.48	(	.43 M)	5980384.48	
GEOCENTRIC Z	1659612.44	(	.96 M)	1659611.59	
ZONE (UTM)	48				
CENTRAL MERIDIAN	E 105				
SCALE (UTM)	.9996				
NORTHING	1689288.17	(1 SIGMA	.97 M)	1689289.1	
EASTING	355708.73	(	.50 M)	355708.73	
FALSE NORTHING	.00				
FALSE EASTING	500000.00				

ANTENNA OFFSET FROM THE MARKER

NORTHING	.00
EASTING	.00
HEIGHT	3.20

NOTE: GEODETIC POSITIONS ARE EXPRESSED IN SATELLITE DATUM
 SEMI-MAJOR AXIS 6378135.0, FLATTENING COEFFICIENT 298.260

ตารางที่ ข.1 (ต่อ)

STATION NAME 10293

35 SATELLITE PASSES AVAILABLE FOR THE SOLUTION
 35 SATELLITE PASSES USED IN THE SOLUTION
 1023 DOPPLER INTERVALS USED
 17 PASSES TRAVELLING NORTH
 18 PASSES TRAVELLING SOUTH
 17 PASSES WEST OF THE RECEIVER
 18 PASSES EAST OF THE RECEIVER

POSITION AT ANTENNA ELECTRICAL CENTER				AT MARKER			
LATITUDE	N 15 11 9.999	(1 SIGMA	1.97 M)	N 15 11 9.999			
LONGITUDE	E 103 29 33.757	(	1.51 M)	E 103 29 33.757			
HEIGHT ABOVE ELLIPSOID	147.51	(	1.34 M)	144.43			
GEOCENTRIC X	-1436553.77	(1 SIGMA	1.49 M)	-1436553.07			
GEOCENTRIC Y	5987032.64	(	1.43 M)	5987029.75			
GEOCENTRIC Z	1660021.07	(	1.97 M)	1660020.17			
ZONE (UTM)	48						
CENTRAL MERIDIAN	E 105						
SCALE (UTM)	1.9996						
NORTHING	1679468.44	(1 SIGMA	1.17 M)	1679458.44			
EASTING	338079.94	(	1.51 M)	338079.94			
FALSE NORTHING	.00						
FALSE EASTING	500000.00						

ANTENNA OFFSET FROM THE MARKER

NORTHING	.00
EASTING	.00
HEIGHT	3.08

NOTE: GEODETIC POSITIONS ARE EXPRESSED IN SATELLITE DATUM
 SEMI-MAJOR AXIS 6378135.0, FLATTENING COEFFICIENT 299.260

ตารางที่ ข.1 (ต่อ)

STATION NAME 11057

37 SATELLITE PASSES AVAILABLE FOR THE SOLUTION
 37 SATELLITE PASSES USED IN THE SOLUTION
 1137 DOPPLER INTERVALS USED
 18 PASSES TRAVELLING NORTH
 19 PASSES TRAVELLING SOUTH
 18 PASSES WEST OF THE RECEIVER
 19 PASSES EAST OF THE RECEIVER

POSITION AT ANTENNA ELECTRICAL CENTER				AT MARKER			
LATITUDE	N 15 11 43.693	(1 SIGMA	.97 M)	N 15 11 43.693			
LONGITUDE	E 103 38 5.889	(	.50 M)	E 103 38 5.889			
HEIGHT ABOVE ELLIPSOID	135.18	(	.34 M)	132.10			
GEOCENTRIC X	-1451347.67	(1 SIGMA	.48 M)	-1451346.97			
GEOCENTRIC Y	5983172.10	(	.43 M)	5983169.22			
GEOCENTRIC Z	1661017.30	(	.97 M)	1661016.50			
ZONE (UTM)	48						
CENTRAL MERIDIAN	E 105						
SCALE (UTM)	.9996						
NORTHING	1680403.52	(1 SIGMA	.97 M)	1680403.52			
EASTING	353371.16	(	.50 M)	353371.16			
FALSE NORTHING	.00						
FALSE EASTING	500000.00						

ANTENNA OFFSET FROM THE MARKER

NORTHING	.00
EASTING	.00
HEIGHT	3.08

NOTE: GEODETIC POSITIONS ARE EXPRESSED IN SATELLITE DATUM
 SEMI-MAJOR AXIS 6378135.0, FLATTENING COEFFICIENT 298.260

ตารางที่ ข.1 (ต่อ)

STATION NAME 10296

39 SATELLITE PASSES AVAILABLE FOR THE SOLUTION
 38 SATELLITE PASSES USED IN THE SOLUTION
 1186 DOPPLER INTERVALS USED
 18 PASSES TRAVELLING NORTH
 20 PASSES TRAVELLING SOUTH
 20 PASSES WEST OF THE RECEIVER
 18 PASSES EAST OF THE RECEIVER

POSITION AT ANTENNA ELECTRICAL CENTER				AT MARKER			
LATITUDE	N 15 32 34.618	(1 SIGMA	0.97 M)	N 15 32 34.618			
LONGITUDE	E 103 32 7.146	(	0.51 M)	E 103 32 7.146			
HEIGHT ABOVE ELLIPSOID	123.00	(	0.53 M)	119.00			
GEOCENTRIC X	-1438551.49	(1 SIGMA	0.40 M)	-1438550.00			
GEOCENTRIC Y	5975762.18	(	0.40 M)	5975765.00			
GEOCENTRIC Z	1698089.10	(	0.06 M)	1698089.00			
ZONE (UTM)	48						
CENTRAL MERIDIAN	E 105						
SCALE (UTM)	0.9996						
NORTHING	1718917.68	(1 SIGMA	0.51 M)	1718917.00			
EASTING	342925.44	(	0.51 M)	342925.00			
FALSE NORTHING	0.00						
FALSE EASTING	500000.00						

ANTENNA OFFSET FROM THE MARKER

NORTHING	0.00
EASTING	0.00
HEIGHT	3.24

NOTE: GEODETIC POSITIONS ARE EXPRESSED IN SATELLITE DATUM

ภาคผนวก ค.

การคำนวณแปลงค่าพิกัดบนพื้นหลักฐานอินเดียน 2518

จากการคำนวณแบบทราנסโลเคชัน

ค 1. คำอธิบายตำแหน่งของค่าพิกัด

1. ANTENNA ELECTRICAL CENTER คือค่าพิกัดที่วัดบนเสาอากาศเครื่องรับสัญญาณ บริเวณกึ่งกลางขั้วแดง เป็นความสูงเหนือพื้นผิวโลก หาได้ในขณะติดตั้งเครื่องมือ มีหน่วยเป็น เมตร

2. MONUMENT MARKER คือค่าพิกัด ณ จุดบนพื้นผิวโลก เมื่อหักค่าความสูงของเสาอากาศแล้ว

ตารางที่ ค 1. ตารางแสดงการคำนวณเปลี่ยนพื้นหลักฐาน แบบทรานสโลเคชั่น

DATUM CONVERSION OF ANTENNA ELECTRICAL CENTER AT 10274

DATUM NAME	SATELLITE >>>>	Indian datum
LATITUDE	N 15 3 13.334	N 15 3 7.572
LONGITUDE	E 103 56 15.364	E 103 56 29.506
ELLIPSOID HEIGHT	130.82	163.40
HEIGHT ABOVE MSL	151.75	151.75
GEOIDAL HEIGHT	-20.93	12.10
GEOCENTRIC X	-1483914.77	-1484160.86
GEOCENTRIC Y	5979391.15	5978548.70
GEOCENTRIC Z	1645872.78	1645579.20
ZONE (UTM)	48	48
CENTRAL MERIDIAN	E 105	E 105
SCALE (UTM)	.9996	.9996
NORTHING	1664540.47	1664228.70
EASTING	385807.08	386244.05
FALSE NORTHING	.00	.00
FALSE EASTING	500000.00	500000.00
SEMI-MAJOR AXIS	6378135.0	6377276.0
FLATTENING COEFF	298.260	300.800
	.003352779	.003324449

DATUM CONVERSION PARAMETERS

DX	-226.09 M
DY	-842.45 M
DZ	-293.58 M
THETA X	.00 SECS
THETA Y	.00 SECS
THETA Z	.00 SECS
SCALE FACTOR	.00 P/P

NOTE: THE RECORDED OFFSET OF THE ANTENNA FROM THE MARKER ARE AS FOLLOWS:

NORTHING	.00 METERS
EASTING	.00 METERS
HEIGHT	11.90 METERS
DISTANCE	.00 METERS
BEARING	.00 DEGREES

ตารางที่ ค.1 (ต่อ)

DATUM CONVERSION OF MONUMENT MARKER AT STED 10274

DATUM NAME	SATELLITE >>>>	Indian datum
LATITUDE	N 15 3 33.334	N 15 3 33.322
LONGITUDE	E 103 56 15.364	E 103 56 29.506
ELLIPSOID HEIGHT	118.92	118.92
HEIGHT ABOVE MSL	139.85	139.85
GEOIDAL HEIGHT	-20.93	-20.93
GEOCENTRIC X	-1483912.00	-1484178.00
GEOCENTRIC Y	5979380.00	5978533.00
GEOCENTRIC Z	1645869.69	1645869.69
ZONE (UTM)	48	48
CENTRAL MERIDIAN	E 105	E 105
SCALE (UTM)	0.9996	0.9996
NORTHING	1664540.47	1664540.47
EASTING	385807.08	386244.00
FALSE NORTHING	0.00	0.00
FALSE EASTING	500000.00	500000.00
SEMI-MAJOR AXIS	6378135.0	6377276.3
FLATTENING COEF	298.260	298.260
	.003352779	.003352779

DATUM CONVERSION PARAMETERS

DX	-226.07 M
DY	-842.45 M
DZ	-293.58 M
THETA X	0.00 SECS
THETA Y	0.00 SECS
THETA Z	0.00 SECS
SCALE FACTOR	1.00 P/M

NOTE: THE RECORDED OFFSET OF THE ANTENNA FROM THE MARKER ARE AS FOLLOWS:

NORTHING	0.00 METERS
EASTING	0.00 METERS
HEIGHT	11.90 METERS
DISTANCE	0.00 METERS
BEARING	0.00 DEGREES

ตารางที่ ก.1 (ต่อ)

DATUM CONVERSION OF ANTENNA ELECTRICAL CENTER AT 10289

DATUM NAME	SATELLITE >>>>	Indian datum
LATITUDE	N 14 58 3.304	N 14 57 57.540
LONGITUDE	E 103 32 17.549	E 103 32 31.507
ELLIPSOID HEIGHT	133.53	104.05
HEIGHT ABOVE MSL	155.40	155.40
GEOIDAL HEIGHT	-21.88	8.64
GEOCENTRIC X	-1442776.74	-1443002.85
GEOCENTRIC Y	5991991.77	5991159.32
GEOCENTRIC Z	1636669.43	1636075.85
ZONE (UTM)	48	48
CENTRAL MERIDIAN	E 105	E 105
SCALE (UTM)	.9996	.9996
NORTHING	1655258.25	1654946.52
EASTING	342807.97	342745.25
FALSE NORTHING	.00	.00
FALSE EASTING	500000.00	500000.00
SEMI-MAJOR AXIS	6378135.0	6377376.0
FLATTENING COEF	298.260	300.000
	.003352779	.003370649

DATUM CONVERSION PARAMETERS

DX	-226.09 M
DY	-842.45 M
DZ	-293.58 M
THETA X	.00 SECS
THETA Y	.00 SECS
THETA Z	.00 SECS
SCALE FACTOR	.00 P/M

NOTE: THE RECORDED OFFSET OF THE ANTENNA FROM THE MARKER ARE AS FOLLOWS:

NORTHING	.00 METERS
EASTING	.00 METERS
HEIGHT	2.71 METERS
DISTANCE	.00 METERS
BEARING	.00 DEGREES

ตารางที่ ก.1 (ต่อ)

DATUM CONVERSION OF MONUMENT MARKER AT SITE 10269

DATUM NAME	SATELLITE >>>>	Indian datum
LATITUDE	N 14 58 3.304	N 14 57 57.542
LONGITUDE	E 103 32 17.549	E 103 32 31.507
ELLIPSOID HEIGHT	130.82	161.54
HEIGHT ABOVE MSL	152.69	152.69
GEOIDAL HEIGHT	-21.88	8.64
GEOCENTRIC X	-1442776.12	-1443002.21
GEOCENTRIC Y	5991989.23	5991146.38
GEOCENTRIC Z	1636668.73	1636375.15
ZONE (UTM)	48	48
CENTRAL MERIDIAN	E 105	E 105
SCALE (UTM)	.9996	.9996
NORTHING	1655258.25	1654946.52
EASTING	342807.97	343245.23
FALSE NORTHING	.00	.00
FALSE EASTING	500000.00	500000.00
SEMI-MAJOR AXIS	6378135.0	6377276.3
FLATTENING COEF	298.260	300.802
	.003352779	.003324640

DATUM CONVERSION PARAMETERS

DX	-226.09 M
DY	-842.45 M
DZ	-293.58 M
THETA X	.00 SECS
THETA Y	.00 SECS
THETA Z	.00 SECS
SCALE FACTOR	.00 P/M

NOTE: THE RECORDED OFFSET OF THE ANTENNA FROM THE MARKER ARE AS FOLLOWS:

NORTHING	.00 METERS
EASTING	.00 METERS
HEIGHT	2.71 METERS
DISTANCE	.00 METERS
BEARING	.00 DEGREES

ตารางที่ ก.1 (ต่อ)

DATUM CONVERSION OF ANTENNA ELECTRICAL CENTER AT 10295

DATUM NAME	SATELLITE))))	Indian datum
LATITUDE	N 15 20 27.439	N 15 20 21.799
LONGITUDE	E 103 17 2.849	E 103 17 16.717
ELLIPSOID HEIGHT	119.45	142.95
HEIGHT ABOVE MSL	142.95	142.95
GEOIDAL HEIGHT	-23.50	4.10
GEOCENTRIC X	-1413705.76	-1413971.80
GEOCENTRIC Y	5987806.39	5986911.94
GEOCENTRIC Z	1676543.36	1676249.78
ZONE (UTM)	48	48
CENTRAL MERIDIAN	E 105	105
SCALE (UTM)	.9996	.9996
NORTHING	1696767.16	1696475.16
EASTING	315802.35	316250.74
FALSE NORTHING	.00	.00
FALSE EASTING	500000.00	500000.00
SEMI-MAJOR AXIS	6378135.0	6377276.3
FLATTENING COEF	298.260	298.260
	.003352779	.003324449

DATUM CONVERSION PARAMETERS

DX	-226.09 M
DY	-842.45 M
DZ	-293.58 M
THETA X	.00 SECS
THETA Y	.00 SECS
THETA Z	.00 SECS
SCALE FACTOR	.00 F/M

NOTE: THE RECORDED OFFSET OF THE ANTENNA FROM THE MARKER ARE AS FOLLOWS:

NORTHING	.00 METERS
EASTING	.00 METERS
HEIGHT	1.85 METERS
DISTANCE	.00 METERS
BEARING	.00 DEGREES

ตารางที่ ก.1 (ต่อ)

DATUM CONVERSION OF MONUMENT MARKER AT SITE 10295

DATUM NAME	SATELLITE >>>>	Indian datum
LATITUDE	N 15 20 27.439	N 15 20 21.799
LONGITUDE	E 103 17 2.849	E 103 17 16.717
ELLIPSOID HEIGHT	117.60	145.20
HEIGHT ABOVE MSL	141.10	141.10
GEOIDAL HEIGHT	-23.50	4.10
GEOCENTRIC X	-1413705.36	-1413971.45
GEOCENTRIC Y	5987804.66	5986962.21
GEOCENTRIC Z	1676542.87	1676249.29
ZONE (UTM)	48	48
CENTRAL MERIDIAN	E 105	E 105
SCALE (UTM)	.9996	.9996
NORTHING	1696767.16	1696455.14
EASTING	315802.35	316239.74
FALSE NORTHING	.00	.20
FALSE EASTING	500000.00	500000.00
SEMI-MAJOR AXIS	6378135.0	6377276.5
FLATTENING COEF	298.260	300.802
	.003352779	.003324449

DATUM CONVERSION PARAMETERS

DX	-226.09 M
DY	-842.45 M
DZ	-293.58 M
THETA X	.00 SECS
THETA Y	.00 SECS
THETA Z	.00 SECS
SCALE FACTOR	.00 P/M

NOTE: THE RECORDED OFFSET OF THE ANTENNA FROM THE MARKER ARE AS FOLLOWS:

NORTHING	.00 METERS
EASTING	.00 METERS
HEIGHT	1.85 METERS
DISTANCE	.00 METERS
BEARING	.00 DEGREES

ตารางที่ ก.1 (ต่อ)

DATUM CONVERSION OF ANTENNA ELECTRICAL CENTER AT 10296

DATUM NAME	SATELLITE >>>>	Indian datum
LATITUDE	N 15 32 34.974	N 15 32 28.974
LONGITUDE	E 105 32 7.163	E 105 32 21.168
ELLIPSOID HEIGHT	122.03	152.77
HEIGHT ABOVE MSL	145.20	170.20
GEOIDAL HEIGHT	-23.17	3.52
GEOCENTRIC X	-1438551.85	-1438777.94
GEOCENTRIC Y	5975767.30	5974915.87
GEOCENTRIC Z	1698087.53	1697795.95
ZONE (UTM)	48	48
CENTRAL MERIDIAN	E 105	E 105
SCALE (UTM)	.9996	.9996
NORTHING	1718916.32	1718604.19
EASTING	342925.93	343363.14
FALSE NORTHING	.00	.00
FALSE EASTING	500000.00	500000.00
SEMI-MAJOR AXIS	6378135.0	6377276.4
FLATTENING COEF	298.260	298.260
	.003352779	.003352779

DATUM CONVERSION PARAMETERS

DX	-226.09 M
DY	-842.45 M
DZ	-293.58 M
THETA X	.00 SECS
THETA Y	.00 SECS
THETA Z	.00 SECS
SCALE FACTOR	.00 P/M

NOTE: THE RECORDED OFFSET OF THE ANTENNA FROM THE MARKER ARE AS FOLLOWS:

NORTHING	.00 METERS
EASTING	.00 METERS
HEIGHT	3.24 METERS
DISTANCE	.00 METERS
BEARING	.00 DEGREES

ตารางที่ ก.1 (ต่อ)

DATUM CONVERSION OF MONUMENT MARKER AT SITE 10296

DATUM NAME	SATELLITE >>>>	Indian datum
LATITUDE	N 15 32 34.574	N 15 32 28.976
LONGITUDE	E 103 32 7.163	E 103 32 21.158
ELLIPSOID HEIGHT	118.79	118.79
HEIGHT ABOVE MSL	141.96	141.96
TIDAL HEIGHT	-23.17	
GEOCENTRIC X	-1438551.12	-1438777.27
GEOCENTRIC Y	5975764.47	5974922.22
GEOCENTRIC Z	1698036.66	1697793.78
ZONE (UTM)	48	48
CENTRAL MERIDIAN	E 105	E 105
SCALE (UTM)	0.9996	0.9996
NORTHING	1718916.32	1718607.11
EASTING	342925.93	343583.14
FALSE NORTHING	0.00	0.00
FALSE EASTING	500000.00	500000.00
SEMI-MAJOR AXIS	6378135.0	6377276.3
FLATTENING COEF	298.260	300.802
	0.003352779	0.0033524449

DATUM CONVERSION PARAMETERS

DX	-226.09 M
DY	-842.45 M
DZ	-293.58 M
THETA X	0.00 SECS
THETA Y	0.00 SECS
THETA Z	0.00 SECS
SCALE FACTOR	0.00 P/M

NOTE: THE RECORDED OFFSET OF THE ANTENNA FROM THE
ARE AS FOLLOWS:

NORTHING	0.00 METERS
EASTING	0.00 METERS
HEIGHT	3.24 METERS
DISTANCE	0.00 METERS
BEARING	0.00 DEGREES

ภาคผนวก ง.

การคำนวณแปลงค่าพิภคบนพื้นหลักฐานอินเดียน 2518

จากการคำนวณแบบโครงข่าย

ตารางที่ ง 1. ตารางแสดงการคำนวณเปลี่ยนพื้นหลักฐาน แบบโครงข่าย

DATUM CONVERSION OF MONUMENT MARKER AT SITE 10274

DATUM NAME	SATELLITE))))	Indian Datum
LATITUDE	N 15 3 13.375	N 15 3 7.5627
LONGITUDE	E 103 56 15.339	E' 103 56 29.4939
ELLIPSOID HEIGHT	120.05	152.141
HEIGHT ABOVE MSL	140.97	140.975
GEOIDAL HEIGHT	-20.93	11.166
GEOCENTRIC X	-1483911.45	-1484137.783
GEOCENTRIC Y	5979380.92	5978537.843
GEOCENTRIC Z	1645871.19	1645575.277
ZONE (UTM)	48	48
CENTRAL MERIDIAN	E 105	E 105
SCALE (UTM)	.9998	.99976
NORTHING	1664409.03	1664222.427
EASTING	385821.92	386243.683
FALSE NORTHING	.00	.000
FALSE EASTING	500000.00	500000.000
SEMI-MAJOR AXIS	6378135.0	6377276.35
FLATTENING COEF	298.260	300.8017
	.003352779	.0033544425

DATUM CONVERSION PARAMETERS

DX	-226.3300 M
DY	-843.0800 M
DZ	-295.3100 M
THETA X	.0000 SECS
THETA Y	.0000 SECS
THETA Z	.0000 SECS
SCALE FACTOR	.0000 P/M

NOTE: THE RECORDED OFFSET OF THE ANTENNA FROM THE MARKER ARE AS FOLLOWS:

NORTHING	.00 METERS
EASTING	.00 METERS
HEIGHT	11.90 METERS
DISTANCE	.00 METERS
BEARING	.00 DEGREES

ตารางที่ ง.1 (ต่อ)

DATUM CONVERSION OF ANTENNA ELECTRICAL CENTER AT 10269

DATUM NAME	SATELLITE >>>>	Indian Datum
LATITUDE	N 14 58 3.345	N 14 57 57.5331
LONGITUDE	E 103 32 17.508	E 103 32 31.4787
ELLIPSOID HEIGHT	134.38	163.215
HEIGHT ABOVE MSL	156.26	156.256
GEOIDAL HEIGHT	-21.88	7.659
GEOCENTRIC X	-1442775.66	-1443001.986
GEOCENTRIC Y	5991992.55	5991149.468
GEOCENTRIC Z	1636670.86	1636375.552
ZONE (UTM)	48	48
CENTRAL MERIDIAN	E 105	E 105
SCALE (UTM)	.9999	.9999
NORTHING	1655127.59	1654946.258
EASTING	342828.21	343244.373
FALSE NORTHING	.00	.000
FALSE EASTING	500000.00	500000.000
SEMI-MAJOR AXIS	6378135.0	6377276.35
FLATTENING COEF	298.260	300.8017
	.003352779	.0033244493

DATUM CONVERSION PARAMETERS

DX	-226.3300 M
DY	-843.0800 M
DZ	-295.3100 M
THETA X	.0000 SECS
THETA Y	.0000 SECS
THETA Z	.0000 SECS
SCALE FACTOR	.0000 P/M

NOTE: THE RECORDED OFFSET OF THE ANTENNA FROM THE MARKER ARE AS FOLLOWS:

NORTHING	.00 METERS
EASTING	.00 METERS
HEIGHT	2.71 METERS
DISTANCE	.00 METERS
BEARING	.00 DEGREES

ตารางที่ ง.1 (ต่อ)

DATUM CONVERSION OF MONUMENT MARKER AT SITE 10269

DATUM NAME	SATELLITE))))	Indian Datum
LATITUDE	N 14 58 3.345	N 14 57 57.5331
LONGITUDE	E 103 32 17.508	E 103 32 31.4787
ELLIPSOID HEIGHT	131.67	161.205
HEIGHT ABOVE MSL	153.55	153.546
GEOIDAL HEIGHT	-21.88	7.659
GEOCENTRIC X	-1442775.04	-1443001.374
GEOCENTRIC Y	5991990.00	5991146.923
GEOCENTRIC Z	1636670.16	1636374.852
ZONE (UTM)	48	48
CENTRAL MERIDIAN	E 105	E 105
SCALE (UTM)	.9999	.99990
NORTHING	1655127.59	1654946.253
EASTING	342828.21	343244.373
FALSE NORTHING	.00	.000
FALSE EASTING	500000.00	500000.000
SEMI-MAJOR AXIS	6378135.0	6377276.35
FLATTENING COEF	298.260	100.8017
	.003352779	.0033244493

DATUM CONVERSION PARAMETERS

DX	-226.3300 M
DY	-843.0800 M
DZ	-295.3100 M
THETA X	.0000 SECS
THETA Y	.0000 SECS
THETA Z	.0000 SECS
SCALE FACTOR	.0000 P/M

NOTE: THE RECORDED OFFSET OF THE ANTENNA FROM THE M,
ARE AS FOLLOWS:

NORTHING	.00 METERS
EASTING	.00 METERS
HEIGHT	2.71 METERS
DISTANCE	.00 METERS
BEARING	.00 DEGREES

ตารางที่ ง.1 (ต่อ)

DATUM CONVERSION OF ANTENNA ELECTRICAL CENTER AT 10295

DATUM NAME	SATELLITE >>>>	Indian Datum
LATITUDE	N 15 20 27.483	N 15 20 21.7936
LONGITUDE	E 103 17 2.823	E 103 17 16.7042
ELLIPSOID HEIGHT	120.56	147.167
HEIGHT ABOVE MSL	144.06	144.062
GEOIDAL HEIGHT	-23.50	3.105
GEOCENTRIC X	-1413705.19	-1413931.516
GEOCENTRIC Y	5987807.26	5986964.182
GEOCENTRIC Z	1676544.96	1676249.655
ZONE (UTM)	48	48
CENTRAL MERIDIAN	E 105	E 105
SCALE (UTM)	1.0000	1.00002
NORTHING	1696633.11	1696454.980
EASTING	315826.76	316239.351
FALSE NORTHING	.00	.000
FALSE EASTING	500000.00	500000.000
SEMI-MAJOR AXIS	6378135.0	6377276.35
FLATTENING COEF	298.260	300.8017
	.003352779	.0033244493

DATUM CONVERSION PARAMETERS

DX	-226.3300 M
DY	-843.0800 M
DZ	-295.3100 M
THETA X	.0000 SECS
THETA Y	.0000 SECS
THETA Z	.0000 SECS
SCALE FACTOR	.0000 P/M

NOTE: THE RECORDED OFFSET OF THE ANTENNA FROM THE MARKER ARE AS FOLLOWS:

NORTHING	.00 METERS
EASTING	.00 METERS
HEIGHT	1.85 METERS
DISTANCE	.00 METERS
BEARING	.00 DEGREES

ตารางที่ ง.1 (ต่อ)

DATUM CONVERSION OF MONUMENT MARKER AT SITE 10295

DATUM NAME	SATELLITE >>>>	Indian Datum
LATITUDE	N 15 20 27.483	N 15 20 21.7936
LONGITUDE	E 103 17 2.823	E 103 17 16.7042
ELLIPSOID HEIGHT	118.72	145.322
HEIGHT ABOVE MSL	142.22	142.217
GEOIDAL HEIGHT	-23.50	3.105
GEOCENTRIC X	-1413704.78	-1413931.107
GEOCENTRIC Y	5987805.53	5986962.450
GEOCENTRIC Z	1676544.48	1676249.167
ZONE (UTM)	48	48
CENTRAL MERIDIAN	E 105	E 105
SCALE (UTM)	1.00000	1.00000
NORTHING	1696633.11	1696454.980
EASTING	315826.76	316239.351
FALSE NORTHING	.00	.000
FALSE EASTING	500000.00	500000.000
SEMI-MAJOR AXIS	6378135.0	6377276.35
FLATTENING COEF	298.260	300.8017
	.003352779	.0033244493

DATUM CONVERSION PARAMETERS

DX	-226.3300 M
DY	-843.0800 M
DZ	-295.3100 M
THETA X	.0000 SECS
THETA Y	.0000 SECS
THETA Z	.0000 SECS
SCALE FACTOR	.0000 P/M

NOTE: THE RECORDED OFFSET OF THE ANTENNA FROM THE I
ARE AS FOLLOWS:

NORTHING	.00 METERS
EASTING	.00 METERS
HEIGHT	1.85 METERS
DISTANCE	.00 METERS
BEARING	.00 DEGREES

ตารางที่ ง.1 (ต่อ)

DATUM CONVERSION OF ANTENNA ELECTRICAL CENTER AT 10272

DATUM NAME	SATELLITE >>>>	Indian Datum
LATITUDE	N 15 5 7.052	N 15 5 1.2525
LONGITUDE	E 103 43 21.414	E 103 43 45.4755
ELLIPSOID HEIGHT	154.22	184.695
HEIGHT ABOVE MSL	175.84	175.841
GEOIDAL HEIGHT	-21.62	8.854
GEOCENTRIC X.	-1461258.21	-1461484.537
GEOCENTRIC Y	5984056.16	5983213.081
GEOCENTRIC Z	1649253.98	1648958.655
ZONE (UTM)	48	48
CENTRAL MERIDIAN	E 105	E 105
SCALE (UTM)	.9998	.9998
NORTHING	1668024.64	1657044.310
EASTING	362735.06	363153.805
FALSE NORTHING	.00	.000
FALSE EASTING	500000.00	500000.000
SEMI-MAJOR AXIS	6378135.0	6377276.35
FLATTENING COEF	298.260	300.8017
	.003352779	.0033744493

DATUM CONVERSION PARAMETERS

DX	-226.3300 M
DY	-843.0800 M
DZ	-295.3100 M
THETA X	.0000 SECS
THETA Y	.0000 SECS
THETA Z	.0000 SECS
SCALE FACTOR	.0000 P/M

NOTE: THE RECORDED OFFSET OF THE ANTENNA FROM THE MARKER
ARE AS FOLLOWS:

NORTHING	.00 METERS
EASTING	.00 METERS
HEIGHT	3.00 METERS
DISTANCE	.00 METERS
BEARING	.00 DEGREES

ตารางที่ ง.1 (ต่อ)

DATUM CONVERSION OF MONUMENT MARKER AT SITE 10272

DATUM NAME	SATELLITE >>>>	Indian Datum
LATITUDE	N 15 5 7.052	N 15 5 1.2625
LONGITUDE	E 103 43 21.414	E 103 43 45.4755
ELLIPSOID HEIGHT	151.22	181.695
HEIGHT ABOVE MSL	172.84	172.841
GEOIDAL HEIGHT	-21.62	8.854
GEOCENTRIC X	-1461257.52	-1461483.850
GEOCENTRIC Y	5984053.35	5983210.777
GEOCENTRIC Z	1649253.19	1648957.895
ZONE (UTM)	48	48
CENTRAL MERIDIAN	E 105	E 105
SCALE (UTM)	.9998	.99980
NORTHING	1668024.64	1667844.309
EASTING	362735.06	363150.806
FALSE NORTHING	.00	000
FALSE EASTING	500000.00	500000.000
SEMI-MAJOR AXIS	6378135.0	6377276.35
FLATTENING COEF	298.260	298.2612
	.003352779	.0033246495

DATUM CONVERSION PARAMETERS

DX	-226.3300 M
DY	-843.0800 M
DZ	-295.3100 M
THETA X	.0000 SECS
THETA Y	.0000 SECS
THETA Z	.0000 SECS
SCALE FACTOR	.0000 P/M

NOTE: THE RECORDED OFFSET OF THE ANTENNA FROM THE MARKER ARE AS FOLLOWS:

NORTHING	.00 METERS
EASTING	.00 METERS
HEIGHT	3.00 METERS
DISTANCE	.00 METERS
BEARING	.00 DEGREES

ตารางที่ ง.1 (ต่อ)

DATUM CONVERSION OF ANTENNA ELECTRICAL CENTER AT 11058

DATUM NAME	SATELLITE >>>>	Indian Datum
LATITUDE	N 15 20 48.954	N 15 20 43.2522
LONGITUDE	E 103 30 19.369	E 103 30 33.3498
ELLIPSOID HEIGHT	112.20	140.347
HEIGHT ABOVE MSL	135.04	135.037
GEOIDAL HEIGHT	-22.83	5.300
GEOCENTRIC X	-1436775.41	-1437001.743
GEOCENTRIC Y	5982125.59	5981282.514
GEOCENTRIC Z	1677179.18	1676883.867
ZONE (UTM)	48	48
CENTRAL MERIDIAN	E 105	E 105
SCALE (UTM)	.9999	.9999
NORTHING	1697116.81	.1696938.719
EASTING	339585.42	340001.122
FALSE NORTHING	.00	.000
FALSE EASTING	500000.00	500000.000
SEMI-MAJOR AXIS	6378135.0	6377276.35
FLATTENING COEF	298.260	.300.8017
	.003352779	.0033244495

DATUM CONVERSION PARAMETERS

DX	-226.3300 M
DY	-843.0800 M
DZ	-295.3100 M
THETA X	.0000 SECS
THETA Y	.0000 SECS
THETA Z	.0000 SECS
SCALE FACTOR	.0000 P/M

NOTE: THE RECORDED OFFSET OF THE ANTENNA FROM THE MARKER ARE AS FOLLOWS:

NORTHING	.00 METERS
EASTING	.00 METERS
HEIGHT	2.31 METERS
DISTANCE	.00 METERS
BEARING	.00 DEGREES

ตารางที่ ง.1 (ต่อ)

DATUM CONVERSION OF MONUMENT MARKER AT SITE		11058
DATUM NAME	SATELLITE >>>>	Indian Datum
LATITUDE	N 15 20 48.954	N 15 20 43.2522
LONGITUDE	E 103 30 19.369	E 103 30 33.3498
ELLIPSOID HEIGHT	109.89	138.027
HEIGHT ABOVE MSL	132.73	132.727
GEODAL HEIGHT	-22.83	5.500
GEOCENTRIC X	1436774.89	1437001.222
GEOCENTRIC Y	5982123.43	5981280.347
GEOCENTRIC Z	1677178.57	1676883.256
ZONE (UTM)	48	48
CENTRAL MERIDIAN	E 105	E 105
SCALE (UTM)	.9999	.99992
NORTHING	1697116.81	1696938.719
EASTING	339585.42	340001.122
FALSE NORTHING	.00	.000
FALSE EASTING	500000.00	500000.000
SEMI-MAJOR AXIS	6378135.0	6377276.35
FLATTENING COEF	298.260	300.8017
	.003352779	.0033244493

DATUM CONVERSION PARAMETERS

DX	-226.3300 M
DY	-843.0800 M
DZ	-295.3100 M
THETA X	.0000 SECS
THETA Y	.0000 SECS
THETA Z	.0000 SECS
SCALE FACTOR	.0000 P/M

NOTE: THE RECORDED OFFSET OF THE ANTENNA FROM THE M
ARE AS FOLLOWS:

NORTHING	.00 METERS
EASTING	.00 METERS
HEIGHT	2.31 METERS
DISTANCE	.00 METERS
BEARING	.00 DEGREES

ตารางที่ ง.1 (ต่อ)

DATUM CONVERSION OF ANTENNA ELECTRICAL CENTER AT 11031

DATUM NAME	SATELLITE >>>>	Indian Datum
LATITUDE	N 14 52 31.930	N 14 52 26.0944
LONGITUDE	E 103 30 36.226	E 103 30 50.1780
ELLIPSOID HEIGHT	130.51	160.156
HEIGHT ABOVE MSI.	152.22	152.210
GEOIDAL HEIGHT	-21.70	7.920
GEOCENTRIC X	-1440445.13	-1440671.457
GEOCENTRIC Y	5995247.02	5994403.941
GEOCENTRIC Z	1626826.95	1626531.644
ZONE (UTM)	48	48
CENTRAL MERIDIAN	E 105	E 105
SCALE (UTM)	.9999	.99992
NORTHING	1644963.44	1644781.324
EASTING	339734.47	340150.244
FALSE NORTHING	.00	.000
FALSE EASTING	500000.00	500000.000
SEMI-MAJOR AXIS	6378135.0	6377276.35
FLATTENING COEF	298.260	298.2517
	.003352779	.0033244493

DATUM CONVERSION PARAMETERS

DX	-226.3300 M
DY	-843.0800 M
DZ	-295.3100 M
THETA X	.0000 SECS
THETA Y	.0000 SECS
THETA Z	.0000 SECS
SCALE FACTOR	.0000 P/M

NOTE: THE RECORDED OFFSET OF THE ANTENNA FROM THE MARKER ARE AS FOLLOWS:

NORTHING	.00 METERS
EASTING	.00 METERS
HEIGHT	3.01 METERS
DISTANCE	.00 METERS
BEARING	.00 DEGREES

ตารางที่ ง.1 (ต่อ)

DATUM CONVERSION OF ANTENNA ELECTRICAL CENTER AT 10294

DATUM NAME	SATELLITE))))	Indian Datum
LATITUDE	N 15 16 33.260	N 15 16 27.5284
LONGITUDE	E 103 39 22.380	E 103 39 36.4237
ELLIPSOID HEIGHT	163.79	193.205
HEIGHT ABOVE MSL	186.01	186.011
GEOIDAL HEIGHT	-22.22	7.195
GEOCENTRIC X	-1453020.65	-1453246.977
GEOCENTRIC Y	5980387.48	5979544.401
GEOCENTRIC Z	1669612.44	1669317.125
ZONE (UTM)	48	48
CENTRAL MERIDIAN	E 105	E 105
SCALE (UTM)	.9999	.99985
NORTHING	1689153.40	1688974.705
EASTING	355728.44	356146.250
FALSE NORTHING	.00	.000
FALSE EASTING	500000.00	500000.000
SEMI-MAJOR AXIS	6378135.0	6377276.35
FLATTENING COEF	298.260	300.8017
	.003352779	.0033244493

DATUM* CONVERSION PARAMETERS

DX	-226.3300 M
DY	-843.0800 M
DZ	-295.3100 M
THETA X	.0000 SECS
THETA Y	.0000 SECS
THETA Z	.0000 SECS
SCALE FACTOR	.0000 P/M

NOTE: THE RECORDED OFFSET OF THE ANTENNA FROM THE MARKER
ARE AS FOLLOWS:

NORTHING	.00 METERS
EASTING	.00 METERS
HEIGHT	3.20 METERS
DISTANCE	.00 METERS
BEARING	.00 DEGREES

ตารางที่ ง.1 (ต่อ)

DATUM CONVERSION OF MONUMENT MARKER AT SITE 10294

DATUM NAME	SATELLITE >>>>	Indian Datum
LATITUDE	N 15 16 33.260	N 15 16 27.5284
LONGITUDE	E 103 39 22.380	E 103 39 36.4237
ELLIPSOID HEIGHT	160.59	190.005
HEIGHT ABOVE MSL	182.81	182.811
GEOIDAL HEIGHT	-22.22	7.195
GEOCENTRIC X	-1453019.92	-1453246.248
GEOCENTRIC Y	5980384.48	5979541.401
GEOCENTRIC Z	1669611.59	1669316.282
ZONE (UTM)	48	48
CENTRAL MERIDIAN	E 105	E 105
SCALE (UTM)	.9999	.9998
NORTHING	1689153.40	1688974.705
EASTING	355728.44	356146.250
FALSE NORTHING	.00	.000
FALSE EASTING	500000.00	500000.000
SEMI-MAJOR AXIS	6378135.0	6377276.35
FLATTENING COEF	298.260	300.8017
	.003352779	.003324443

DATUM CONVERSION PARAMETERS

DX	-226.3300 M
DY	-843.0800 M
DZ	-295.3100 M
THETA X	.0000 SECS
THETA Y	.0000 SECS
THETA Z	.0000 SECS
SCALE FACTOR	.0000 P/M

NOTE: THE RECORDED OFFSET OF THE ANTENNA FROM THE MARKER ARE AS FOLLOWS:

NORTHING	.00 METERS
EASTING	.00 METERS
HEIGHT	3.20 METERS
DISTANCE	.00 METERS
BEARING	.00 DEGREES

ตารางที่ ง.1 (ต่อ)

DATUM CONVERSION OF ANTENNA ELECTRICAL CENTER AT 10293

DATUM NAME	SATELLITE))))	Indian Datum
LATITUDE	N 15 11 9.999	N 15 11 4.2526
LONGITUDE	E 103 29 33.757	E 103 29 47.7219
ELLIPSOID HEIGHT	147.51	176.047
HEIGHT ABOVE MSL	170.02	170.021
GEODIAL HEIGHT	-22.51	6.026
GEOCENTRIC X	-1436553.77	-1436780.096
GEOCENTRIC Y	5987032.64	5986189.562
GEOCENTRIC Z	1660021.07	1659725.763
ZONE (UTM)	48	48
CENTRAL MERIDIAN	E 105	E 105
SCALE (UTM)	.9999	.99992
NORTHING	1679334.49	1679155.027
EASTING	338102.05	338517.574
FALSE NORTHING	.00	.000
FALSE EASTING	500000.00	500000.000
SEMI-MAJOR AXIS	6378135.0	6377276.35
FLATTENING COEF	298.260	298.2617
	.003352779	.0033524444

DATUM CONVERSION PARAMETERS

DX	-226.3300 M
DY	-843.0800 M
DZ	-295.3100 M
THETA X	.0000 SECS
THETA Y	.0000 SECS
THETA Z	.0000 SECS
SCALE FACTOR	.0000 P/M

NOTE: THE RECORDED OFFSET OF THE ANTENNA FROM THE MARKER
ARE AS FOLLOWS:

NORTHING	.00 METERS
EASTING	.00 METERS
HEIGHT	3.08 METERS
DISTANCE	.00 METERS
BEARING	.00 DEGREES

ตารางที่ ง.1 (ต่อ)

DATUM CONVERSION OF MONUMENT MARKER AT SITE 10293

DATUM NAME	SATELLITE >>>>	Indian Datum
LATITUDE	N 15 11 9.999	N 15 11 4.2526
LONGITUDE	E 103 29 33.757	E 103 29 47.7219
ELLIPSOID HEIGHT	144.43	172.967
HEIGHT ABOVE MSL	166.94	166.941
GEOIDAL HEIGHT	-22.51	6.026
GEOCENTRIC X	-1436553.07	1436779.403
GEOCENTRIC Y	5987029.75	5986186.672
GEOCENTRIC Z	1660020.27	1659724.457
ZONE (UTM)	48	48
CENTRAL MERIDIAN	E 105	E 105
SCALE (UTM)	.9999	.99992
NORTHING	1679334.49	1679155.027
EASTING	338102.05	338517.575
FALSE NORTHING	.00	.000
FALSE EASTING	500000.00	500000.000
SEMI-MAJOR AXIS	6378135.0	6377276.35
FLATTENING COEF	1/298260	1/300000
	.003352779	.003324493

DATUM CONVERSION PARAMETERS

DX	-226.3300 M
DY	-843.0800 M
DZ	-295.3100 M
THETA X	.0000 SECS
THETA Y	.0000 SECS
THETA Z	.0000 SECS
SCALE FACTOR	.0000 P/M

NOTE: THE RECORDED OFFSET OF THE ANTENNA FROM THE MARKER ARE AS FOLLOWS:

NORTHING	.00 METERS
EASTING	.00 METERS
HEIGHT	3.03 METERS
DISTANCE	.00 METERS
BEARING	.00 DEGREES

ตารางที่ ง.1 (ต่อ)

DATUM CONVERSION OF ANTENNA ELECTRICAL CENTER AT 11057

DATUM NAME	SATELLITE >>>>	Indian Datum
LATITUDE	N 15 11 43.693	N 15 11 37.9403
LONGITUDE	E 103 38 5.889	E 103 38 19.9184
ELLIPSOID HEIGHT	135.18	164.692
HEIGHT ABOVE MSL	157.29	157.291
GEOIDAL HEIGHT	-22.11	7.401
GEOCENTRIC X	-1451347.67	-1451573.486
GEOCENTRIC Y	5983172.10	5982329.025
GEOCENTRIC Z	1661917.30	1660721.993
ZONE (UTM)	48	48
CENTRAL MERIDIAN	E 105	E 105
SCALE (UTM)	.9999	.99985
NORTHING	1680269.50	1680090.113
EASTING	353391.18	353809.700
FALSE NORTHING	.00	.000
FALSE EASTING	500000.00	500000.000
SEMI-MAJOR AXIS	6378135.0	6377276.35
FLATTENING COEF	298.260	300.0017
	.003352779	.003324443

DATUM CONVERSION PARAMETERS

DX	-226.3300 M
DY	-843.0800 M
DZ	-295.3100 M
THETA X	.0000 SECS
THETA Y	.0000 SECS
THETA Z	.0000 SECS
SCALE FACTOR	.0000 P/M

NOTE: THE RECORDED OFFSET OF THE ANTENNA FROM THE MARKER ARE AS FOLLOWS:

NORTHING	.00 METERS
EASTING	.00 METERS
HEIGHT	3.03 METERS
DISTANCE	.00 METERS
BEARING	.00 DEGREES

ตารางที่ ง.1 (ต่อ)

DATUM CONVERSION OF MONUMENT MARKER AT SITE		11057
DATUM NAME	SATELLITE >>>>	Indian Datum
LATITUDE	N 15 11 43.693	N 15 11 37.9403
LONGITUDE	E 103 38 5.889	E 103 38 19.9184
ELLIPSOID HEIGHT	132.10	161.612
HEIGHT ABOVE MSL	154.21	154.211
GEOIDAL HEIGHT	-22.11	7.401
GEOCENTRIC X	-1451346.97	-1451573.296
GEOCENTRIC Y	5983169.22	5982326.136
GEOCENTRIC Z	1661016.50	1660721.185
ZONE (UTM)	48	48
CENTRAL MERIDIAN	E 105	E 105
SCALE (UTM)	.9999	.99986
NORTHING	1680269.50	1680090.113
EASTING	353391.18	353808.700
FALSE NORTHING	.00	.000
FALSE EASTING	500000.00	500000.000
SEMI-MAJOR AXIS	6378135.0	6379276.35
FLATTENING COEF	298.260	298.8017
	.003352779	.0033244493

DATUM CONVERSION PARAMETERS

DX	-226.3300 M
DY	-843.0800 M
DZ	-295.3100 M
THETA X	.0000 SECS
THETA Y	.0000 SECS
THETA Z	.0000 SECS
SCALE FACTOR	.0000 P/M

NOTE: THE RECORDED OFFSET OF THE ANTENNA FROM THE MARK ARE AS FOLLOWS:

NORTHING	.00 METERS
EASTING	.00 METERS
HEIGHT	3.08 METERS
DISTANCE	.00 METERS
BEARING	.00 DEGREES

ตารางที่ ง.1 (ต่อ)

DATUM CONVERSION OF ANTENNA ELECTRICAL CENTER AT 10296

DATUM NAME	SATELLITE >>>>	Indian Datum
LATITUDE	N 15 32 34.618	N 15 32 28.9703
LONGITUDE	E 103 32 7.146	E 103 32 21.1537
ELLIPSOID HEIGHT	123.00	150.744
HEIGHT ABOVE MSL	146.17	146.172
GEOIDAL HEIGHT	-23.17	4.572
GEOCENTRIC X	-1438551.49	-1438777.821
GEOCENTRIC Y	5975768.18	5974925.096
GEOCENTRIC Z	1698089.10	1697793.786
ZONE (UTM)	48	48
CENTRAL MERIDIAN	E 105	E 105
SCALE (UTM)	.9999	.9999
NORTHING	1718780.43	1718604.025
EASTING	342946.90	343563.018
FALSE NORTHING	.00	.000
FALSE EASTING	500000.00	500000.000
SEMI-MAJOR AXIS	6378135.0	6377276.34
FLATTENING COEF	298.260	300.8017
	.003352779	.003374474

DATUM CONVERSION PARAMETERS

DX	-226.3300 M
DY	-843.0800 M
DZ	-295.3100 M
THETA X	.0000 SECS
THETA Y	.0000 SECS
THETA Z	.0000 SECS
SCALE FACTOR	.0000 P/M

NOTE: THE RECORDED OFFSET OF THE ANTENNA FROM THE MARKER ARE AS FOLLOWS:

NORTHING	.00 METERS
EASTING	.00 METERS
HEIGHT	3.24 METERS
DISTANCE	.00 METERS
BEARING	.00 DEGREES

ตารางที่ ง.1 (ต่อ)

DATUM CONVERSION OF MONUMENT MARKER AT SITE 10296

DATUM NAME	SATELLITE))))	Indian Datum
LATITUDE	N 15 32 34.618	N 15 32 28.9707
LONGITUDE	E 103 32 7.146	E 103 32 21.1537
ELLIPSOID HEIGHT	119.76	142.504
HEIGHT ABOVE MSL	142.93	142.932
GEOIDAL HEIGHT	-23.17	4.572
GEOCENTRIC X	-1438550.76	-1438777.040
GEOCENTRIC Y	5975765.14	597492.001
GEOCENTRIC Z	1698088.23	1697792.919
ZONE (UTM)	48	48
CENTRAL MERIDIAN	E 105	E 105
SCALE (UTM)	.9999	.99970
NORTHING	1718780.43	1718604.023
EASTING	342946.90	343163.019
FALSE NORTHING	.00	000
FALSE EASTING	500000.00	500000.000
SEMI-MAJOR AXIS	6378135.0	6377276.35
FLATTENING COEF	298.260	300.8017
	.003352779	.0033744493

DATUM CONVERSION PARAMETERS

DX	-226.3300 M
DY	-843.0800 M
DZ	-295.3100 M
THETA X	.0000 SECS
THETA Y	.0000 SECS
THETA Z	.0000 SECS
SCALE FACTOR	.0000 P/M

NOTE: THE RECORDED OFFSET OF THE ANTENNA FROM THE MARKER ARE AS FOLLOWS:

NORTHING	.00 METERS
EASTING	.00 METERS
HEIGHT	3.24 METERS
DISTANCE	.00 METERS
BEARING	.00 DEGREES



ประวัติผู้เขียน

นายสุรศักดิ์ ลีเกื้อกุล เกิดวันที่ 10 พฤศจิกายน 2497 ที่กรุงเทพมหานคร เข้าศึกษาโรงเรียนกุฎมดควา และสถาบันเทคโนโลยีพระจอมเกล้า วิทยาเขตธนบุรี สำเร็จการศึกษาระดับปริญญาวิศวกรรมศาสตรบัณฑิต เมื่อปี พ.ศ. 2520 มีประสบการณ์ทำงานสำรวจ สร้างหมุดหลักฐานแผนที่ด้วยเครื่องวัดระยะอิเล็กทรอนิกส์ จังหวัด ชลบุรี จังหวัดระยอง จังหวัดจันทบุรี จังหวัดนนทบุรี จังหวัดนิวยอร์ก จังหวัดเลย จังหวัดอุดรธานี และสถานีดอปเปลอร์ พื้นที่ภาคตะวันออก ปัจจุบันดำรงตำแหน่ง วิศวกรรังวัด 5 กองรังวัดและทำแผนที่ กรมที่ดิน กระทรวงมหาดไทย