THE
KINGDOM
OF
THAILAND
INTERIM
FEASIBILITY
REPORT
ON
RURAL
LONG
DISTANCE
PUBLIC
TELEPHONE
SERVICE
(VOLUME
II-2/2)

THE KINGDOM OF THAILAND

INTERIM FEASIBILITY REPORT
ON
RURAL LONG DISTANCE
PUBLIC TELEPHONE SERVICE
(VOLUME II-2/2)

DECEMBER, 1978

JAPAN INTERNATIONAL COOPERATION AGENCY

CONTENTS FOR VOLUME II (Technical Data)

9. Circuit Assignment Diagram for Terrestrial System

Contents for Circuit Assignment Diagram for Terrestrial System

Legend :

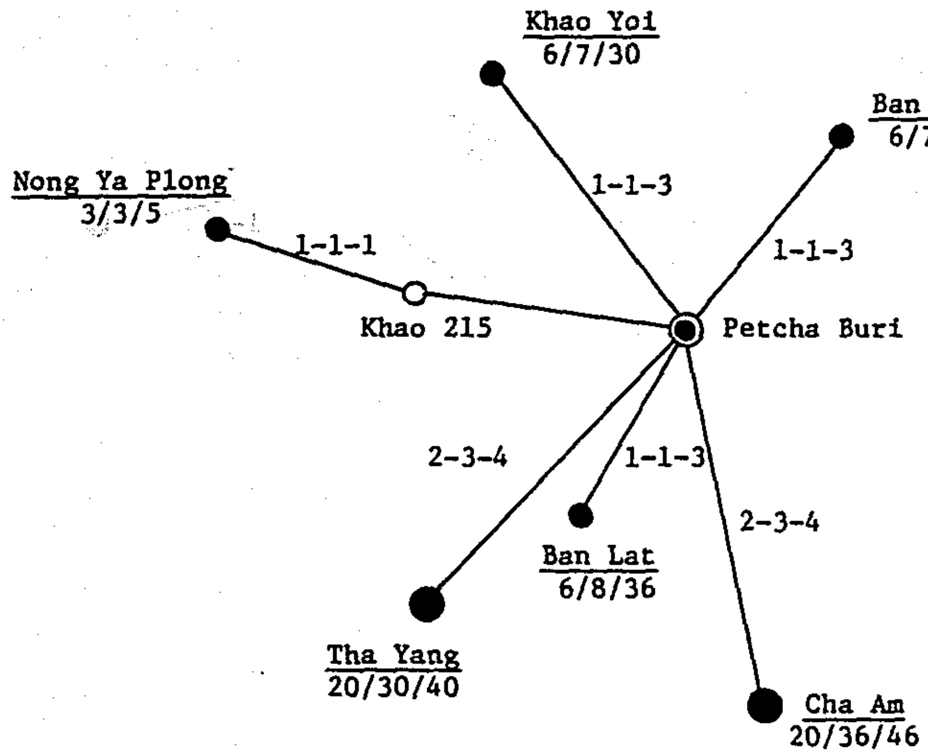
◉	Tertiary / Secondary / Primary Center
●	Local Exchange (including Mobile Exchange)
•	Terminal Station (including SG/G Branching Station)
○	Repeater Station
<u>Site Name</u>	Underlined site is for Rural Long Distance Public Telephone Service and Mobile Exchange Station in this Study.
————	Newly planned radio link
——·——	Existing radio link
- - - - - - - -	Cable link

X/Y/Z

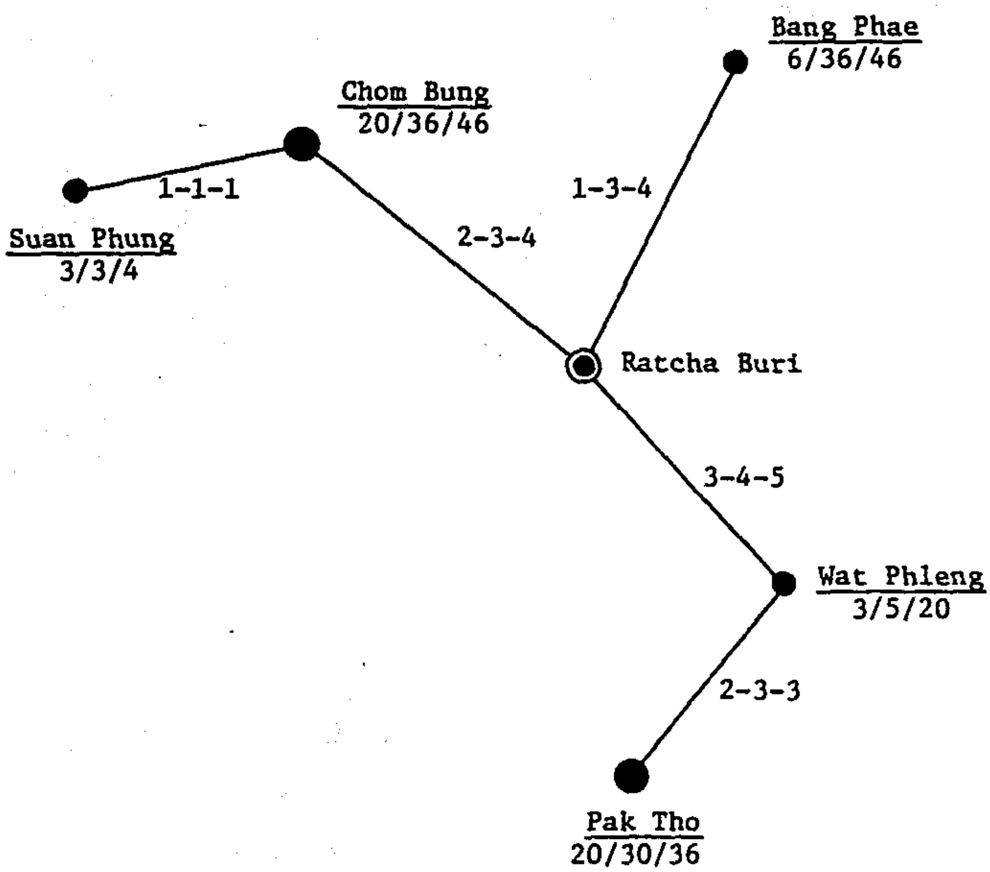
- Number of circuits required in 1994
- Number of circuits required in 1989
- Number of circuits required in 1984

X-Y-Z

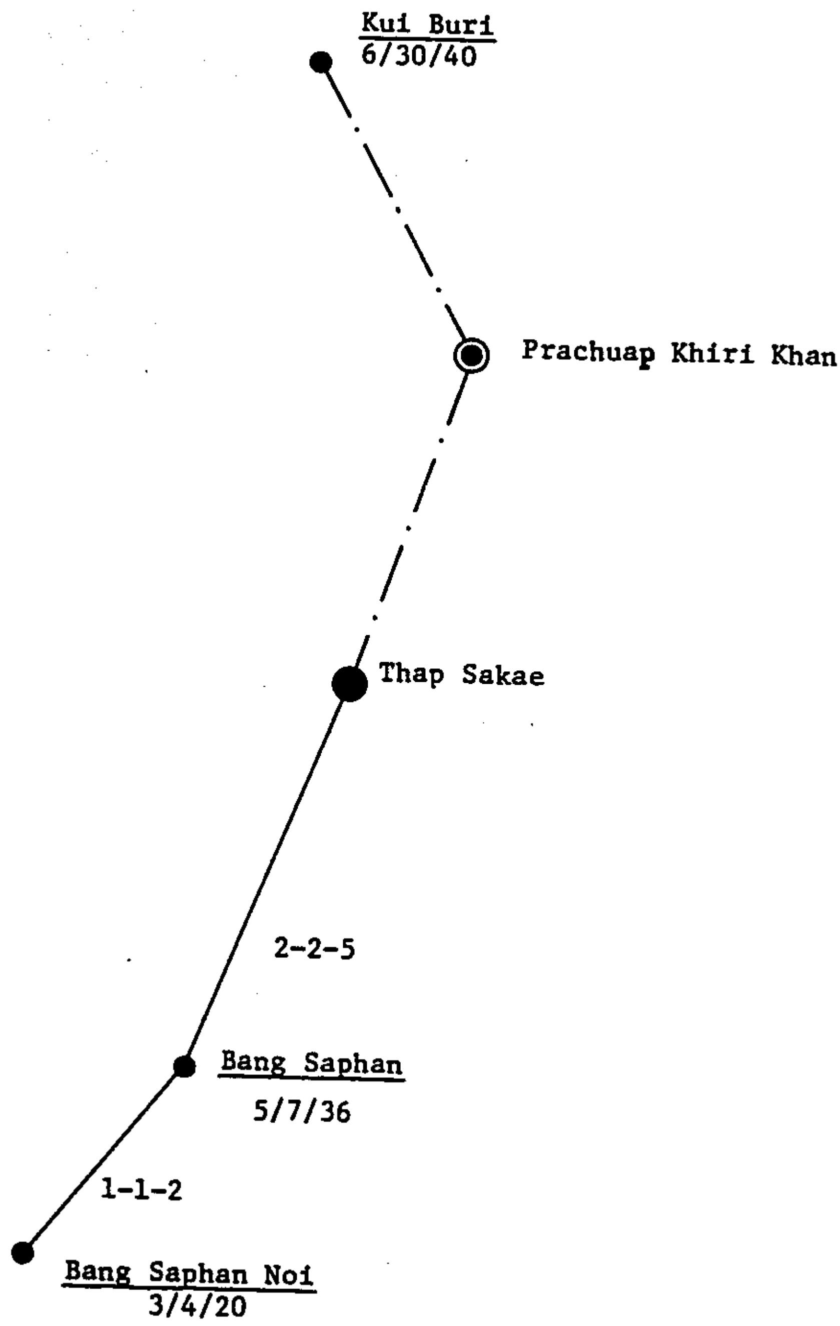
- Number of basic groups required in 1994
- Number of basic groups required in 1989
- Number of basic groups required in 1984



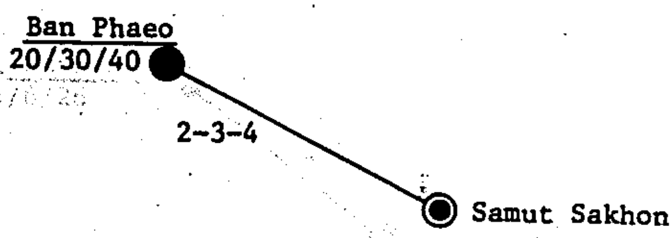
Circuit Assignment Diagram for Terrestrial System : Petcha Buri Area(3201)



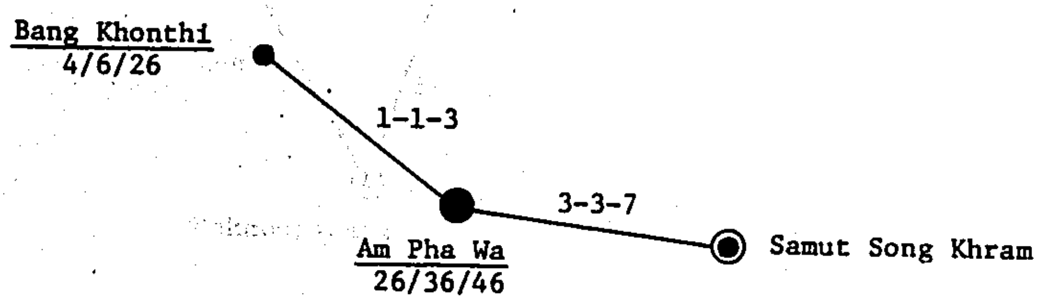
Circuit Assignment Diagram for Terrestrial System : Ratcha Buri Area(3207)



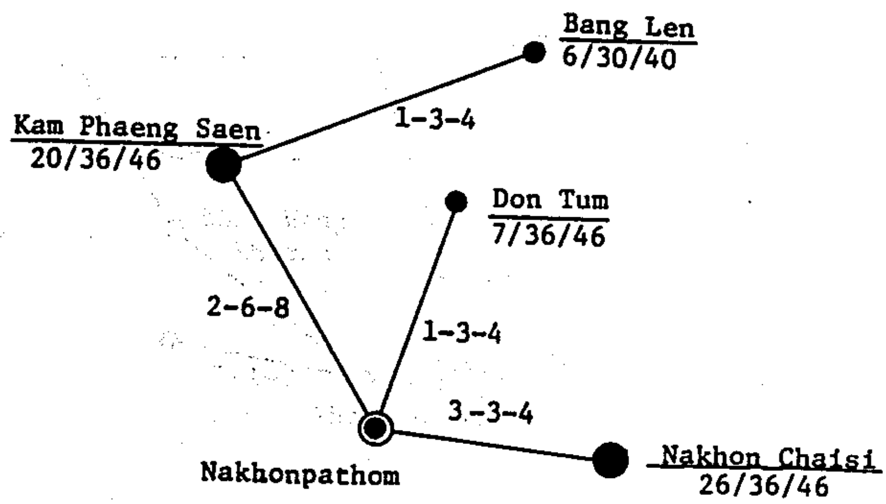
Circuit Assignment Diagram for Terrestrial System : Prachuap Khiri Khan Area(3215)



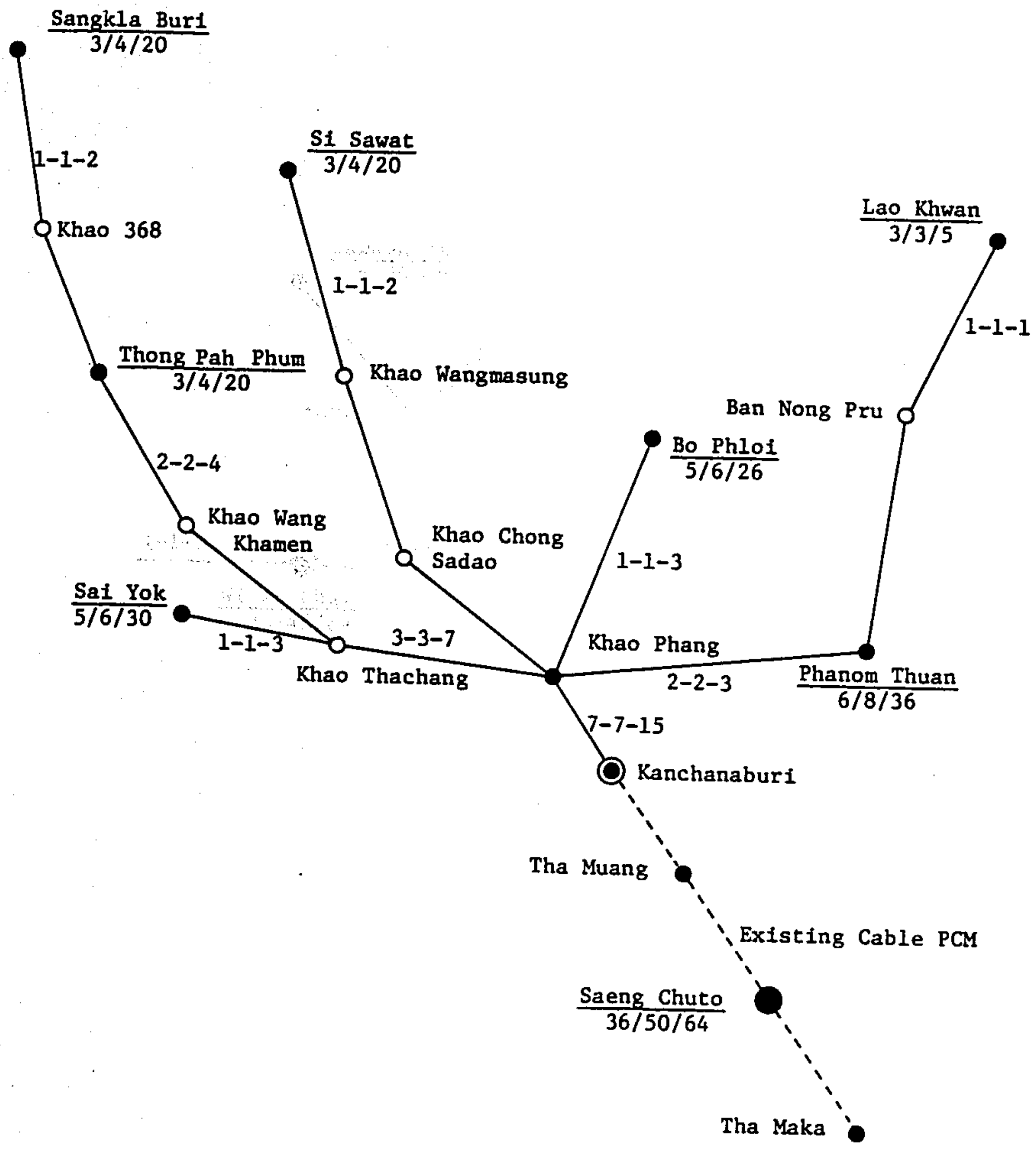
Circuit Assignment Diagram for Terrestrial System : Samut Sakhon Area(3401)



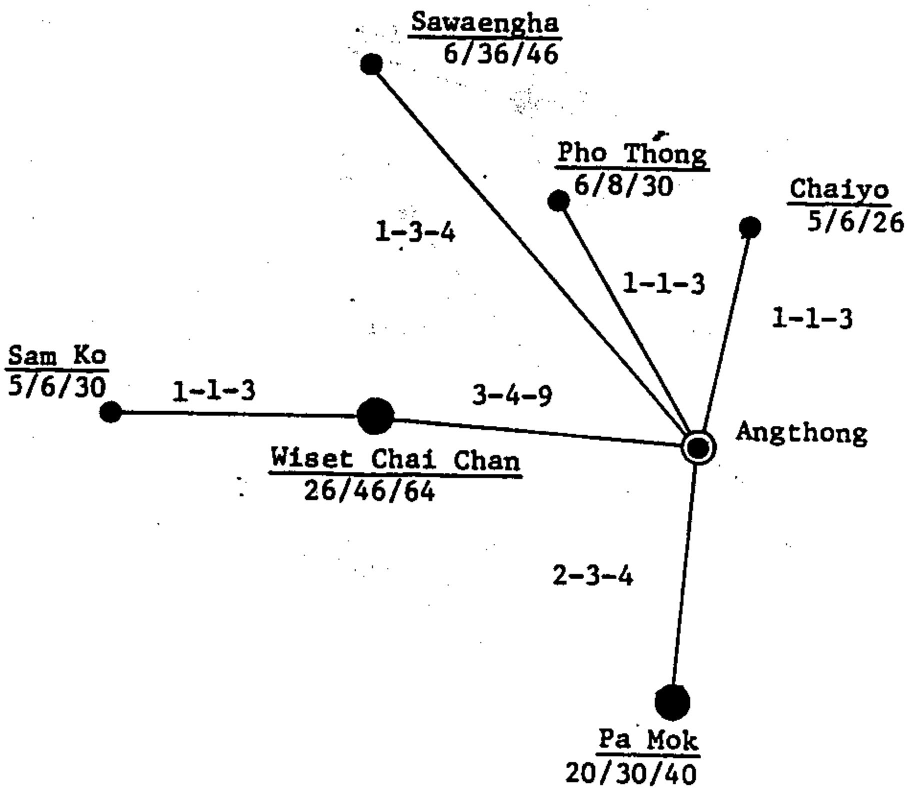
Circuit Assignment Diagram for Terrestrial System : Samut Song Khram Area(3404)



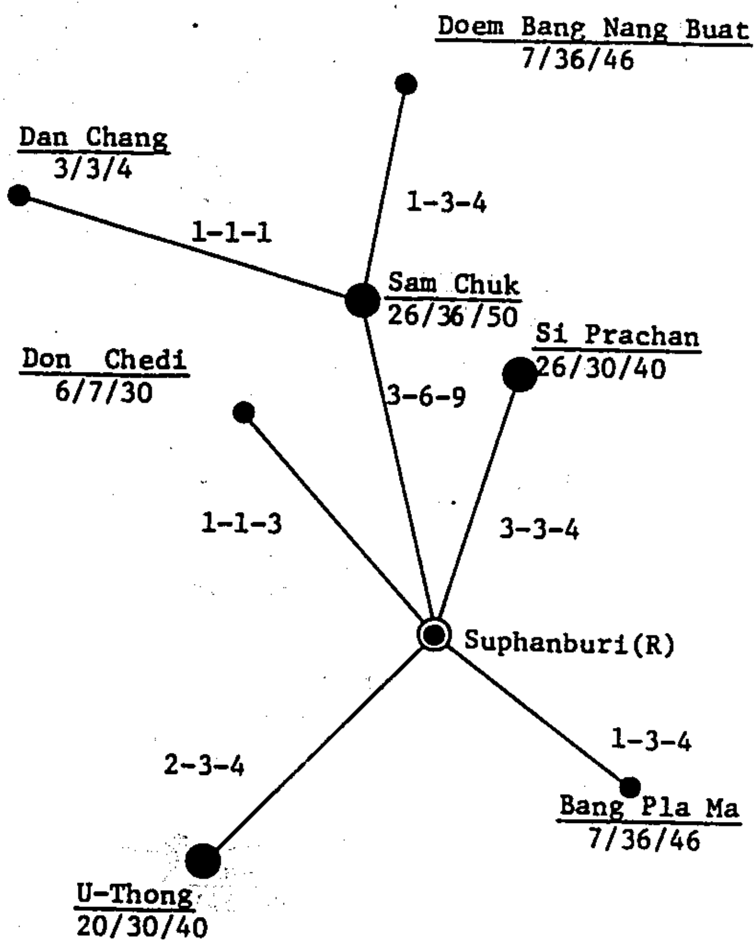
Circuit Assignment Diagram for Terrestrial System : Nakhonpathom Area(3407)



Circuit Assignment Diagram for Terrestrial System : Kanchanaburi Area(3413)



Circuit Assignment Diagram for Terrestrial System : Angthong Area(3501)



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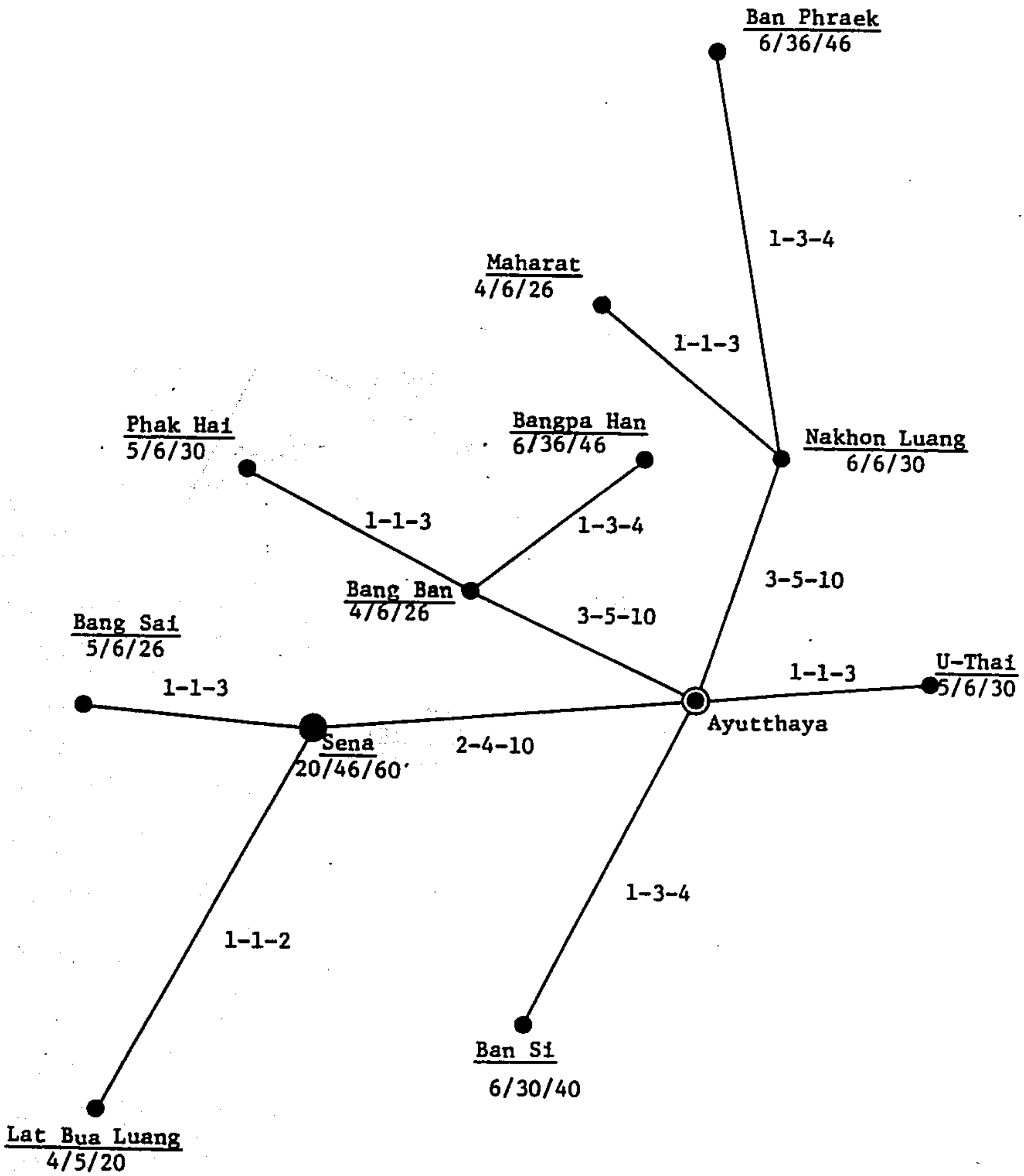

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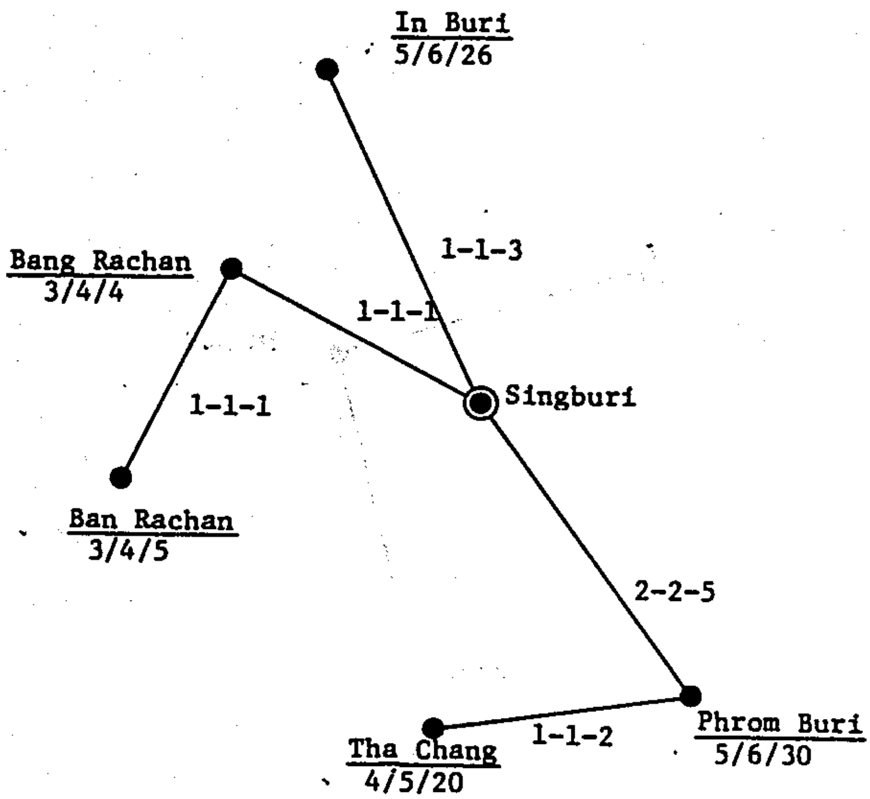
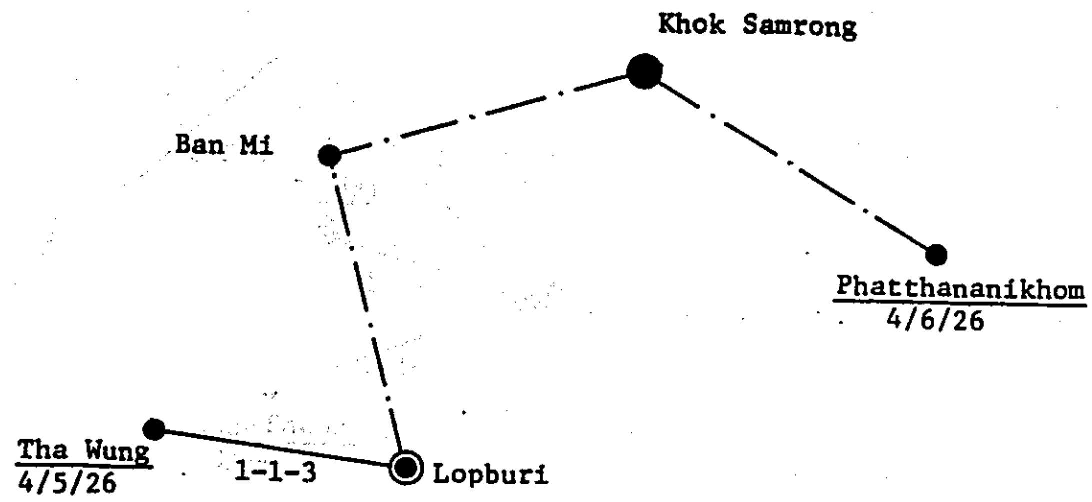


Circuit Assignment Diagram for Terrestrial System : Singburi Area (3601)



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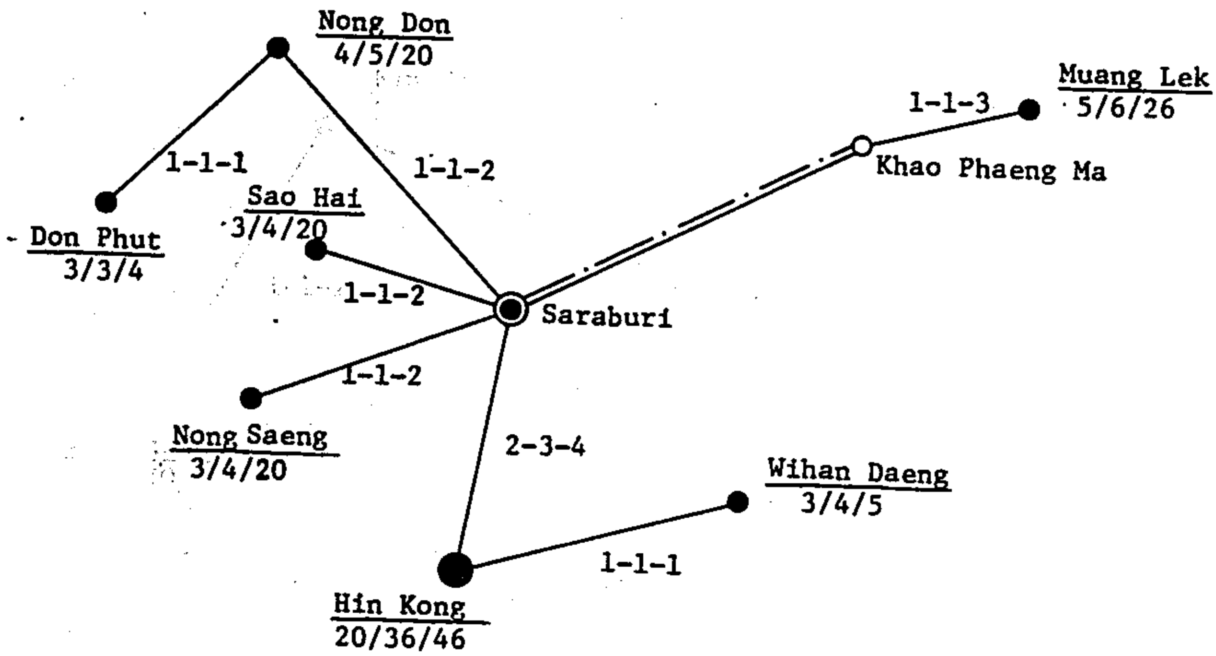

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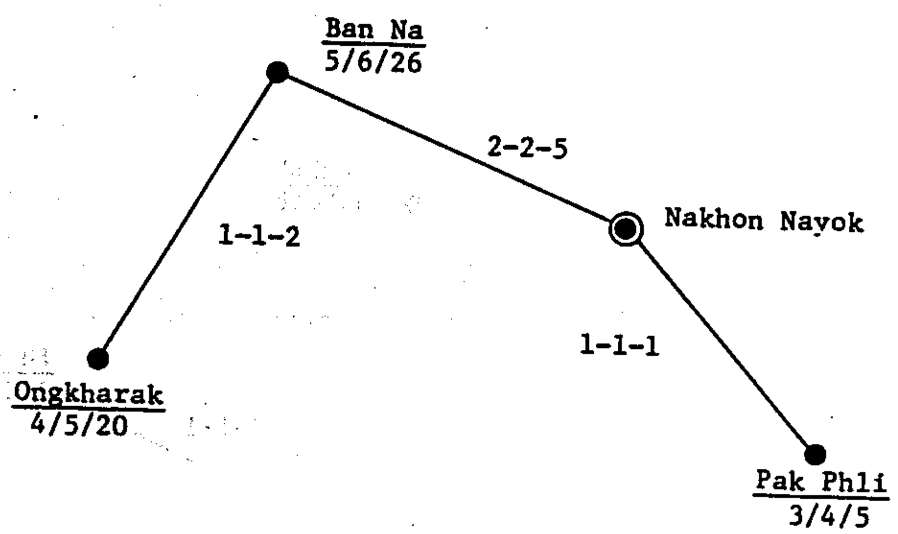
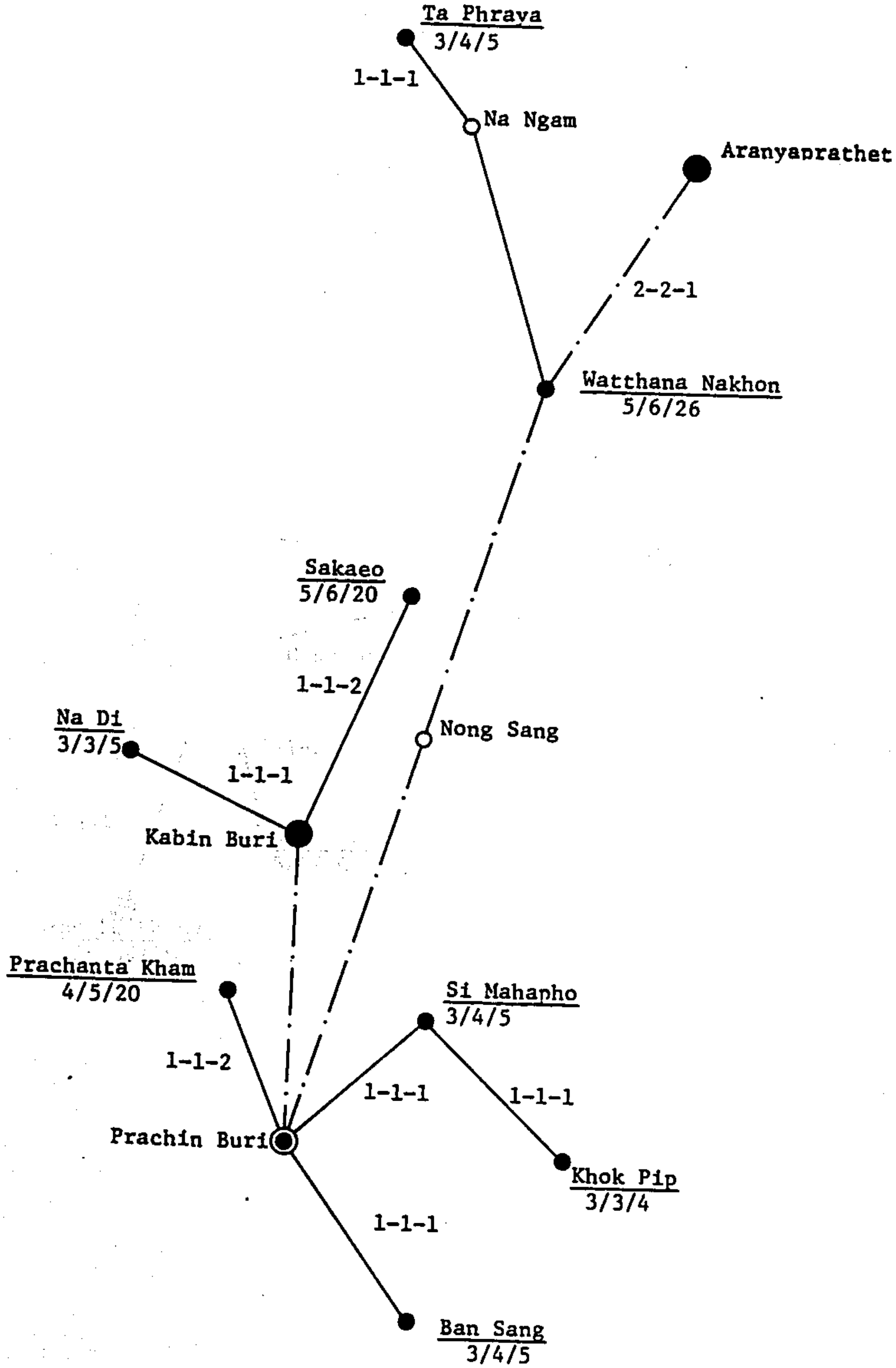


Circuit Assignment Diagram for Terrestrial System : Nakhon Nayok Area(3701)



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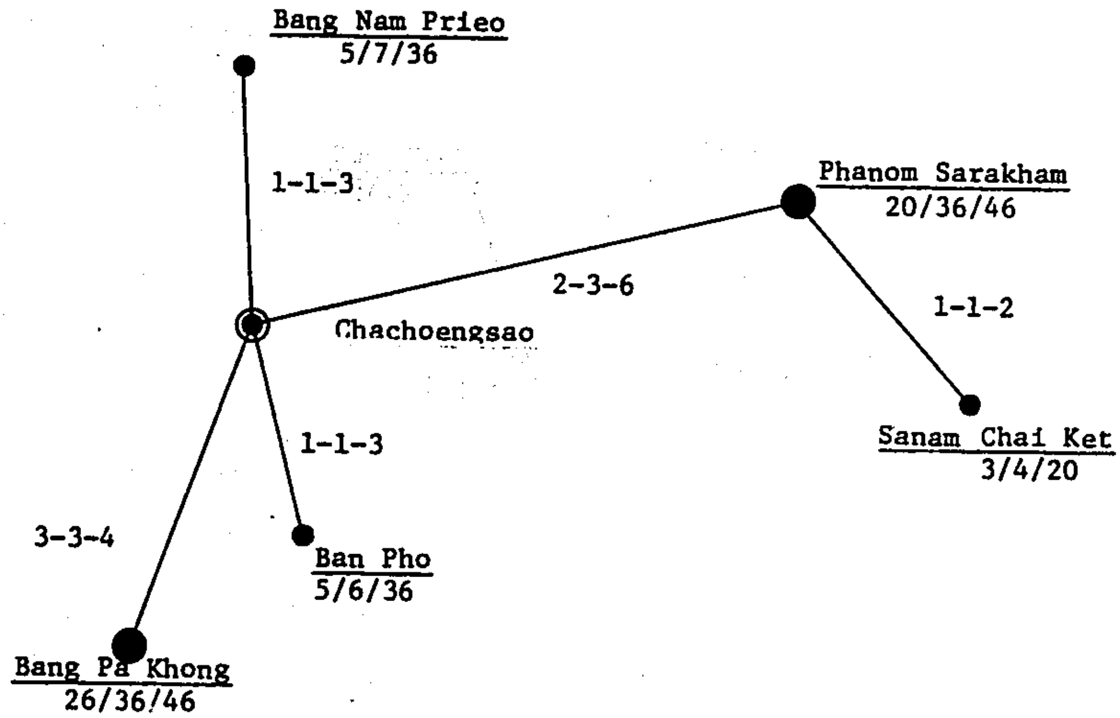

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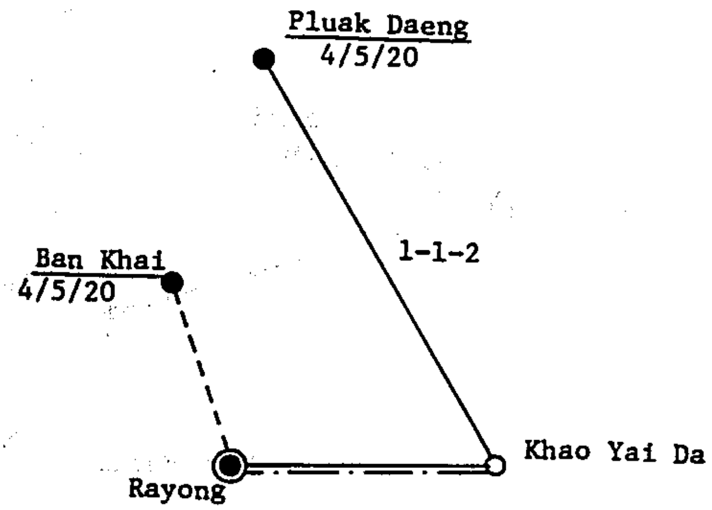

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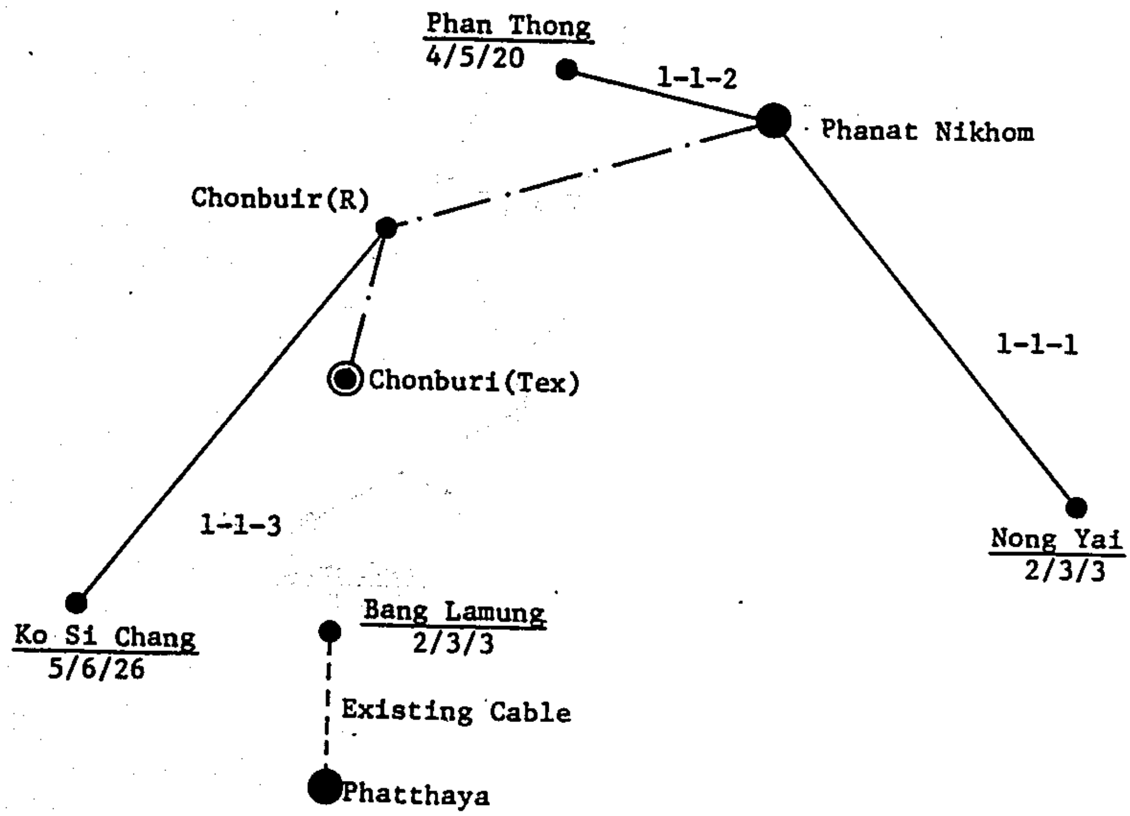
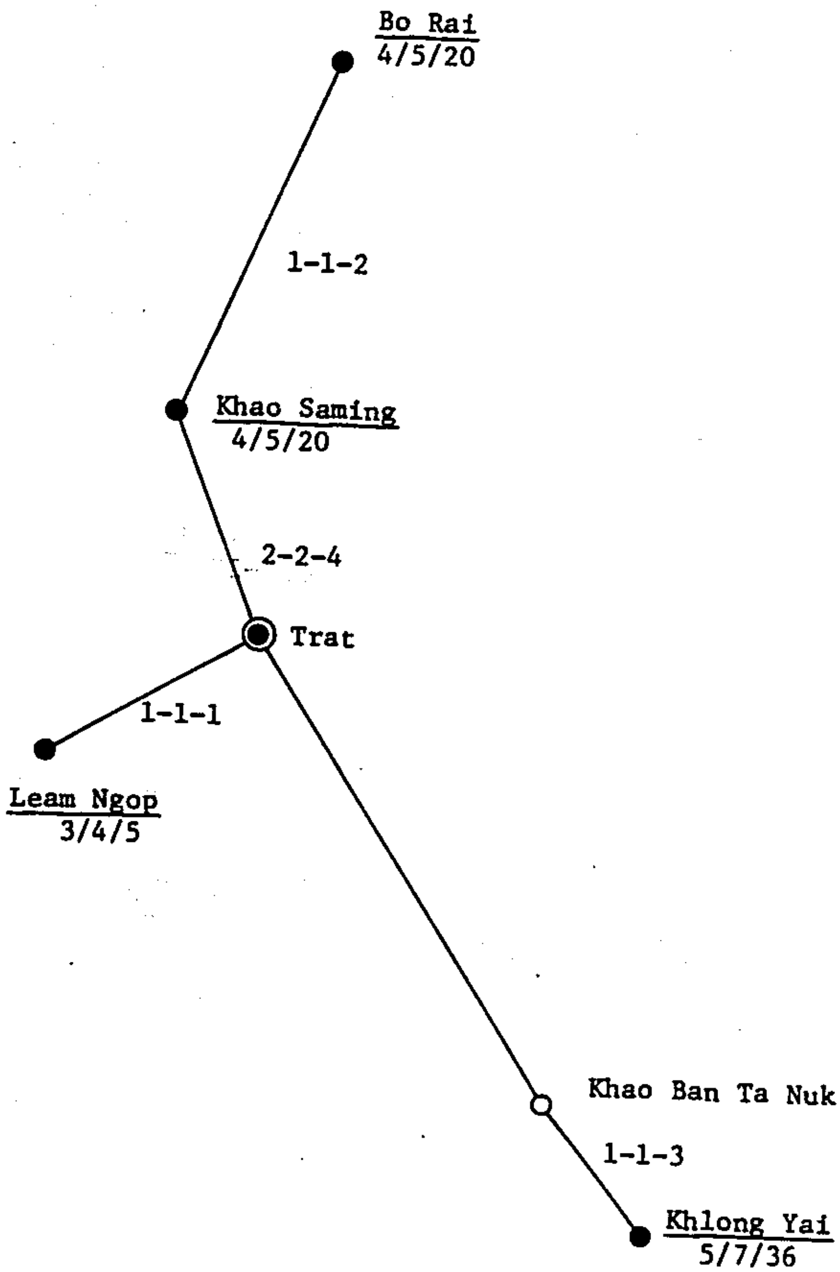


Circuit Assignment Diagram for Terrestrial System : Chonburi Area(3815)



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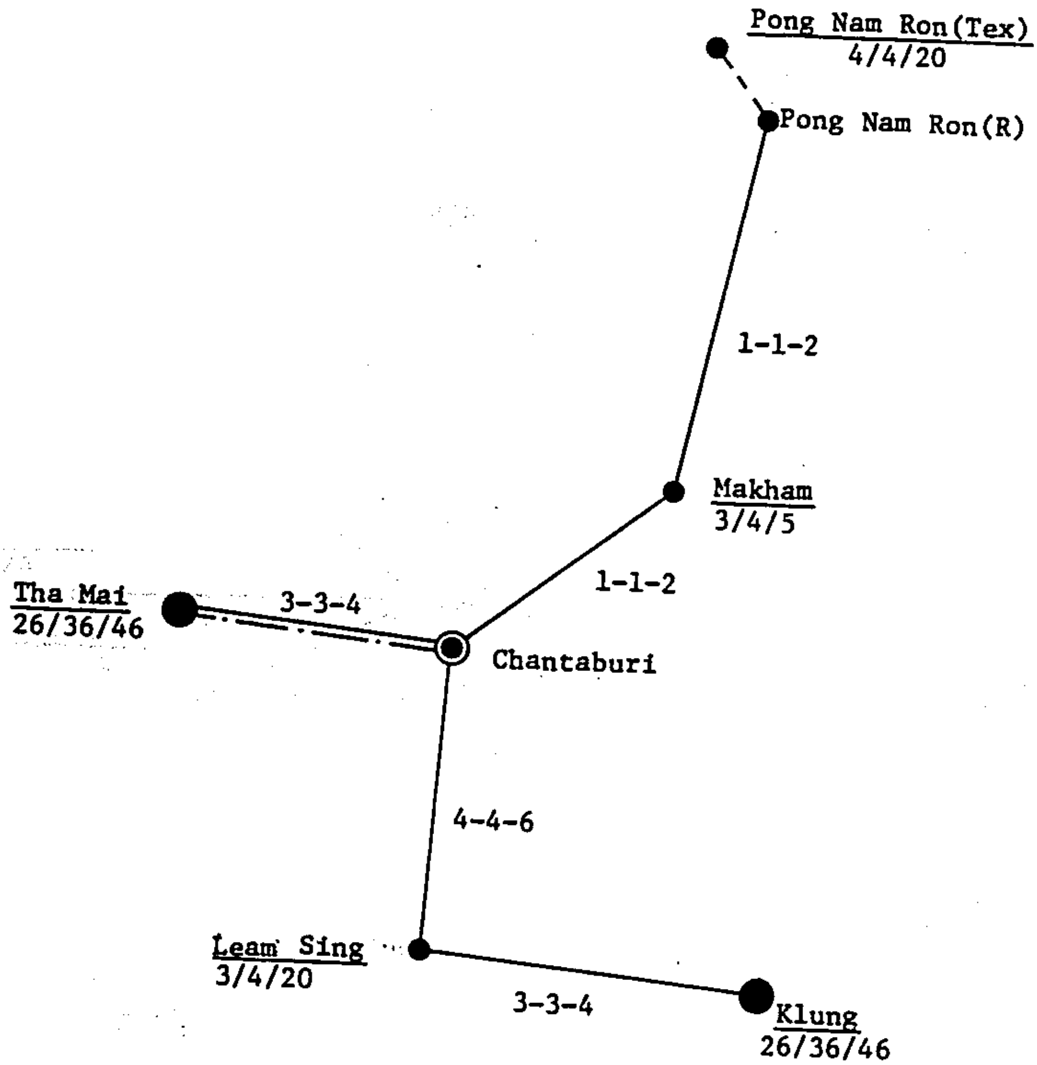
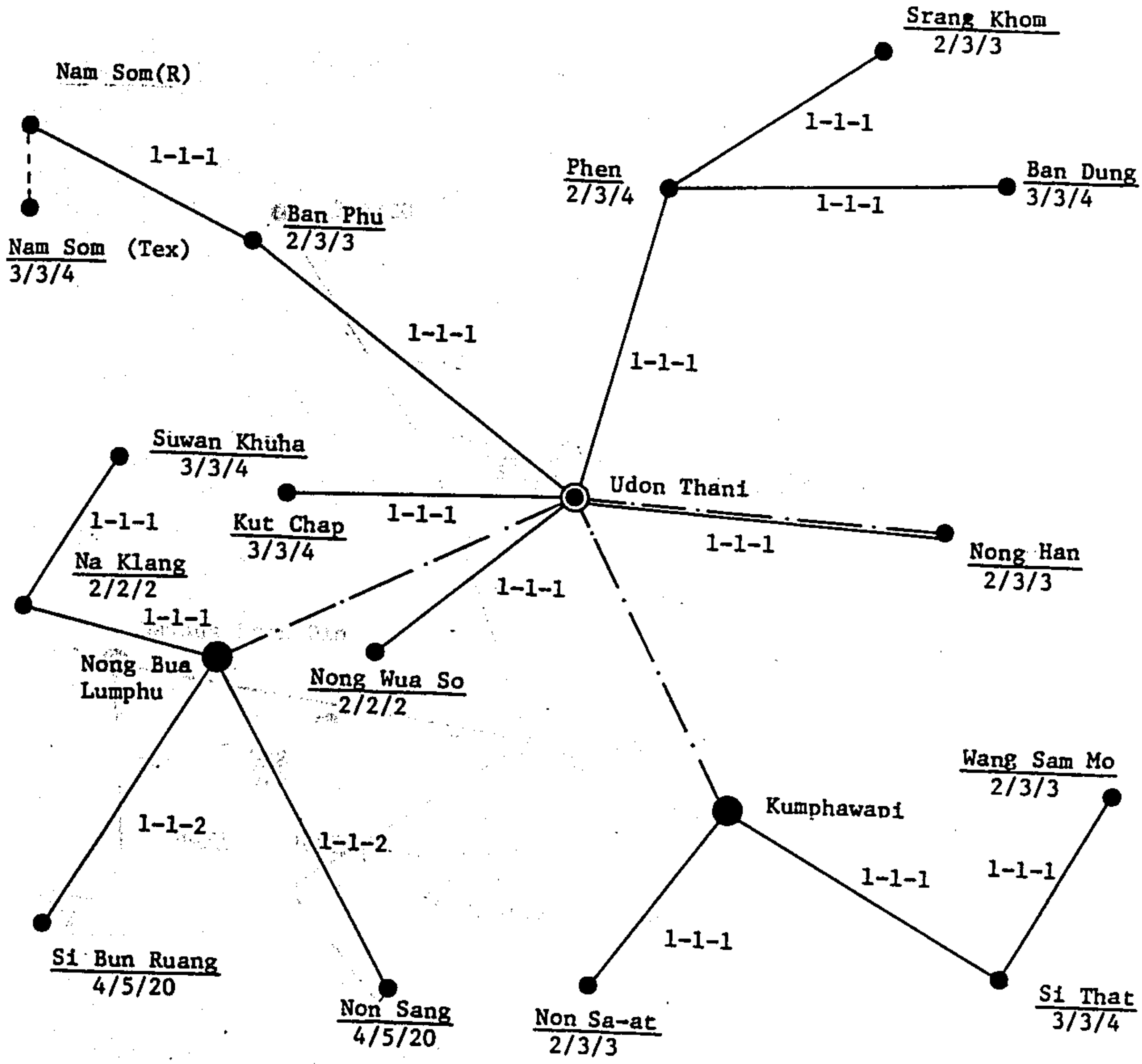
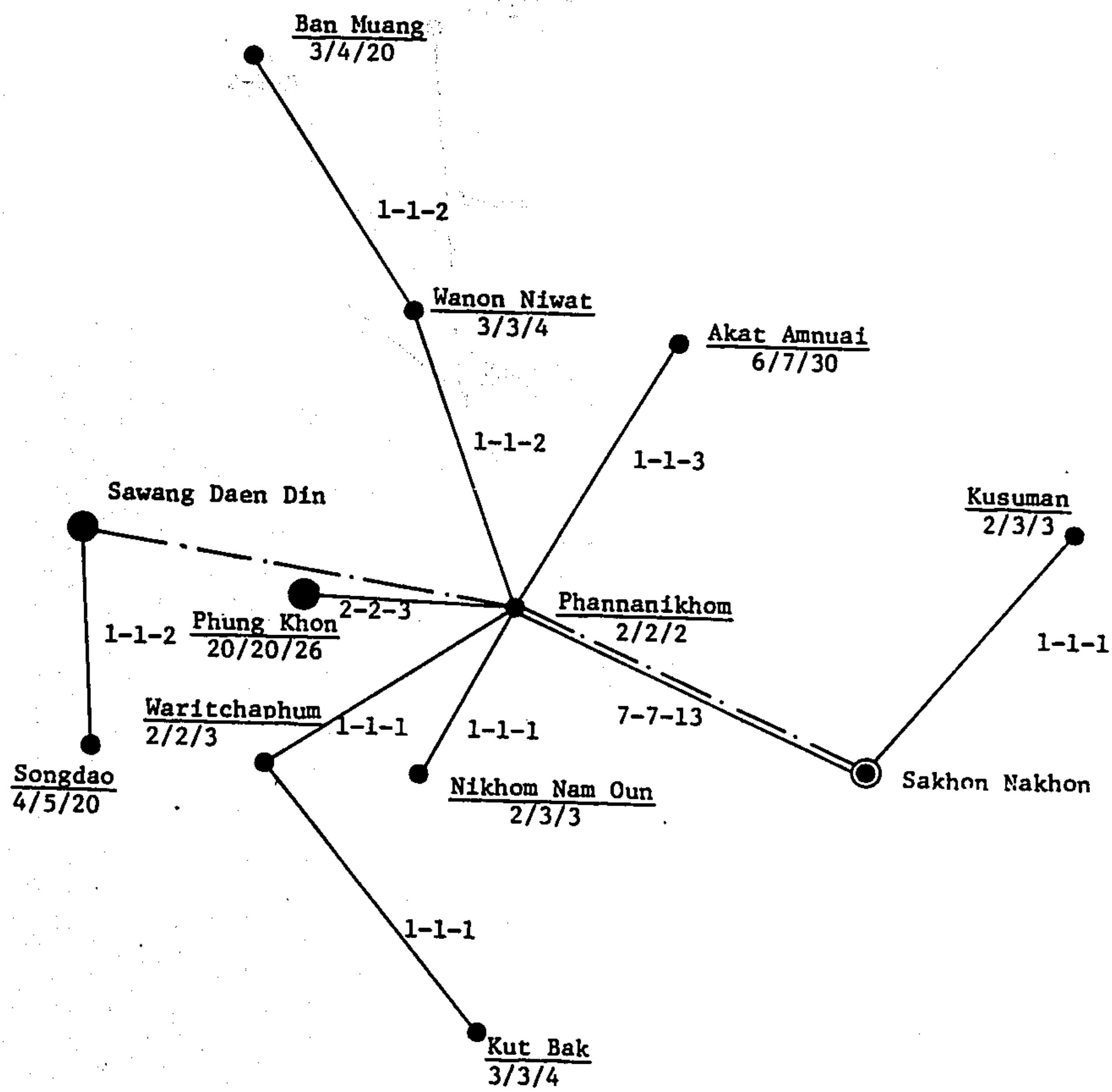


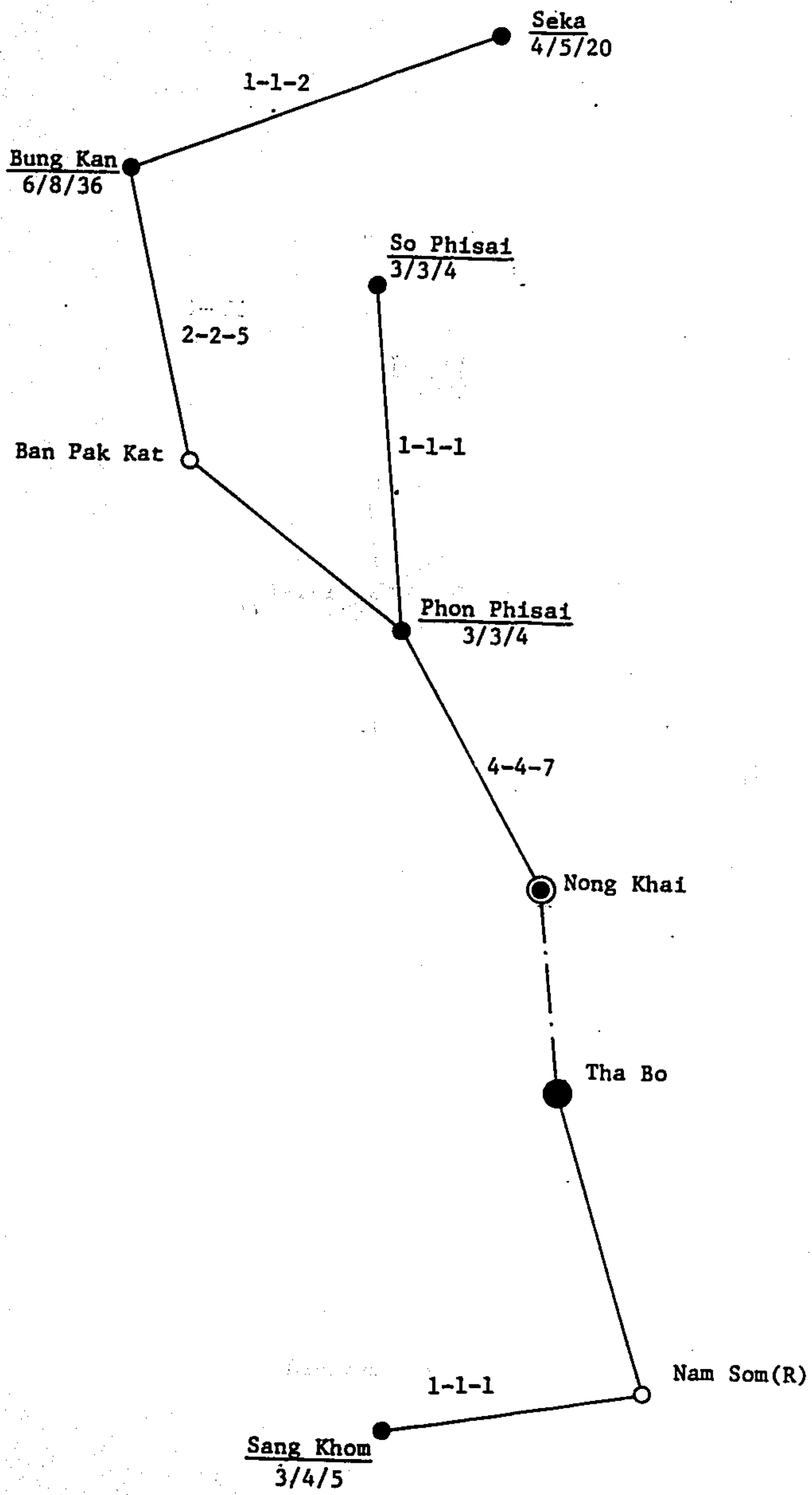
Circuit Assignment Diagram for Terrestrial System : Chantaburi Area(3905)



Circuit Assignment Diagram for Terrestrial System : Udon Thani Area(4201)



Circuit Assignment Diagram for Terrestrial System : Sakhon Nakhon Area(4211)



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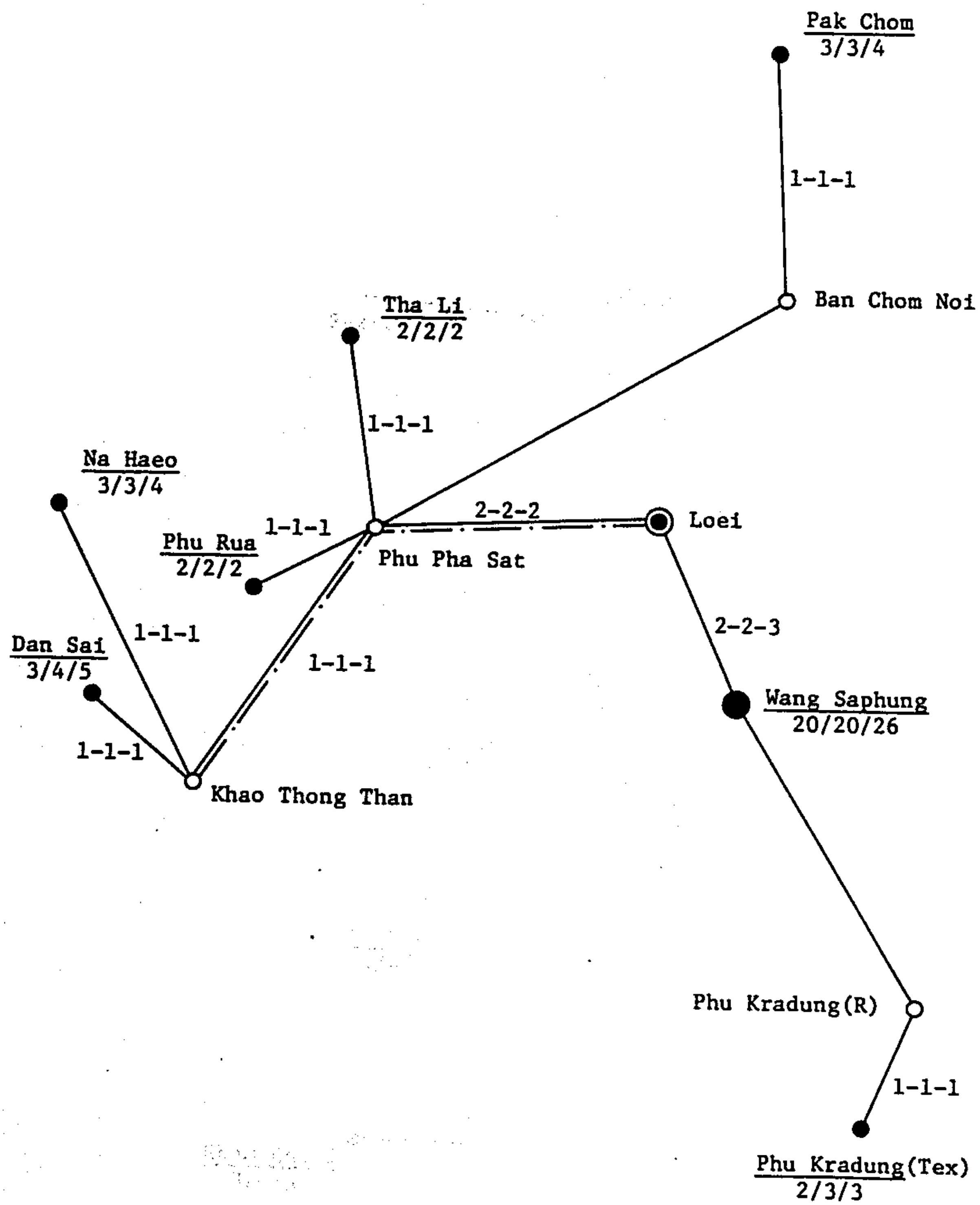

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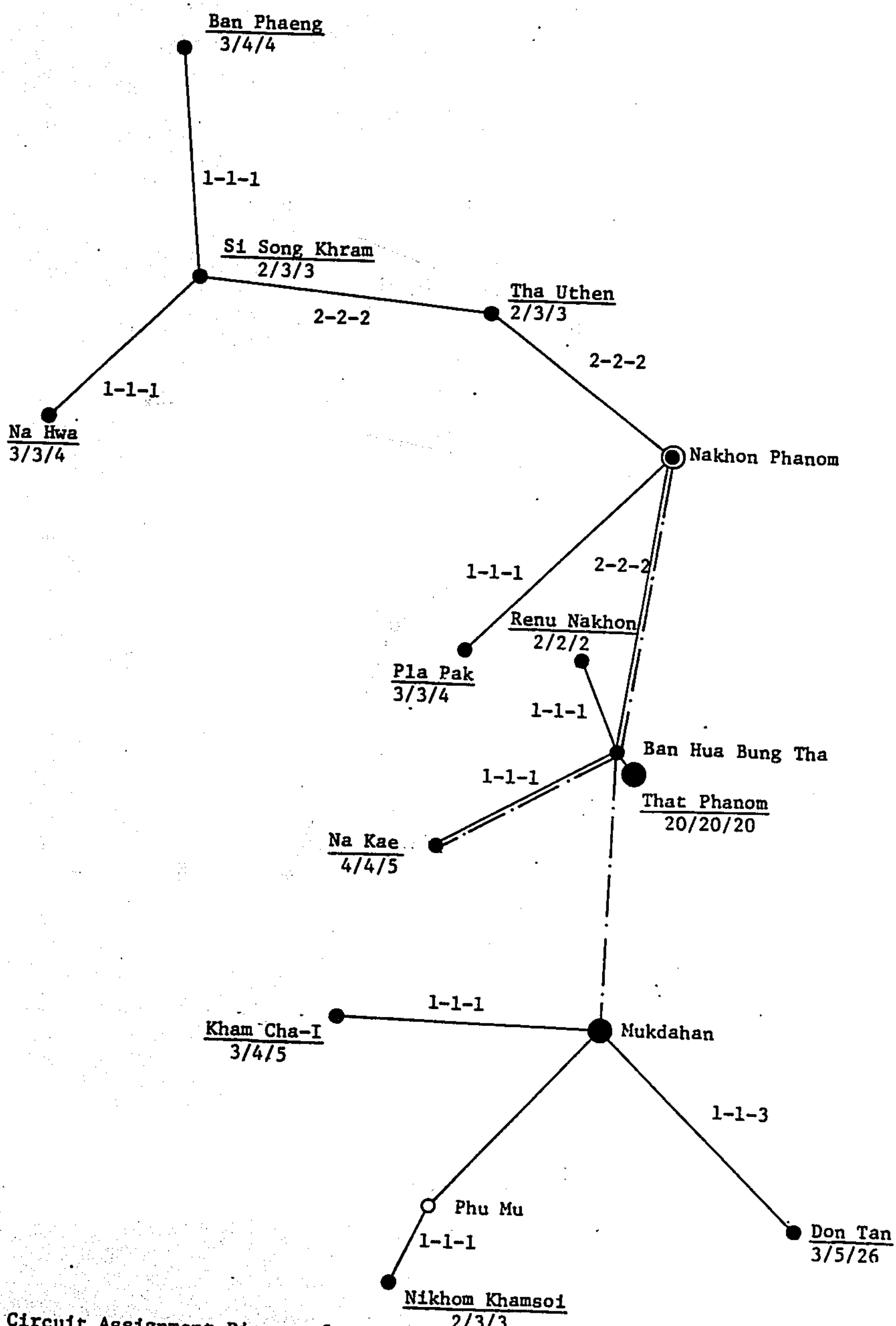

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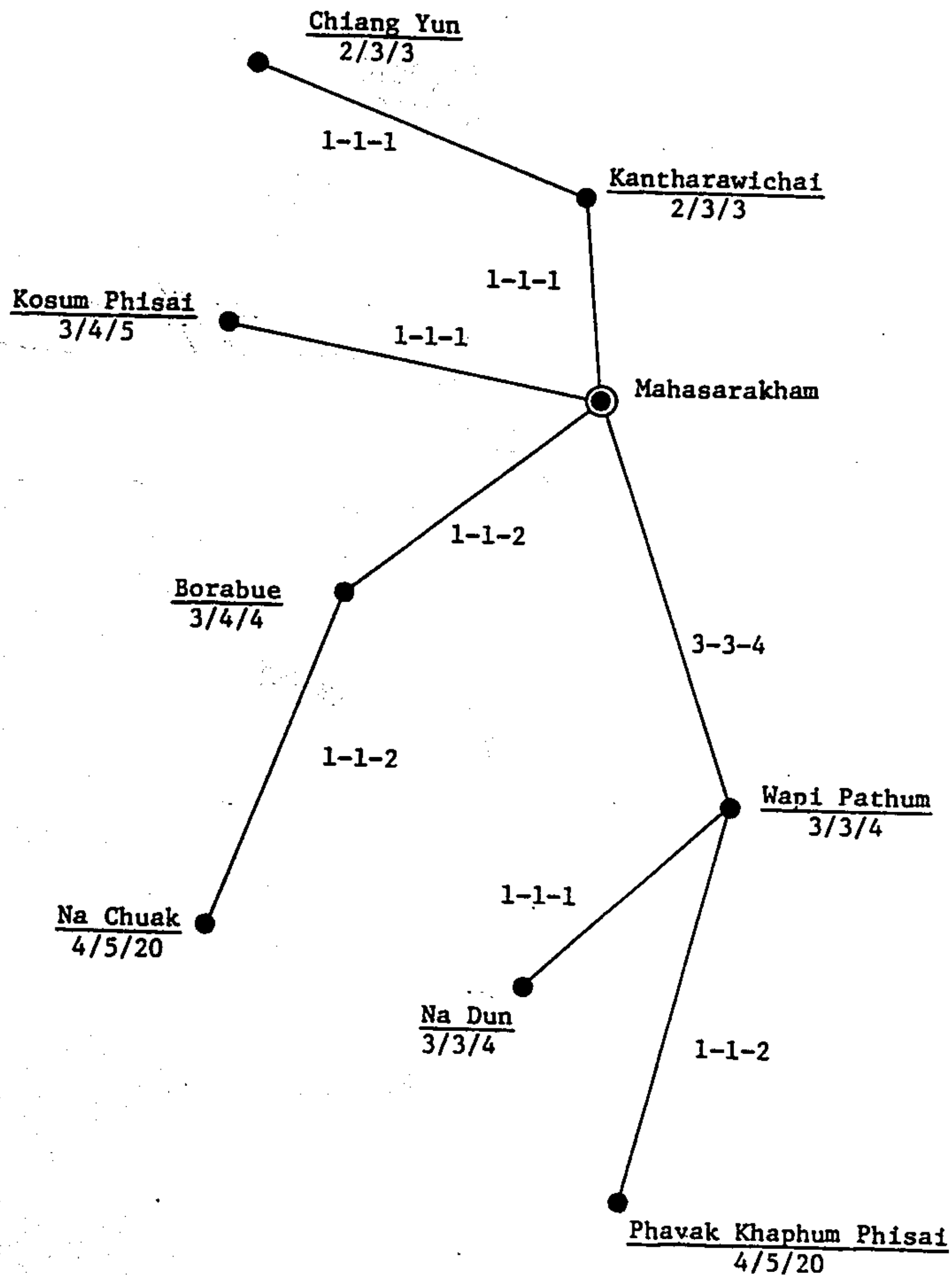

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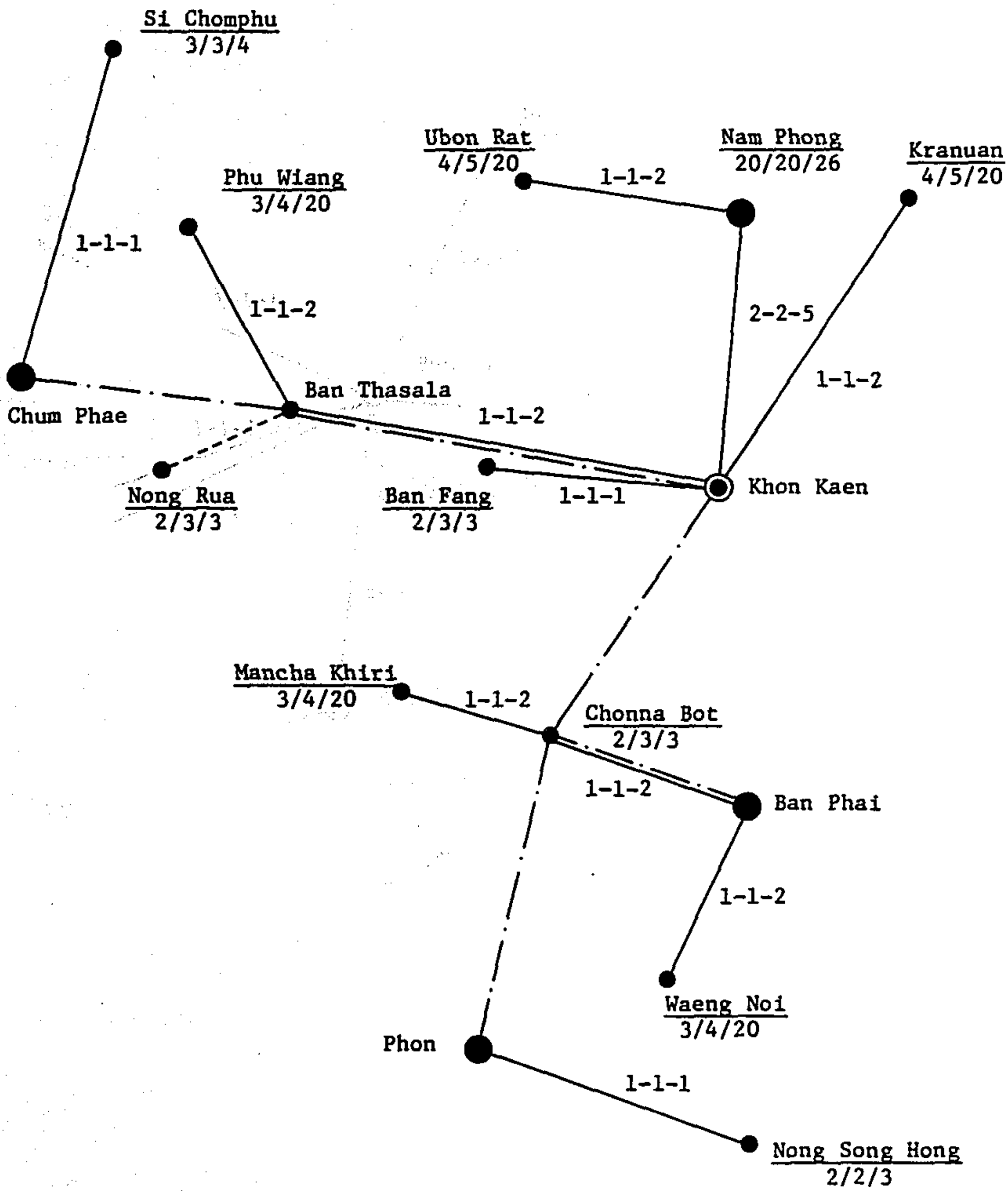

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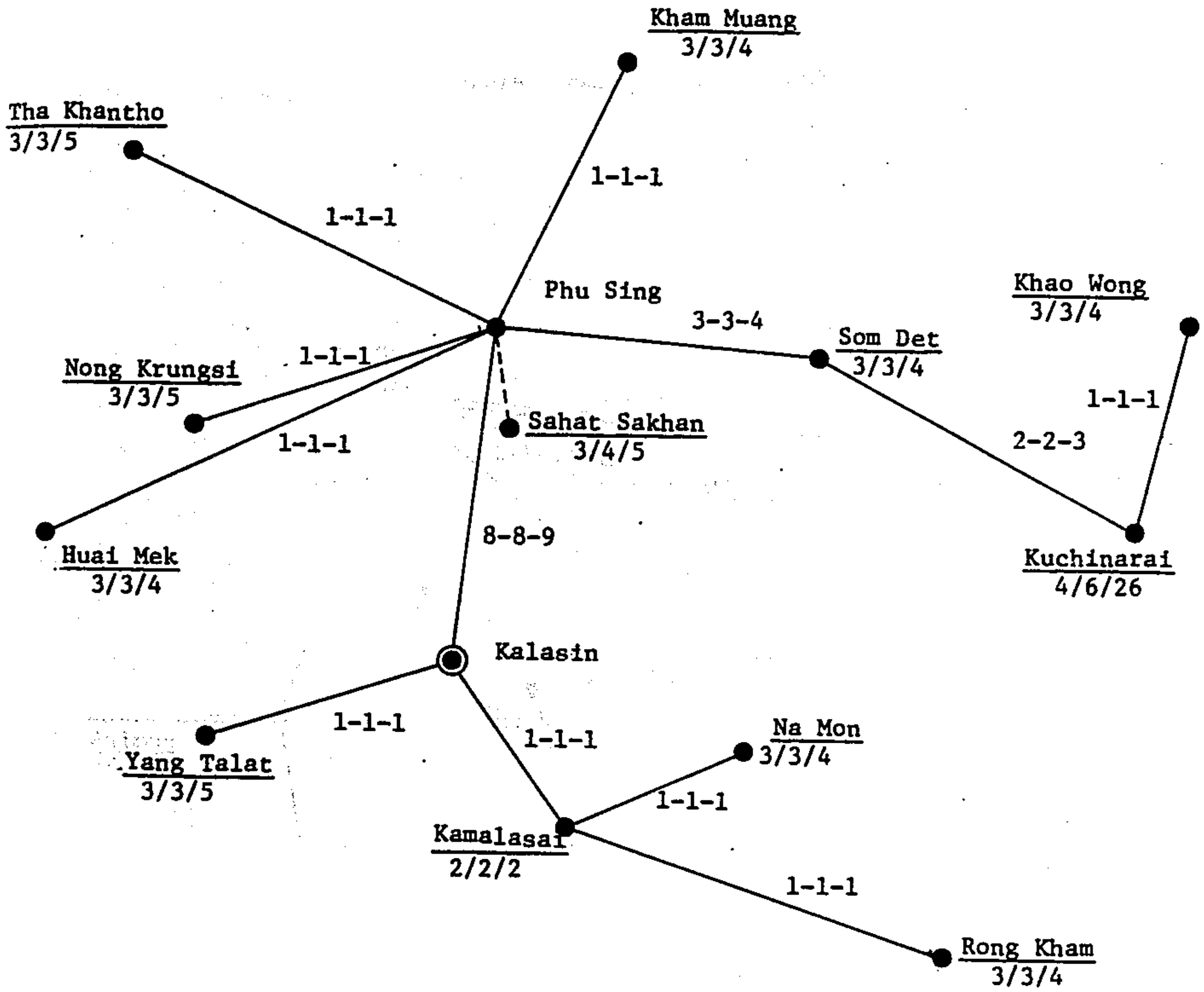

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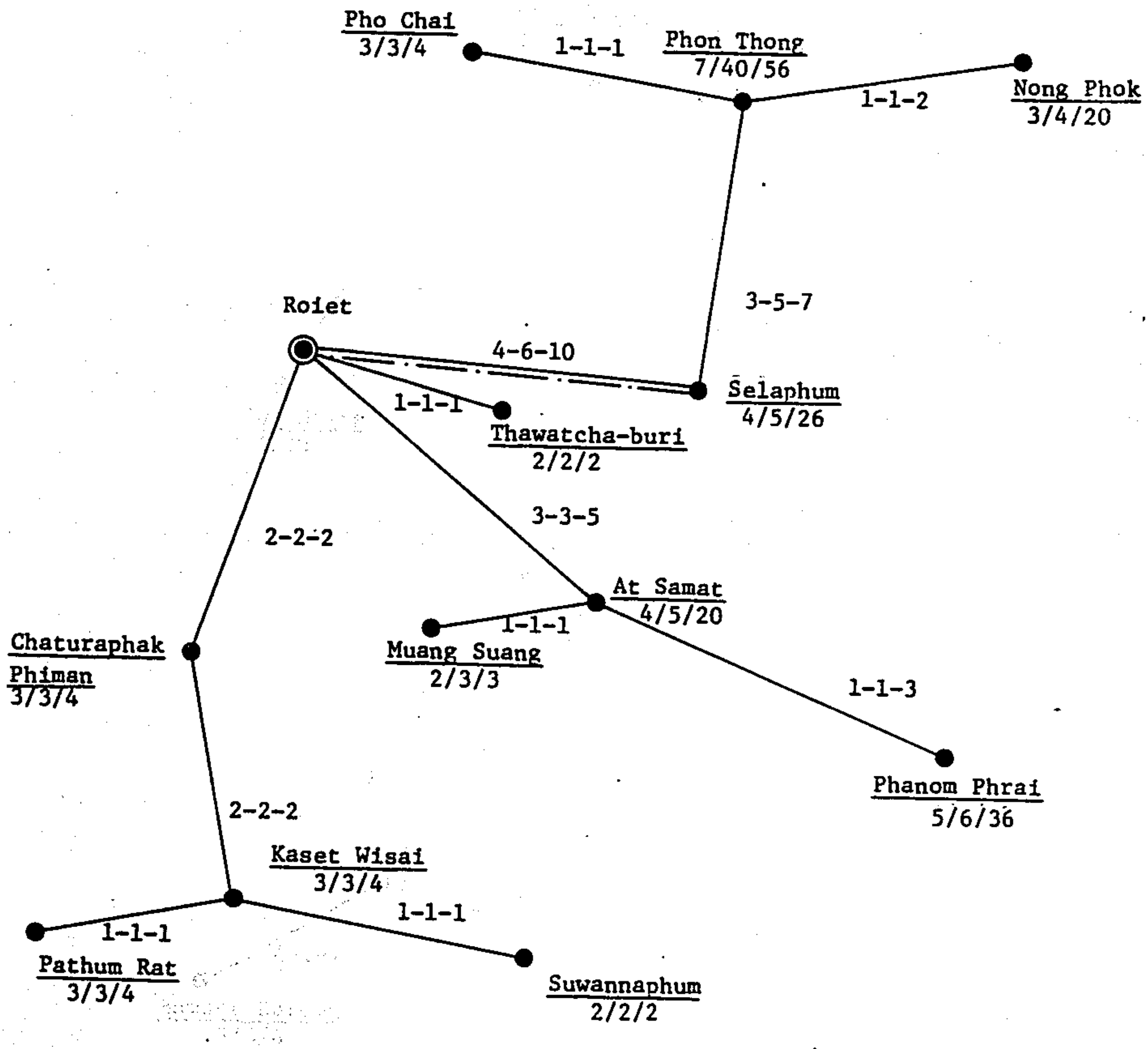

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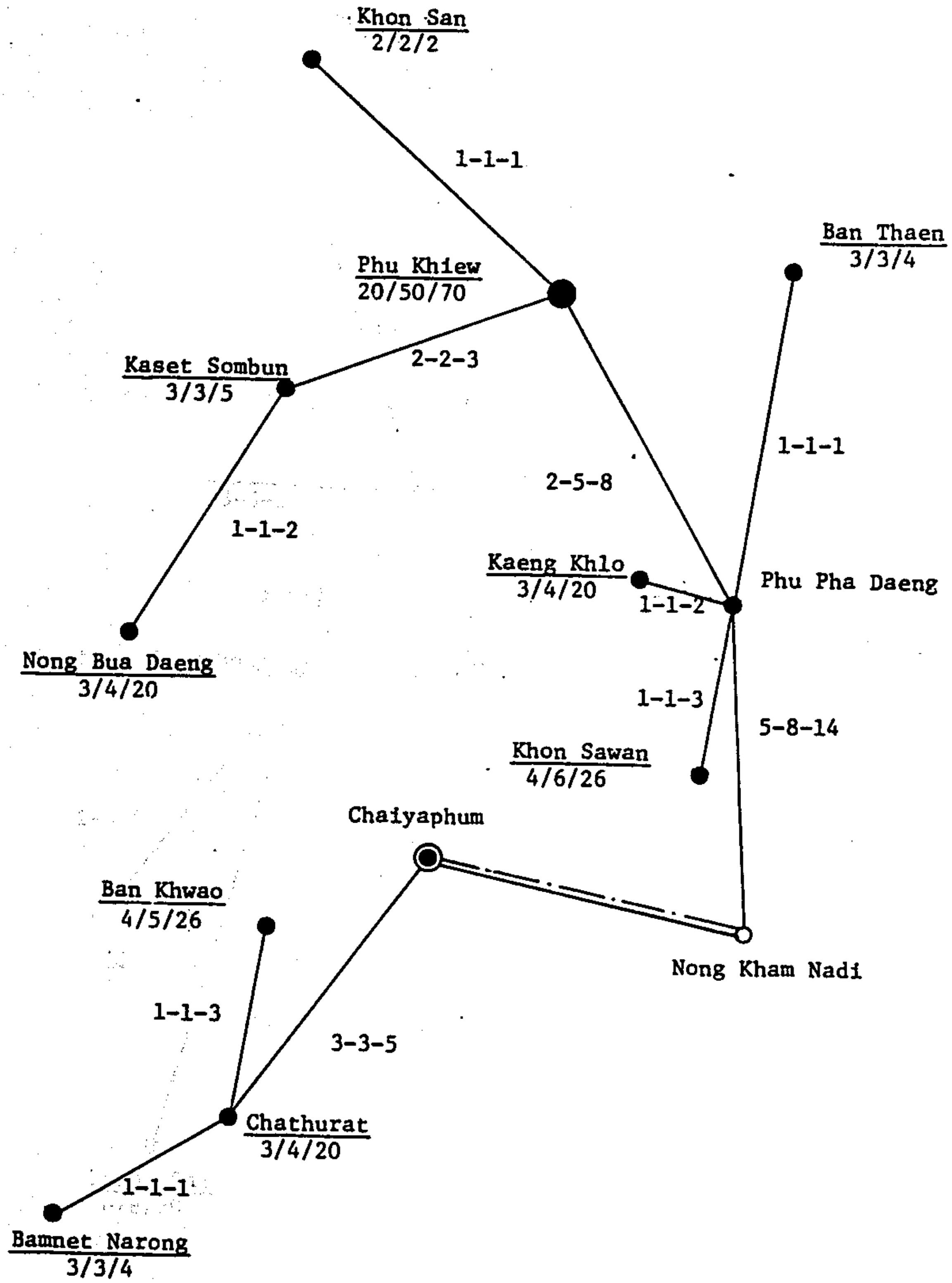

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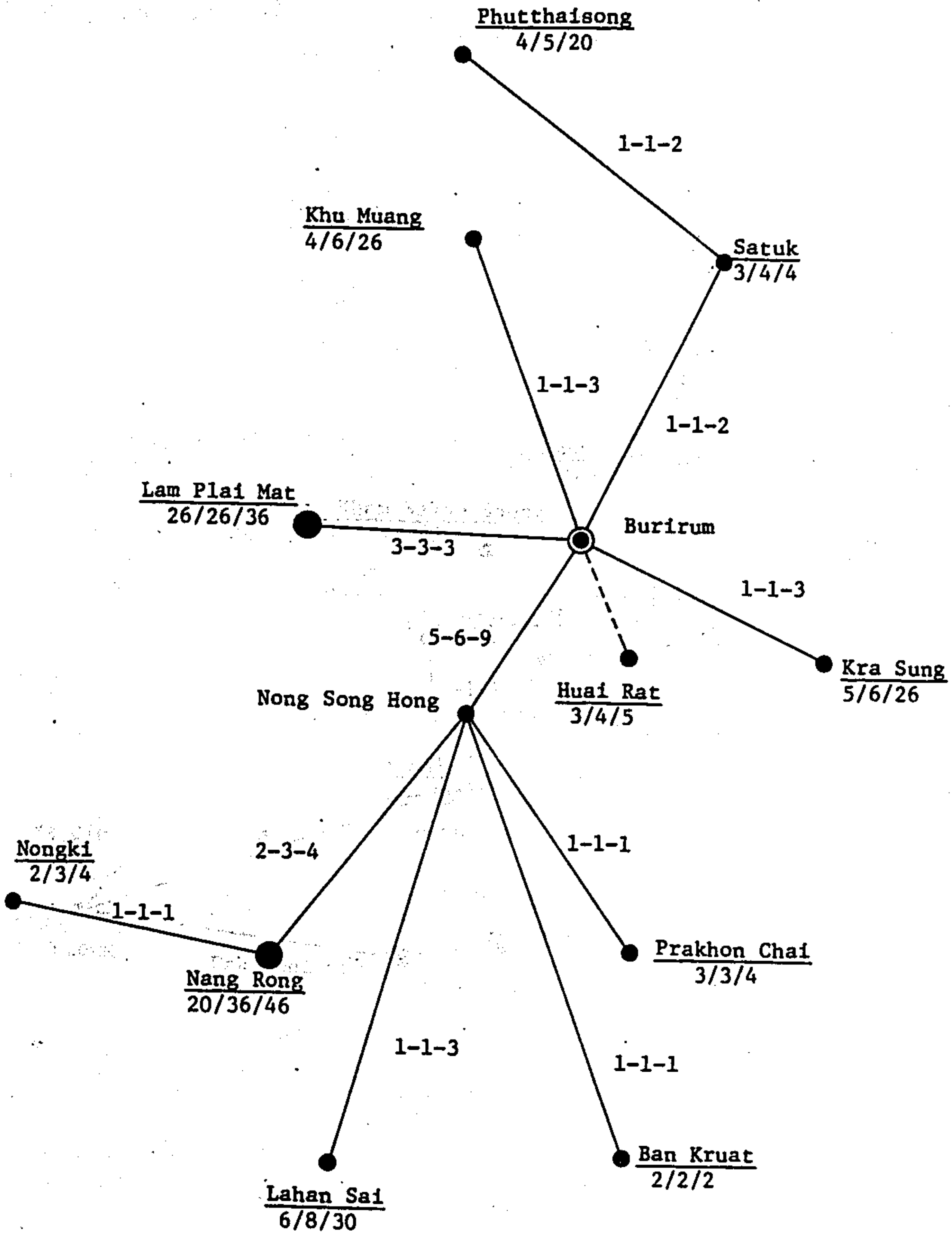

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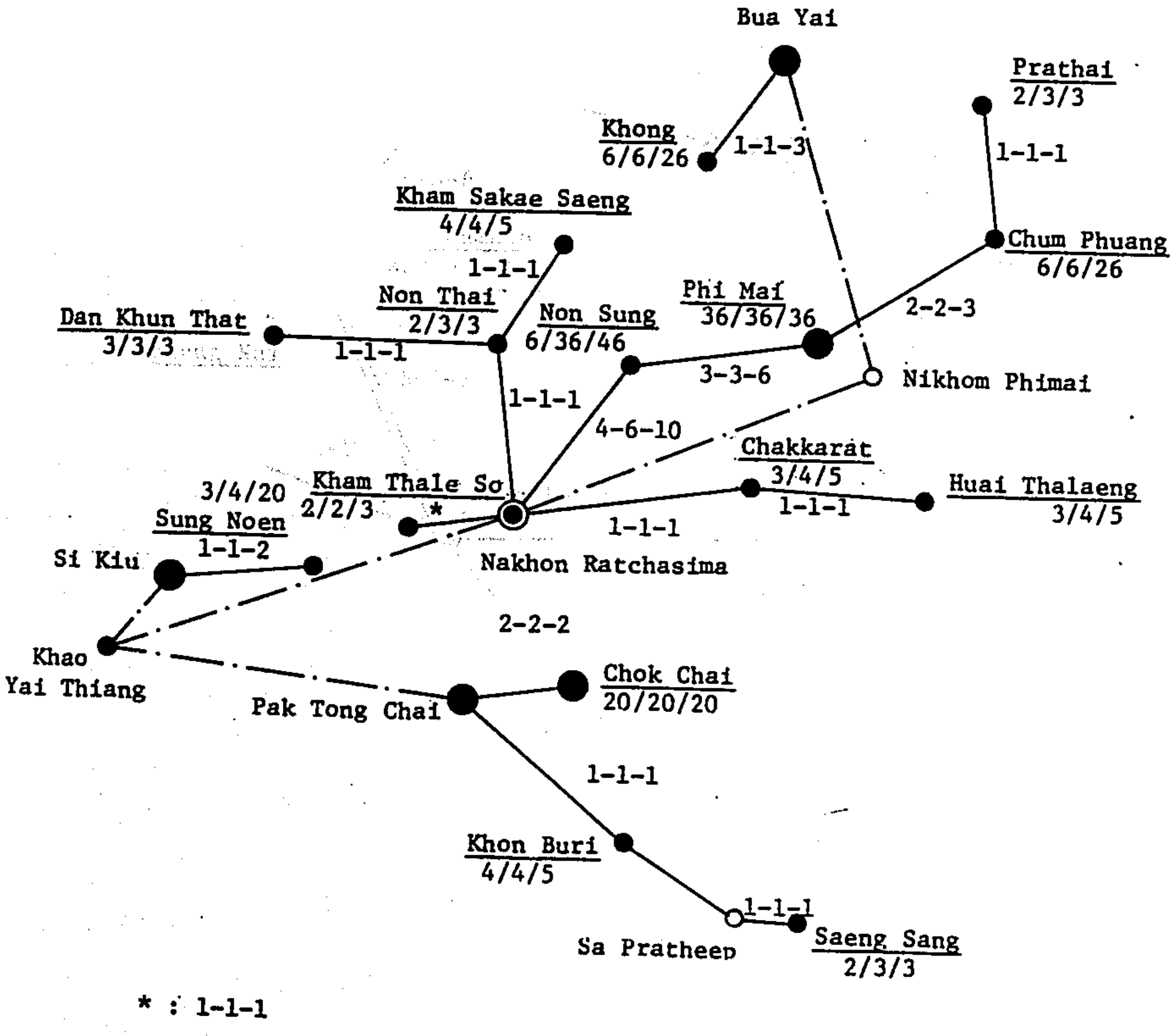
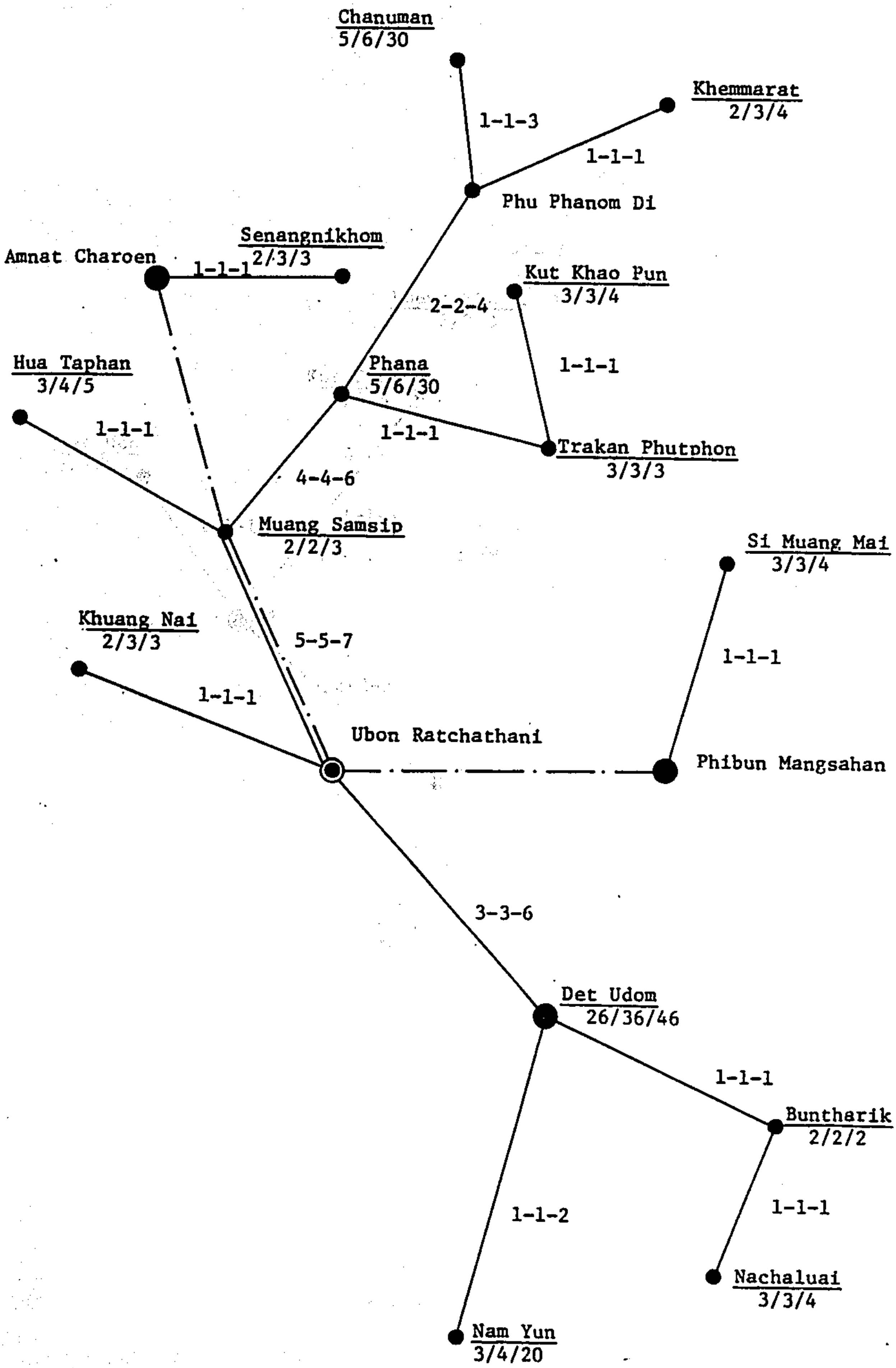
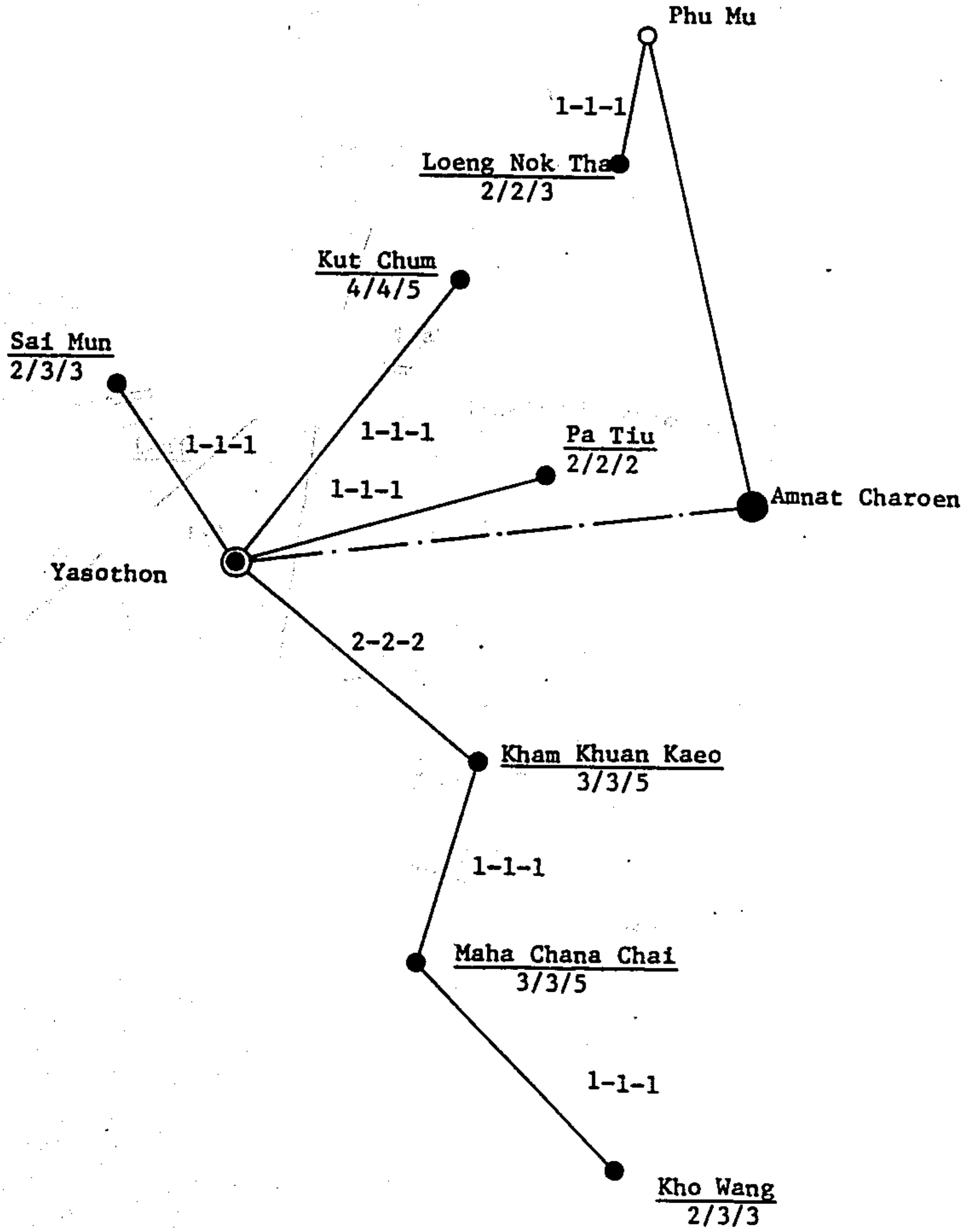


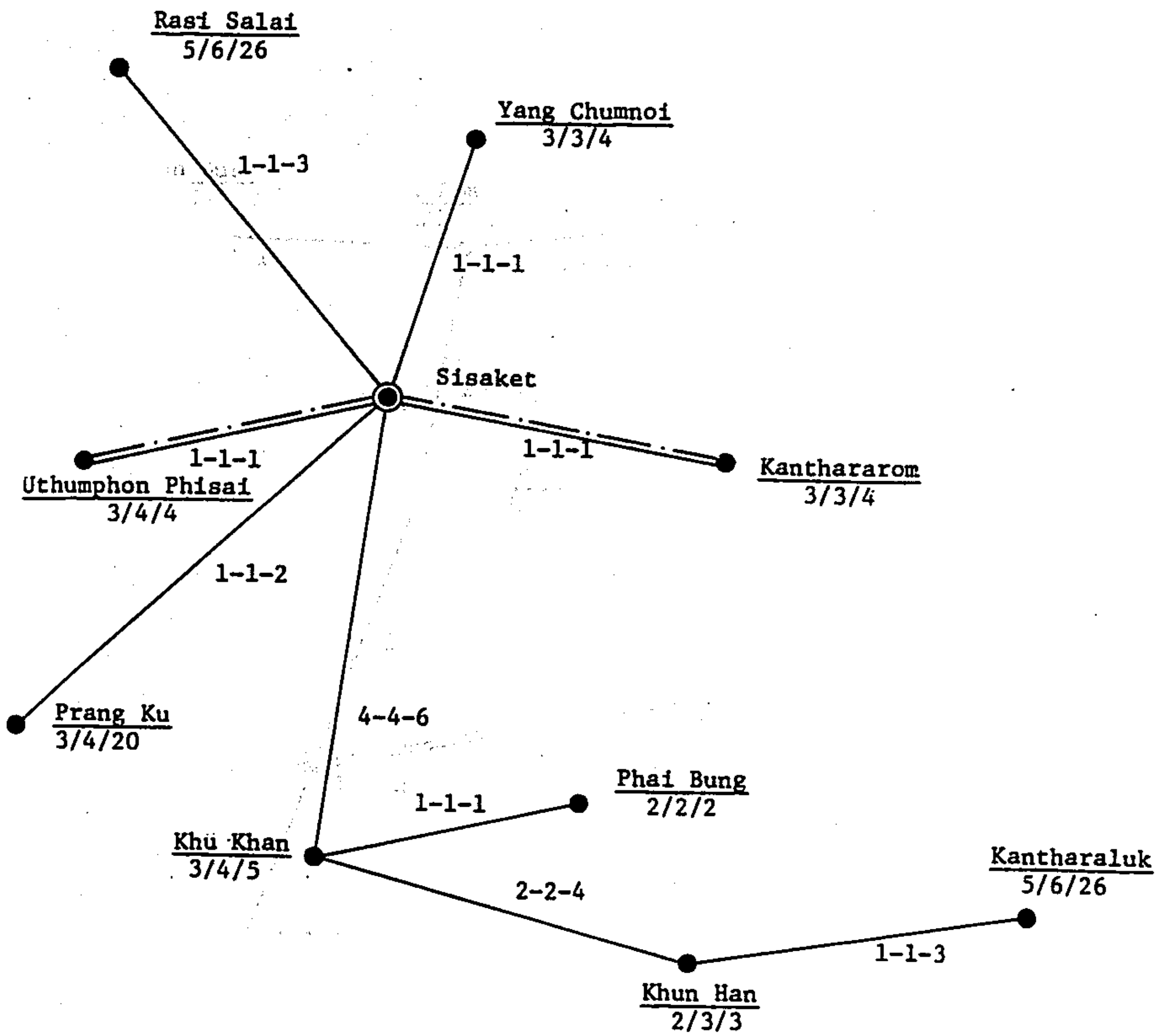
Circuit Assignment Diagram for Terrestrial System : Nakhon Ratchasima Area(4421)



Circuit Assignment Diagram for Terrestrial System : Ubon Ratchathani Area(4501)



Circuit Assignment Diagram for Terrestrial System : Yasothon Area(4515)



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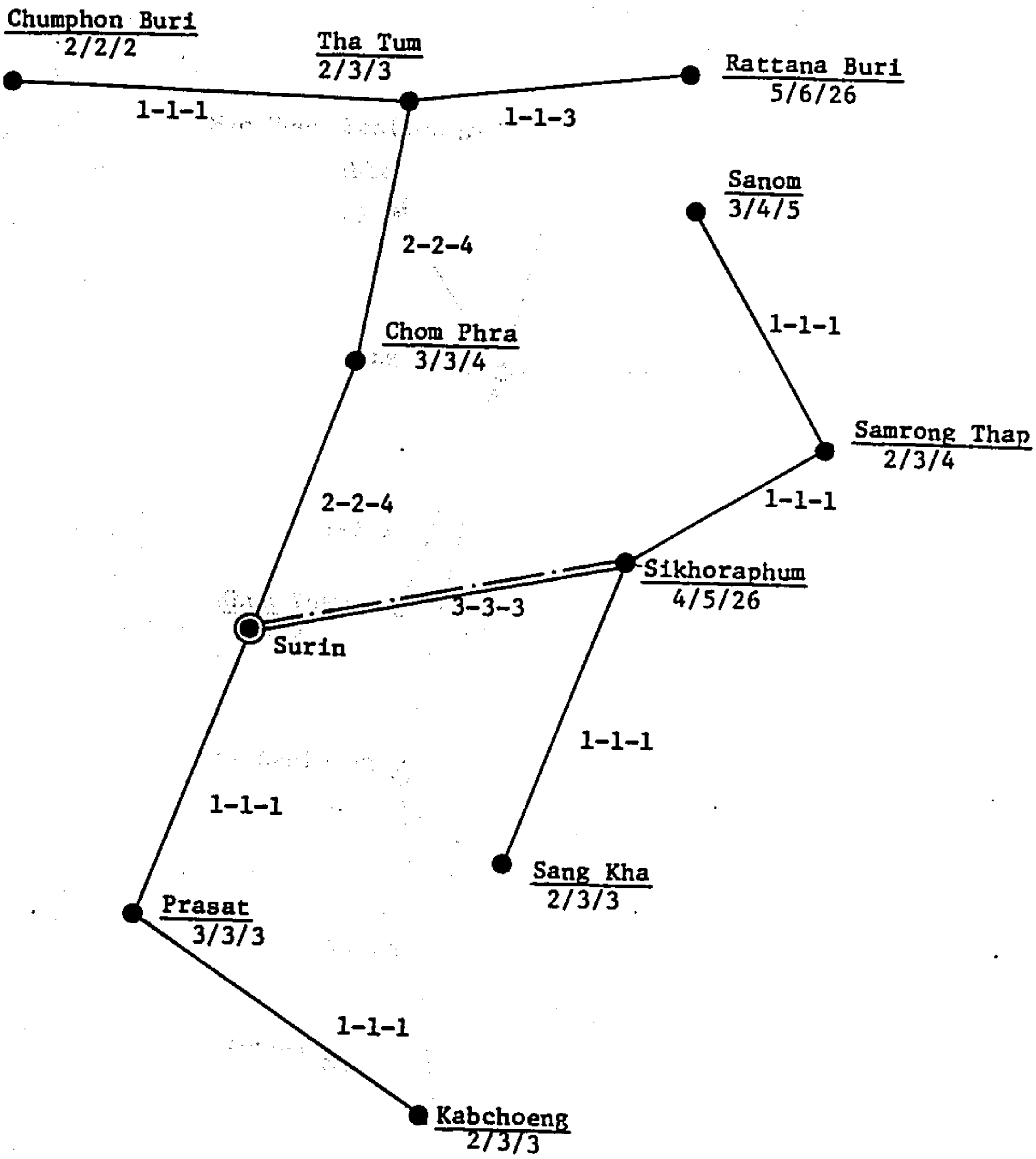

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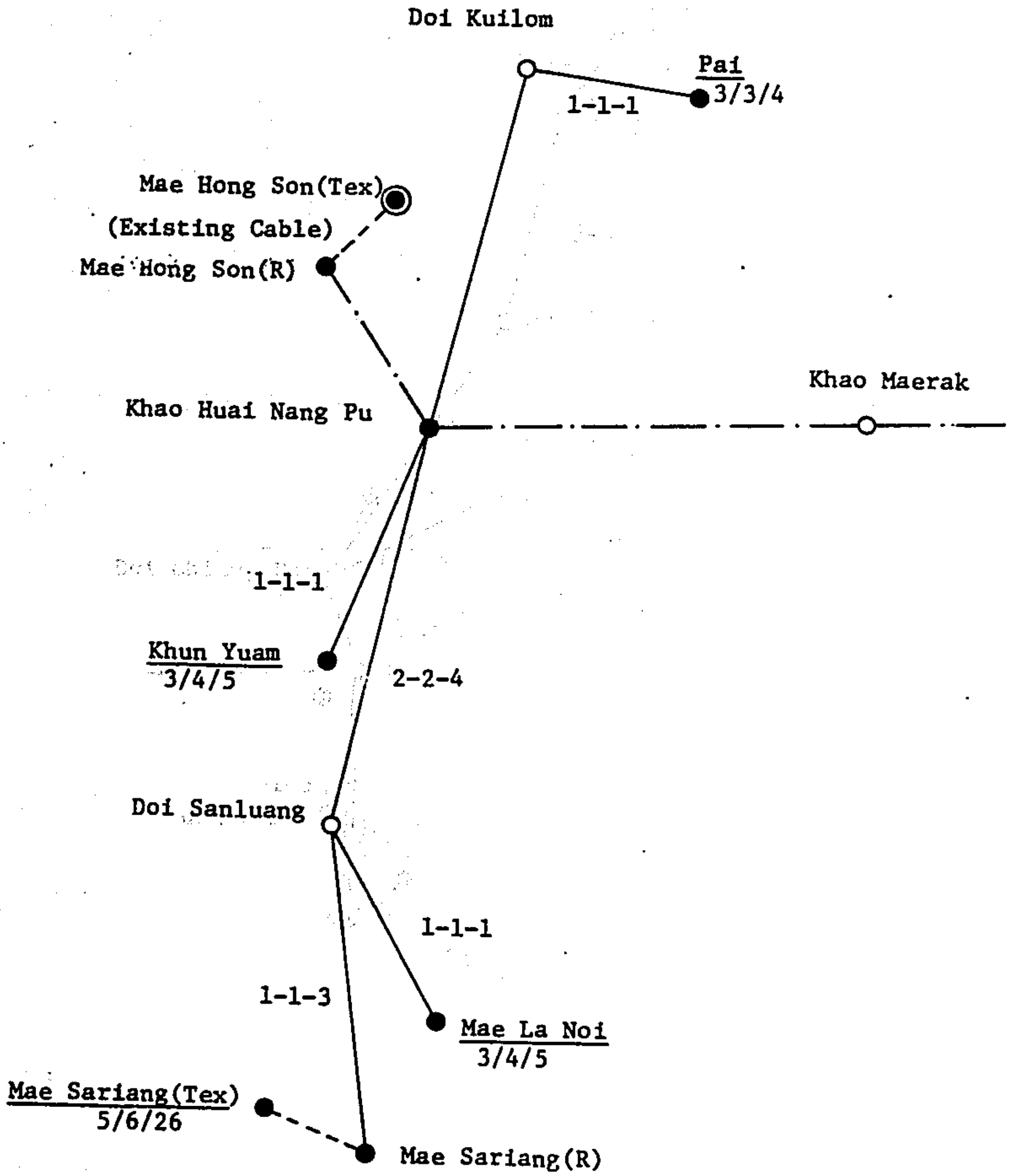
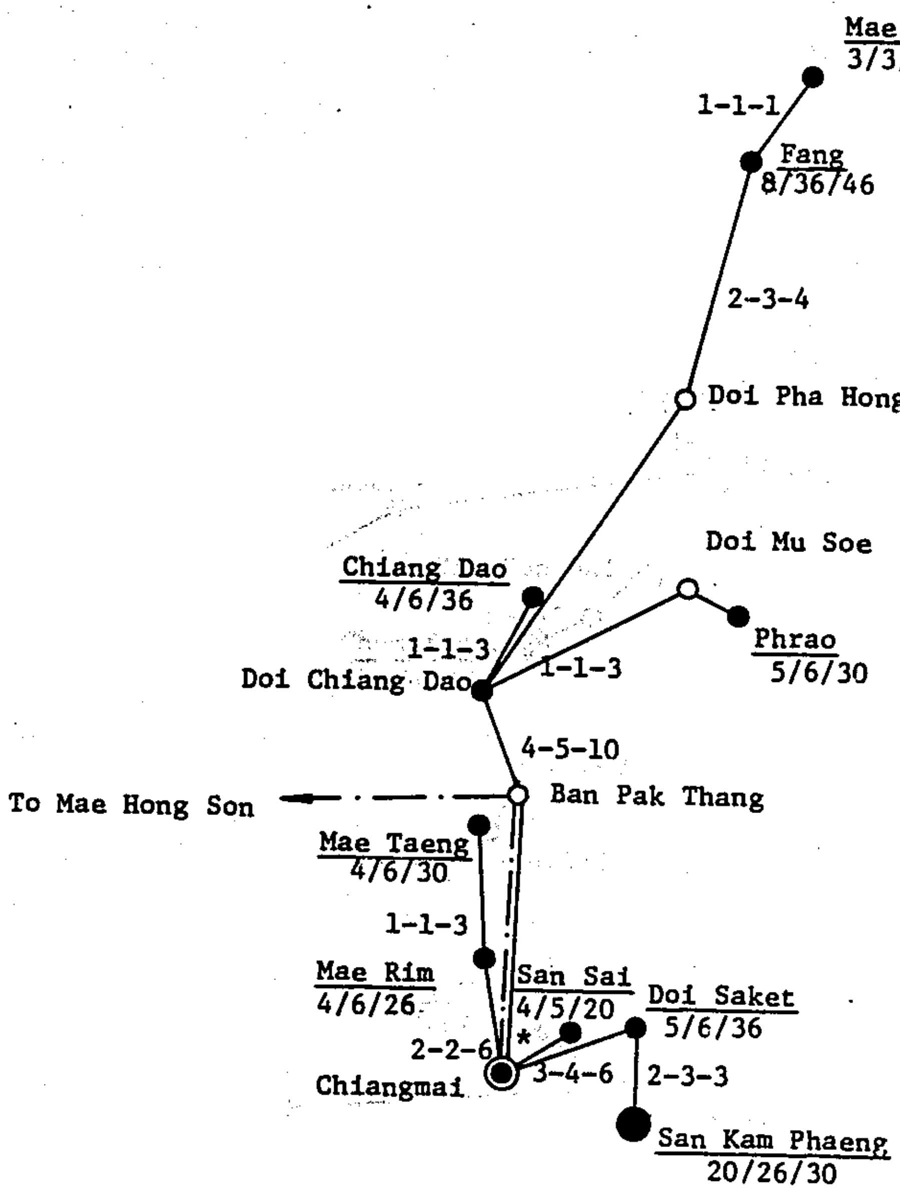
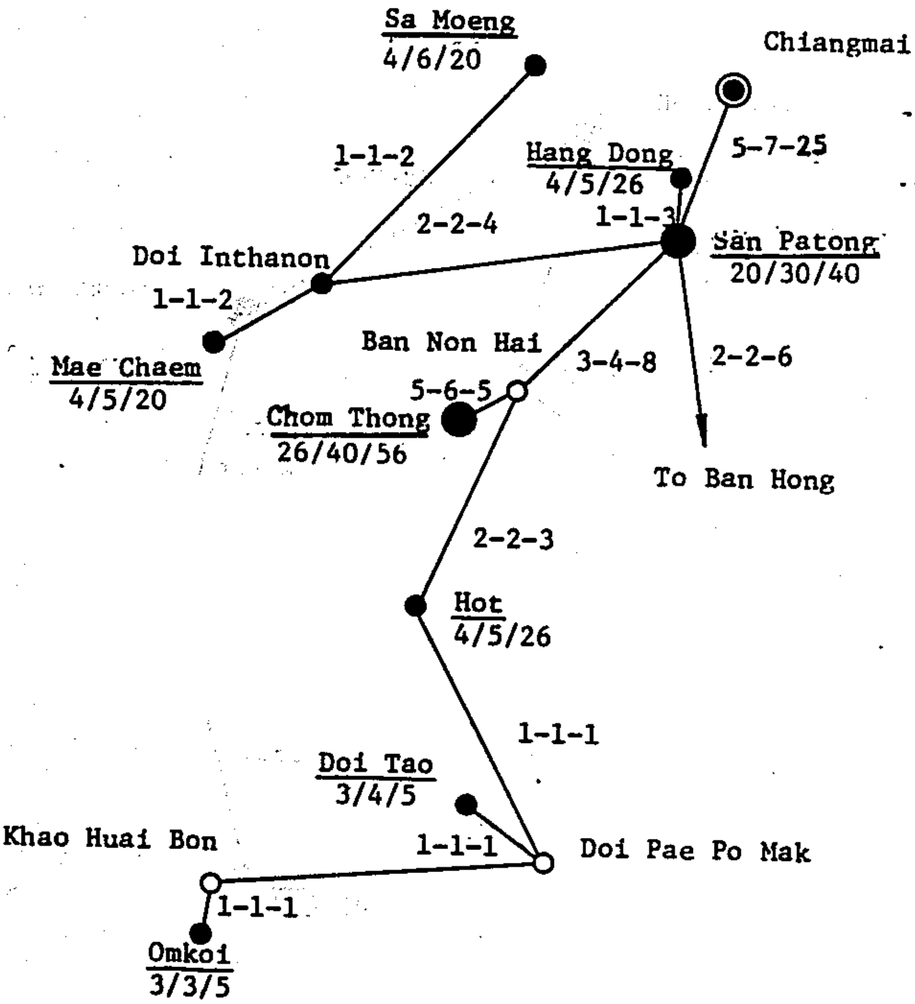


Circuit Assignment Diagram for Terrestrial System : Mae Hong Son Area(5301)



* : 1-1-2

Circuit Assignment Diagram for Terrestrial System : Chiangmai Area(5313) 1/2



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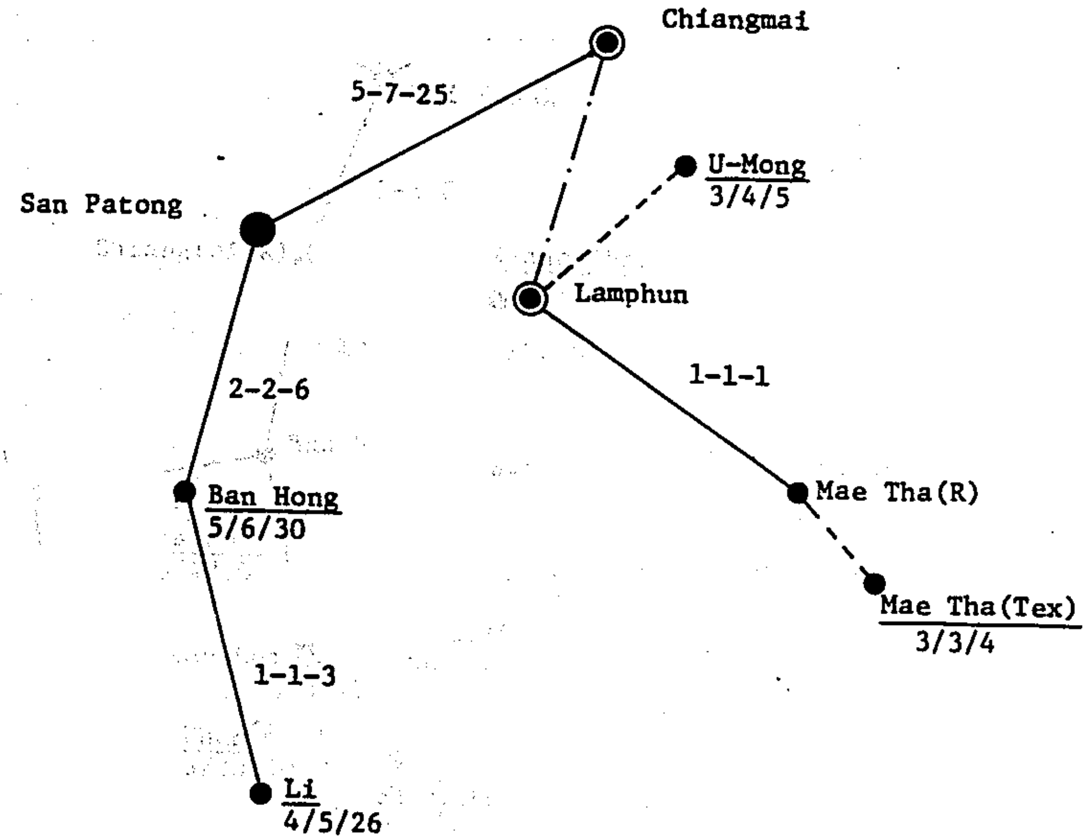

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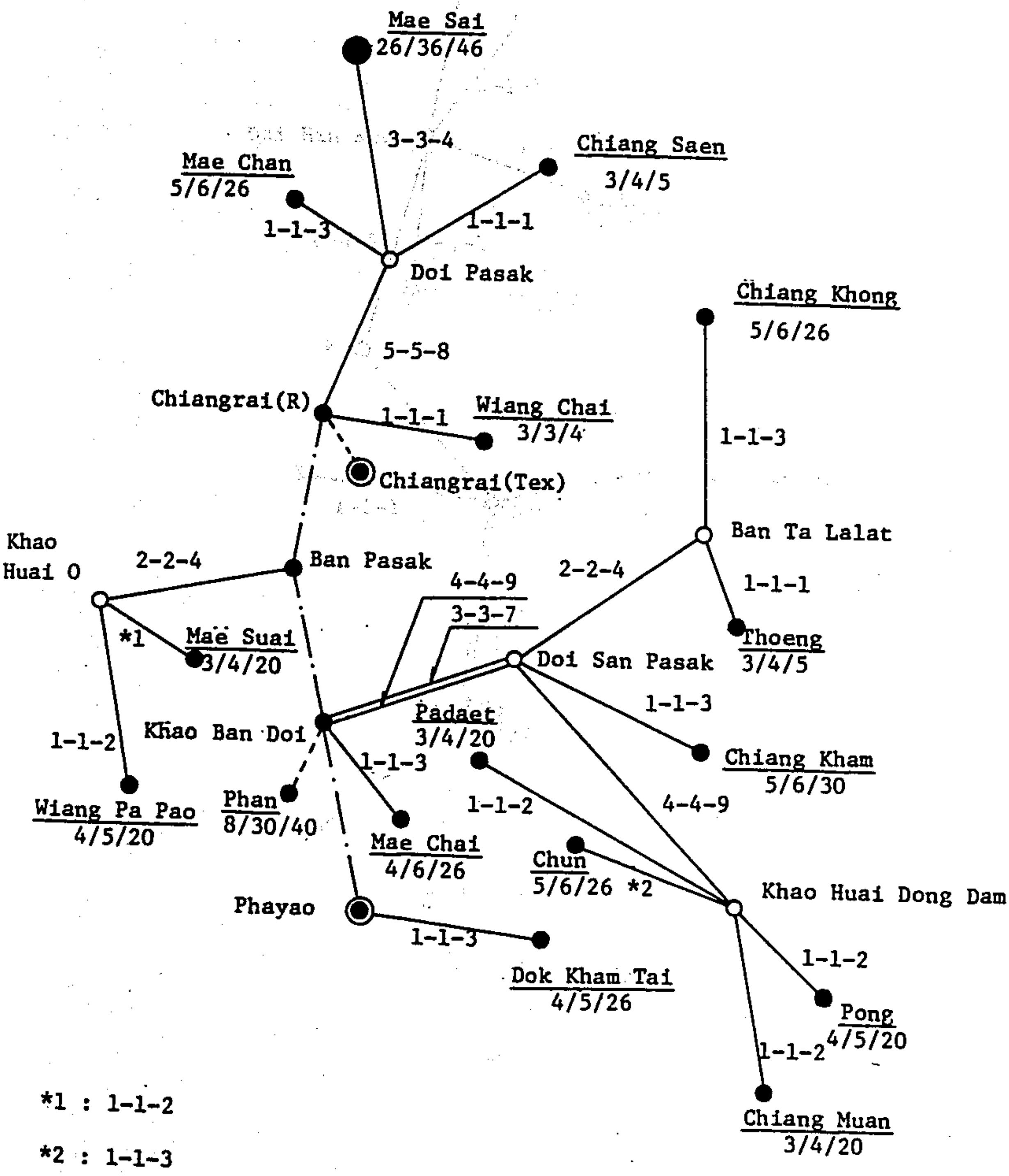

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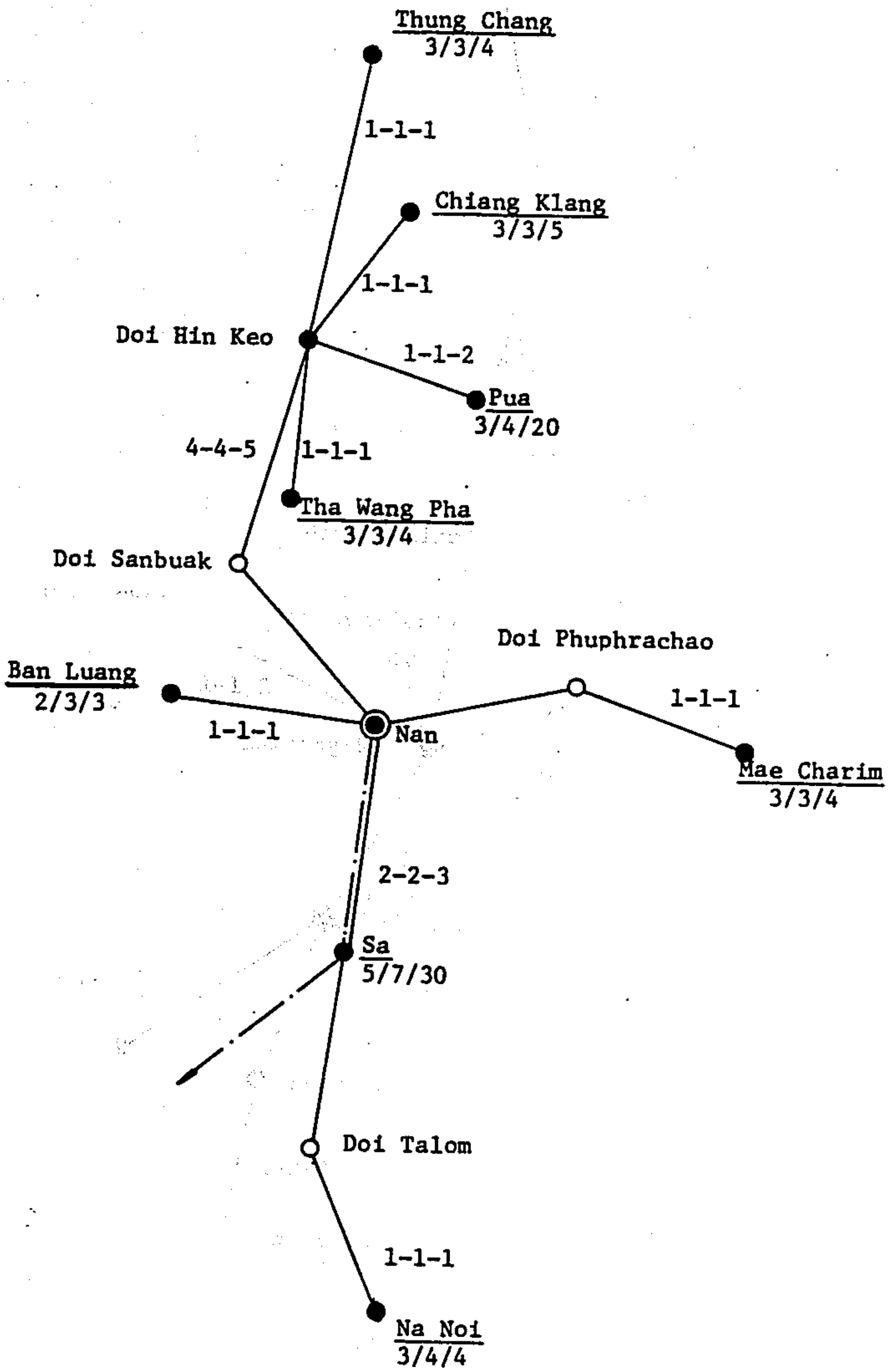

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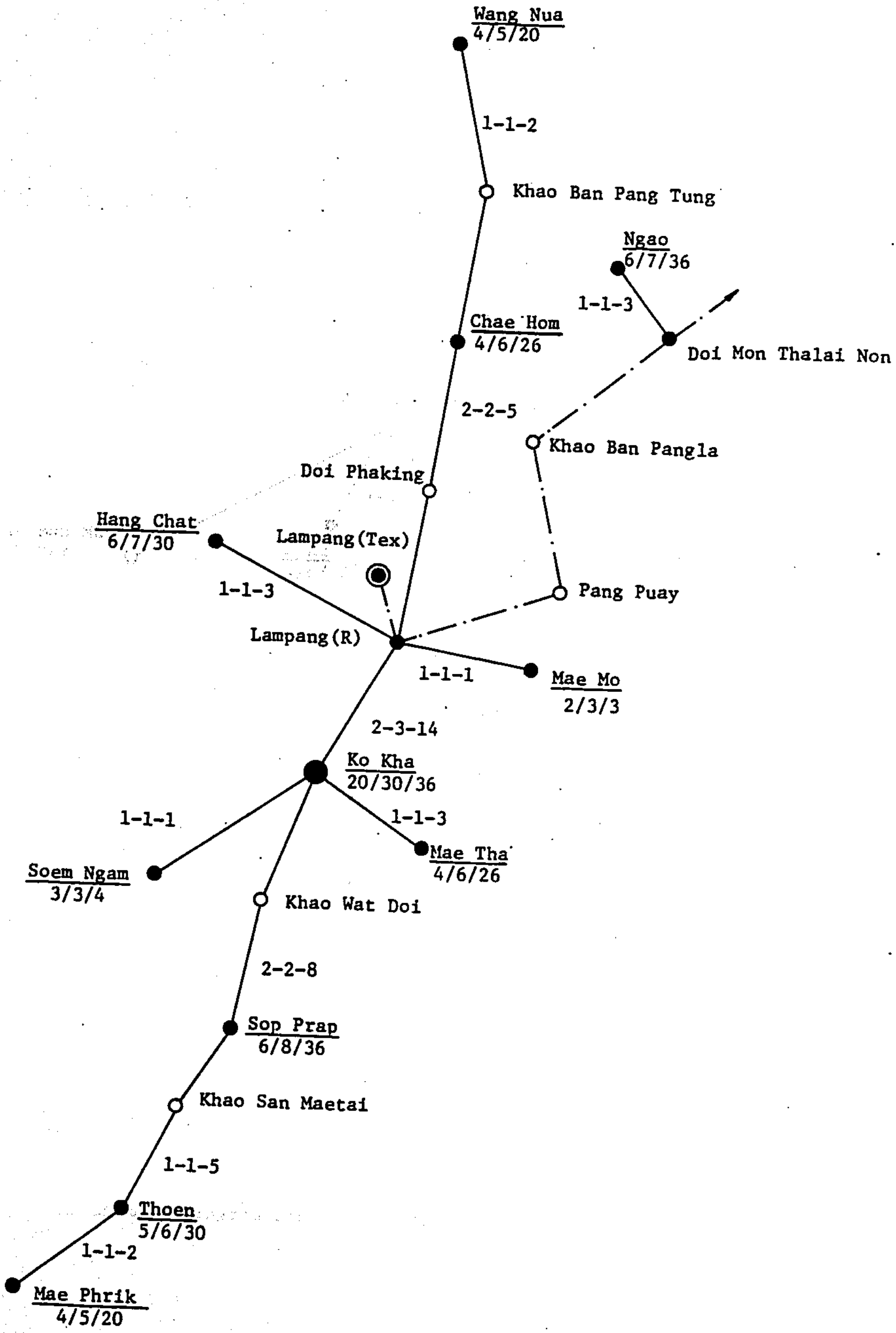

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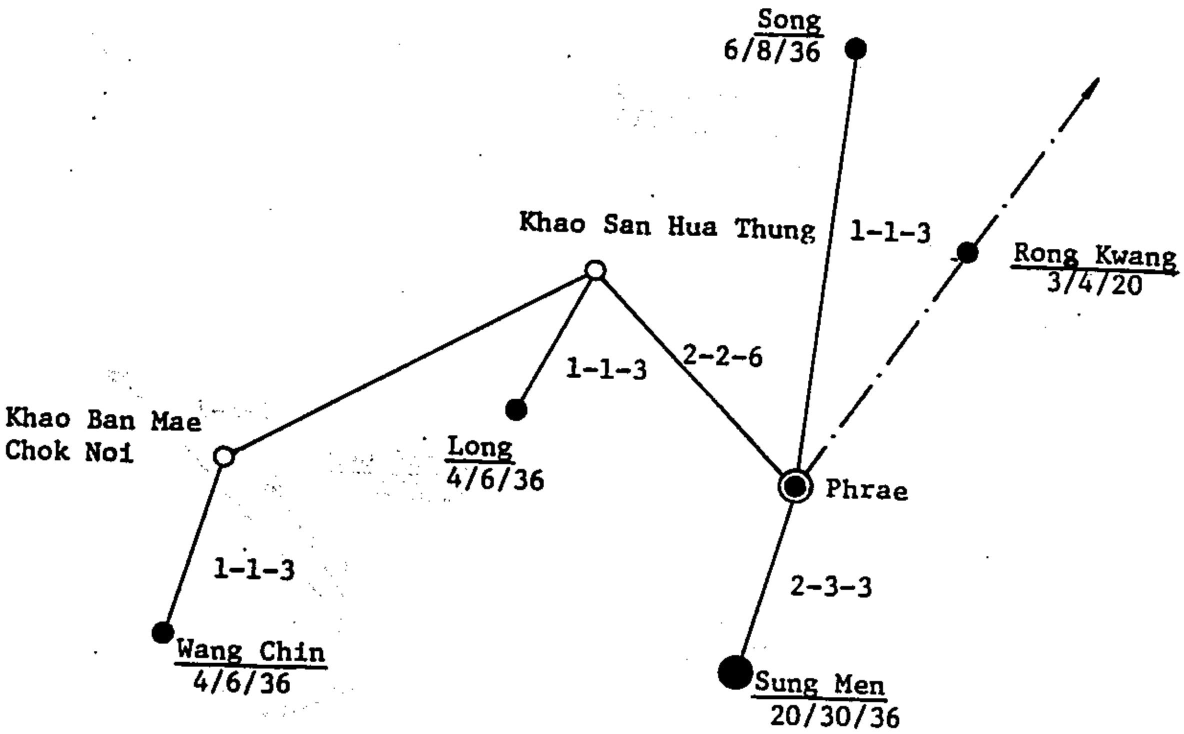

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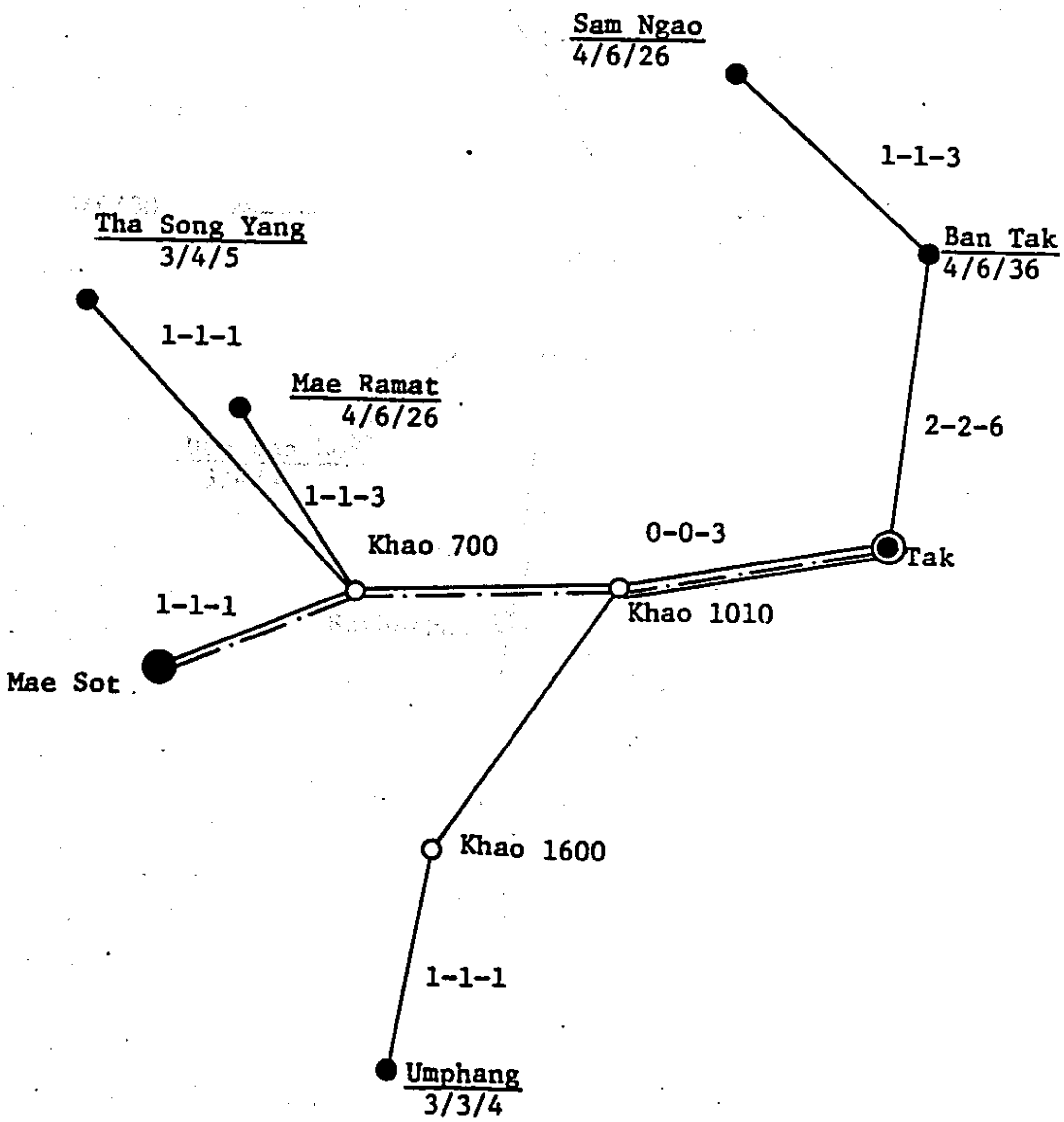

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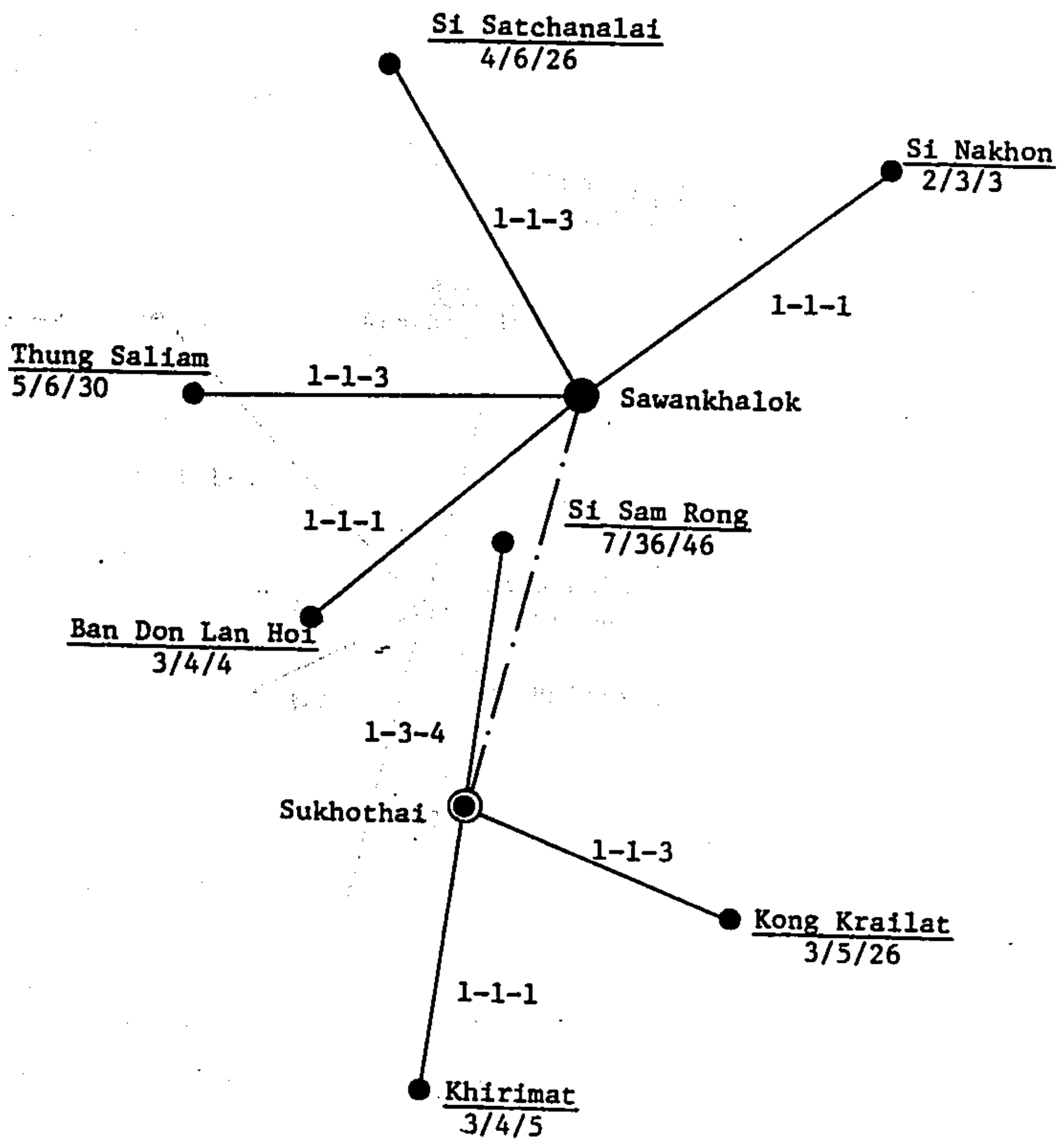
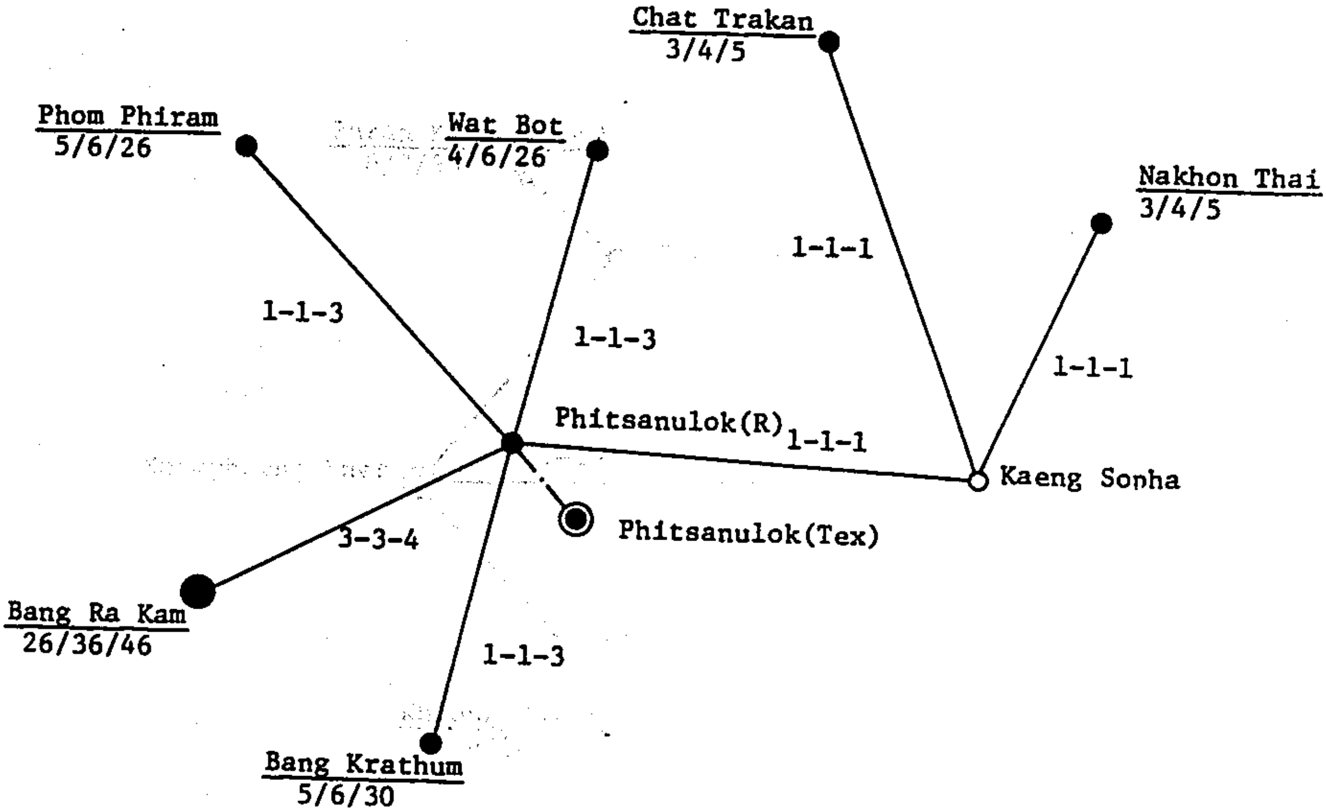


Circuit Assignment Diagram for Terrestrial System : Sukhothai Area(5508)



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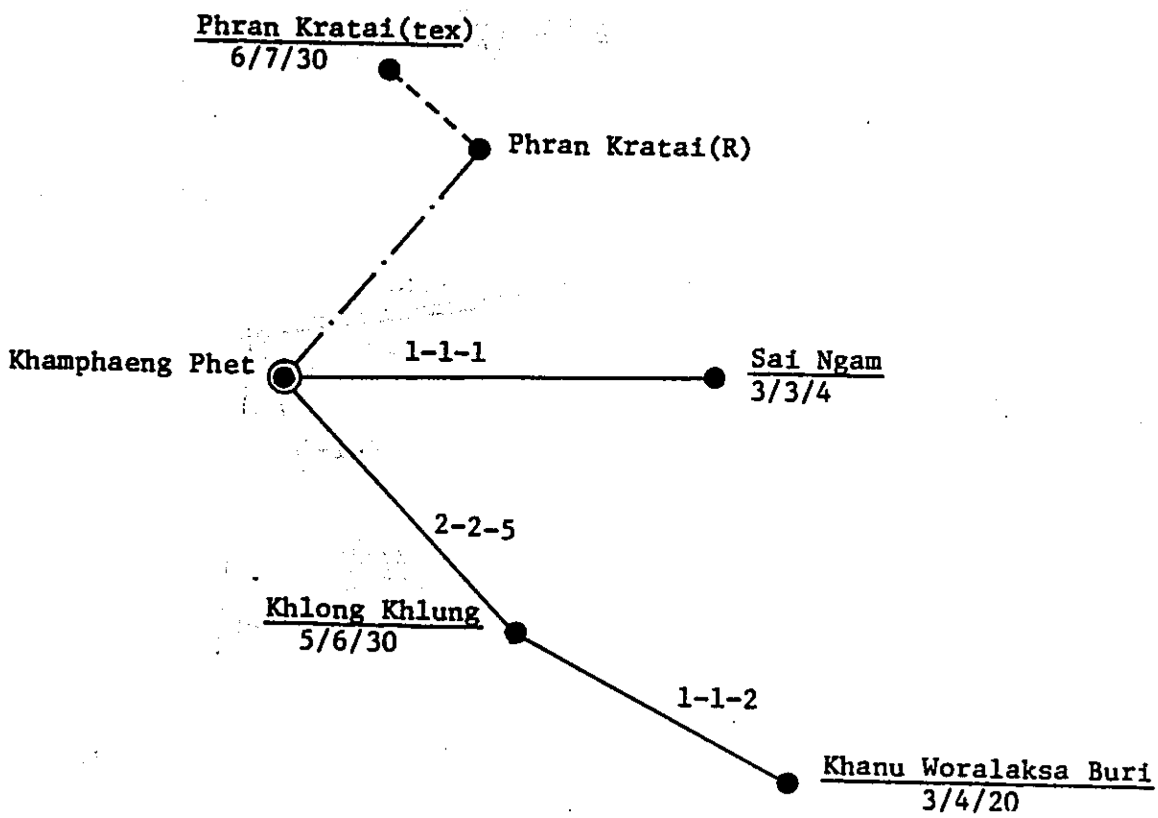

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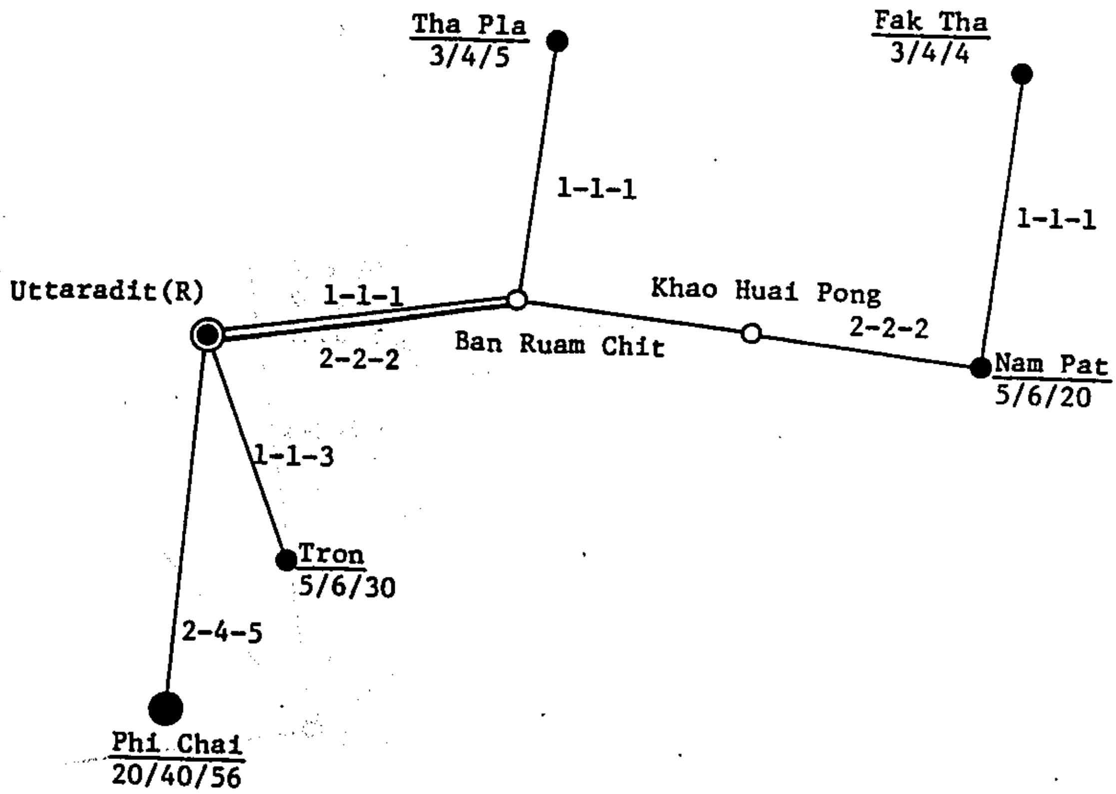

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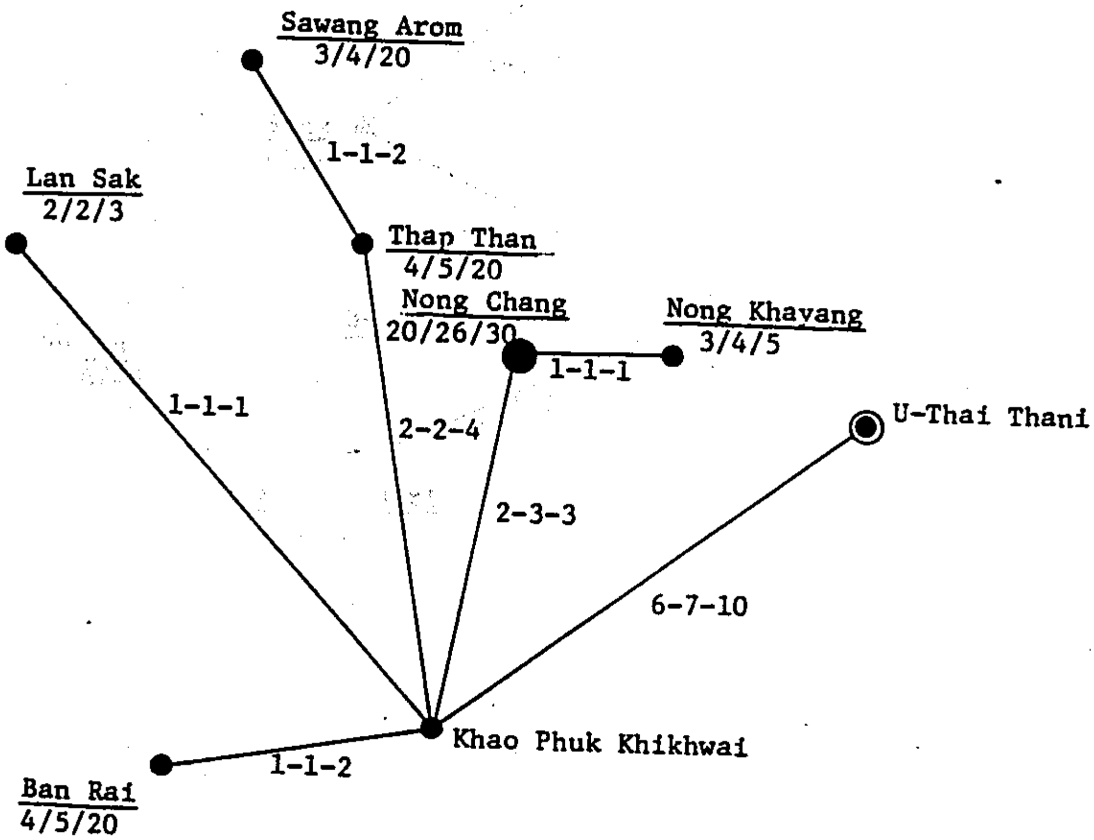

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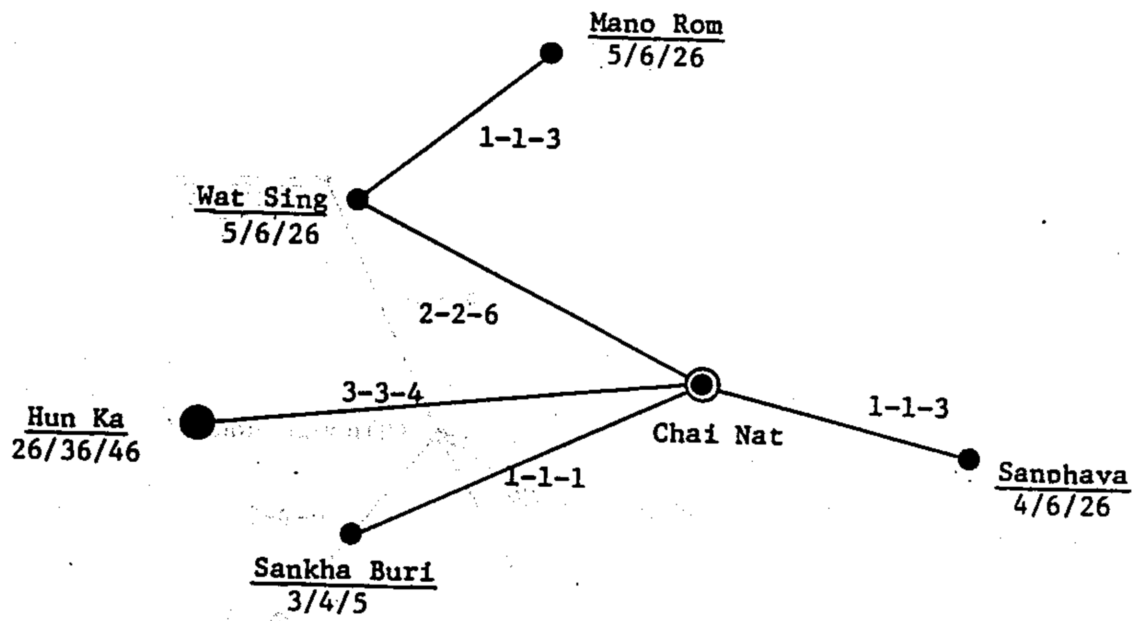

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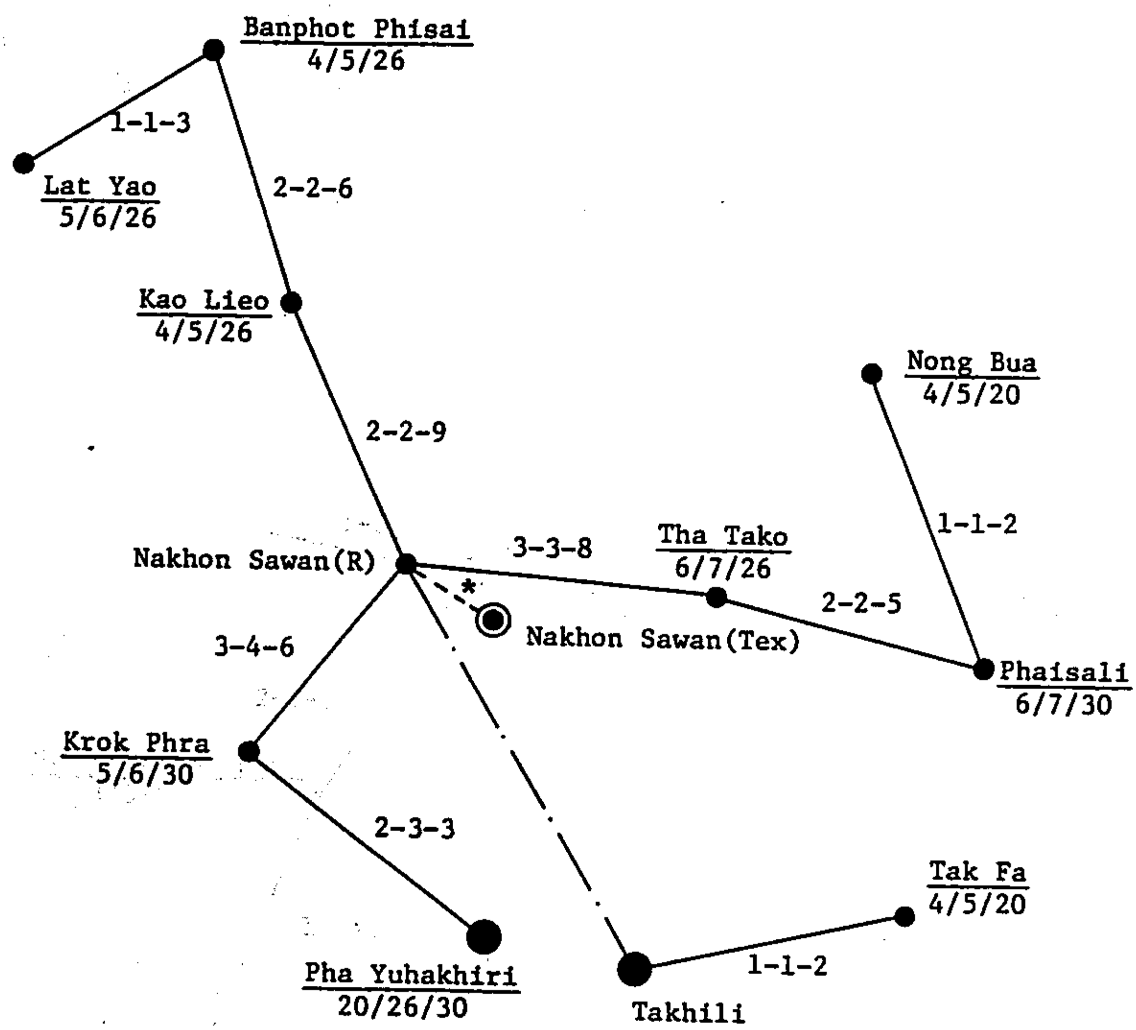
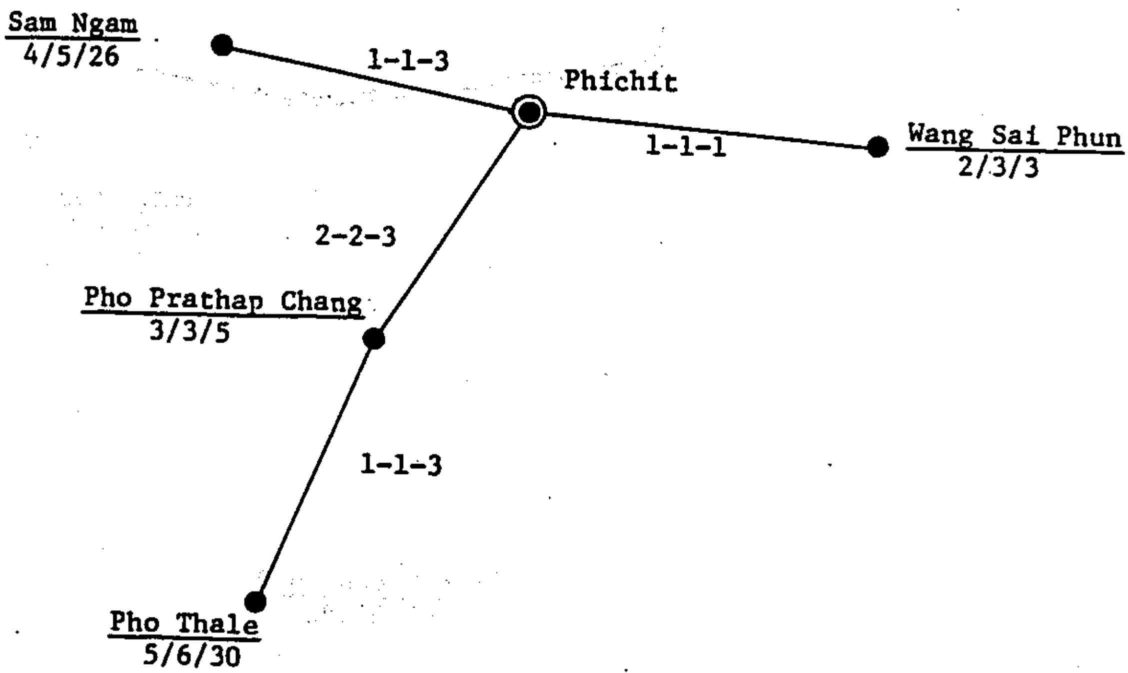


* : Existing Cable

Circuit Assignment Diagram for Terrestrial System : Nakhon Sawan Area(5614)



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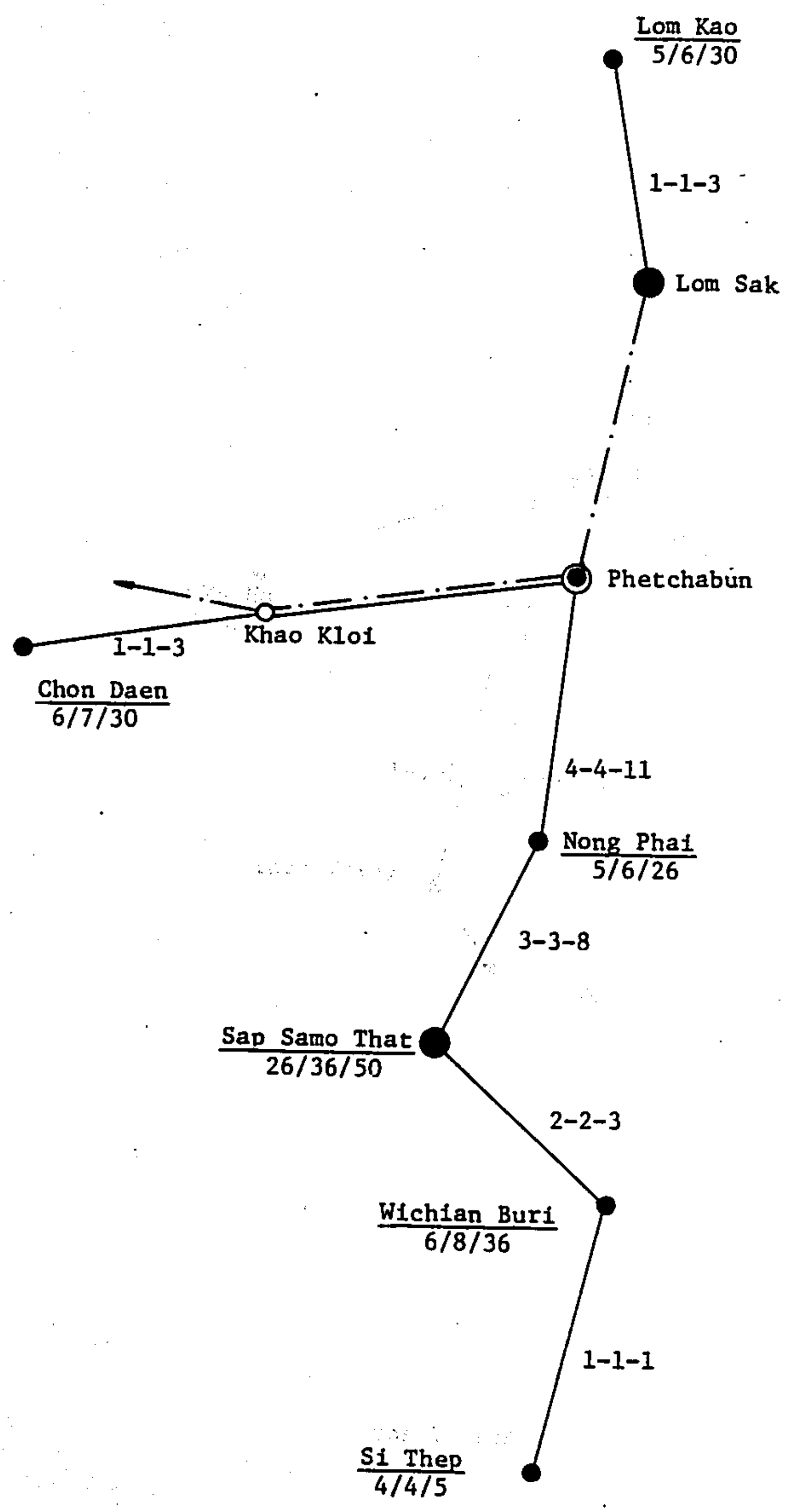
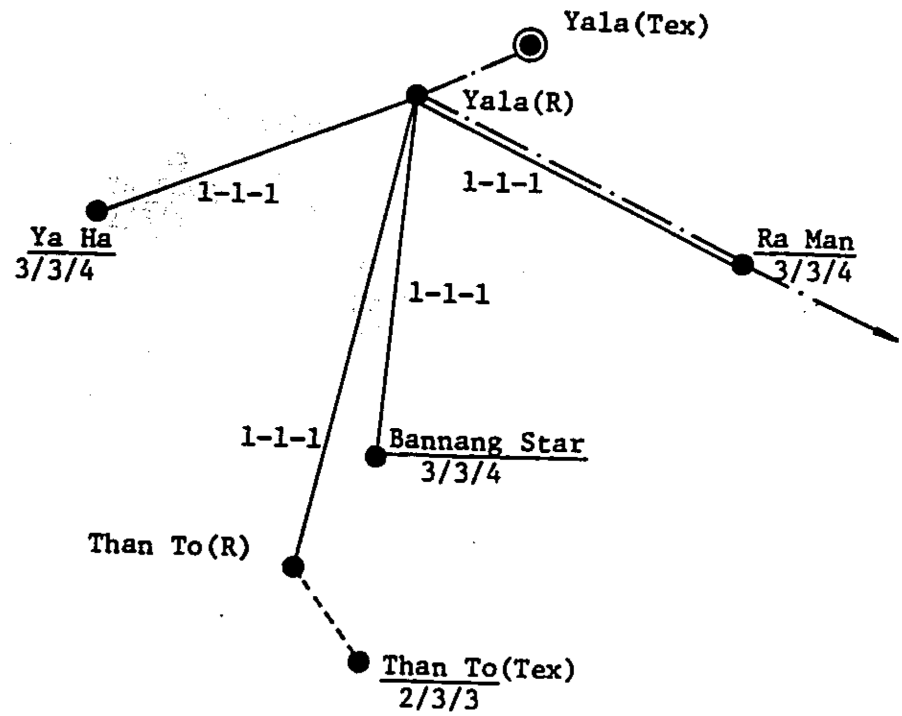
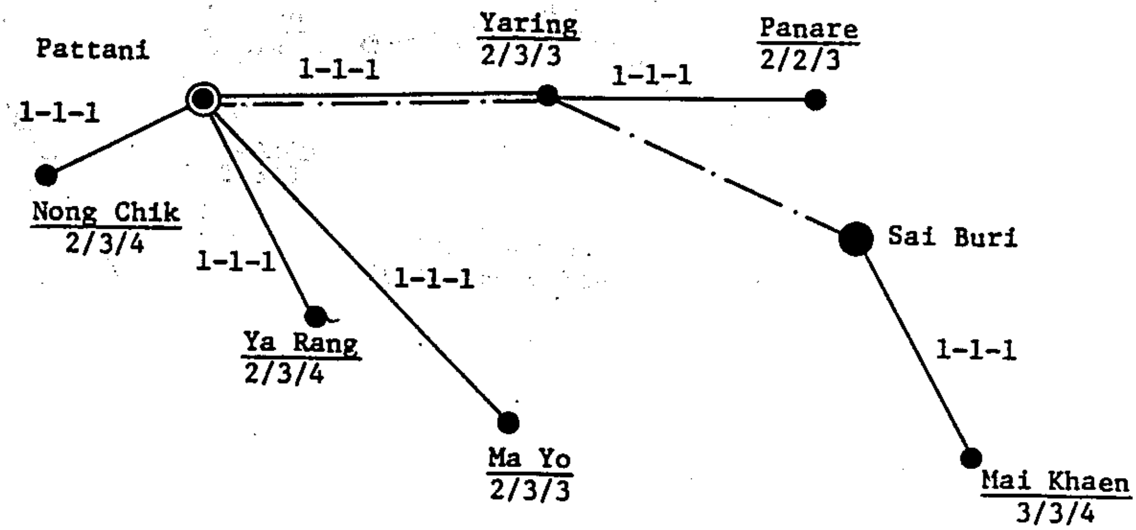


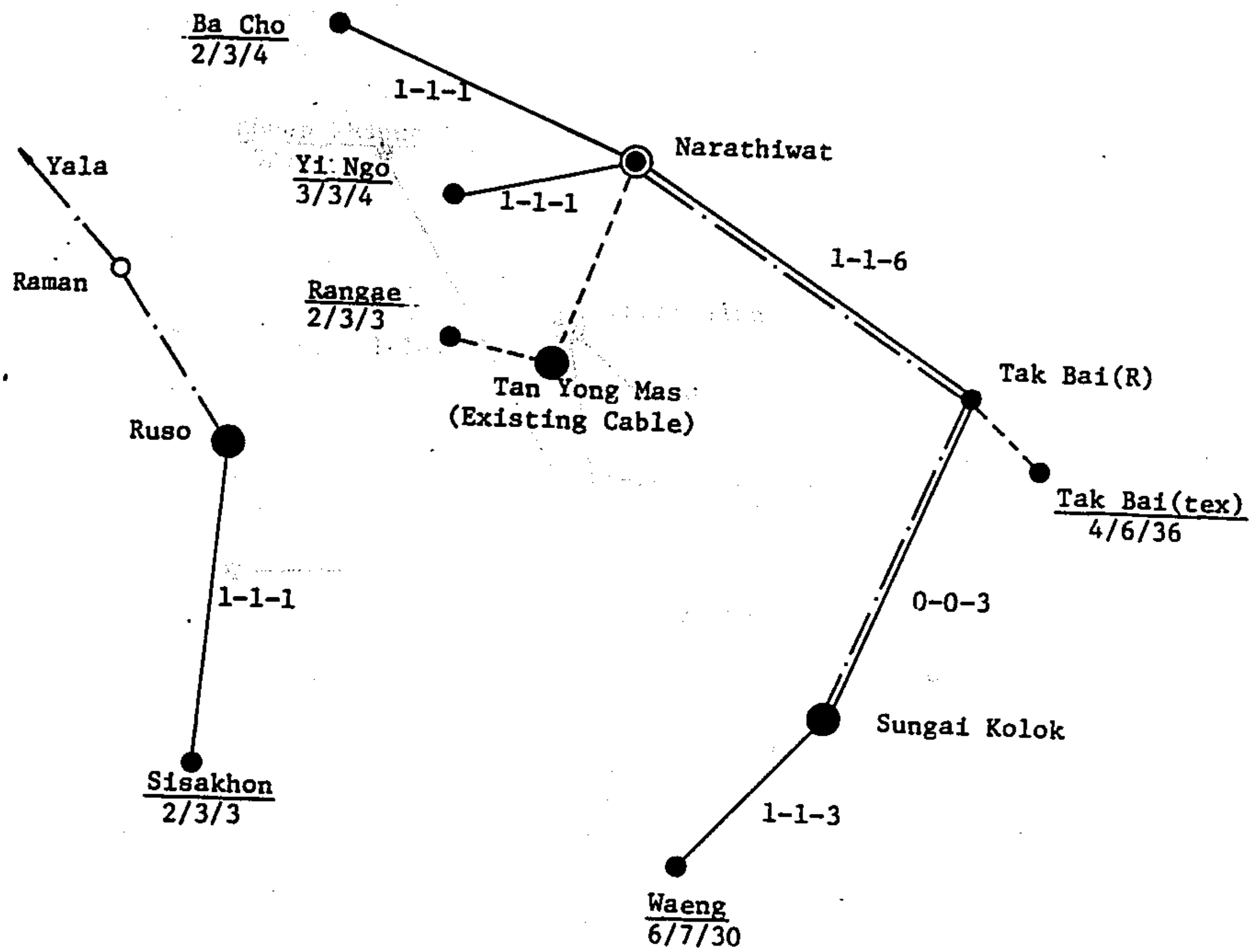
Circuit Assignment Diagram for Terrestrial System : Phetchabun Area(5628)



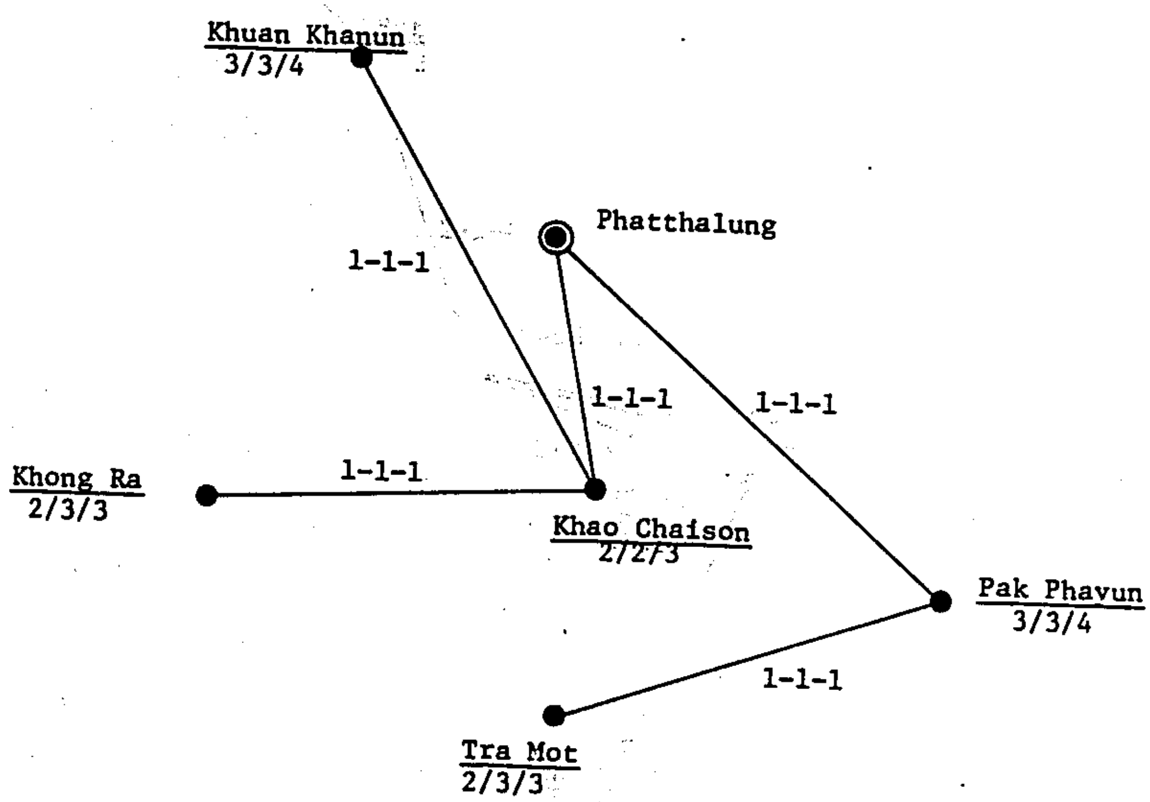
Circuit Assignment Diagram for Terrestrial System : Yala Area(7301)



Circuit Assignment Diagram for Terrestrial System : Pattani Area(7313)



Circuit Assignment Diagram for Terrestrial System : Narathiwat Area(7314)



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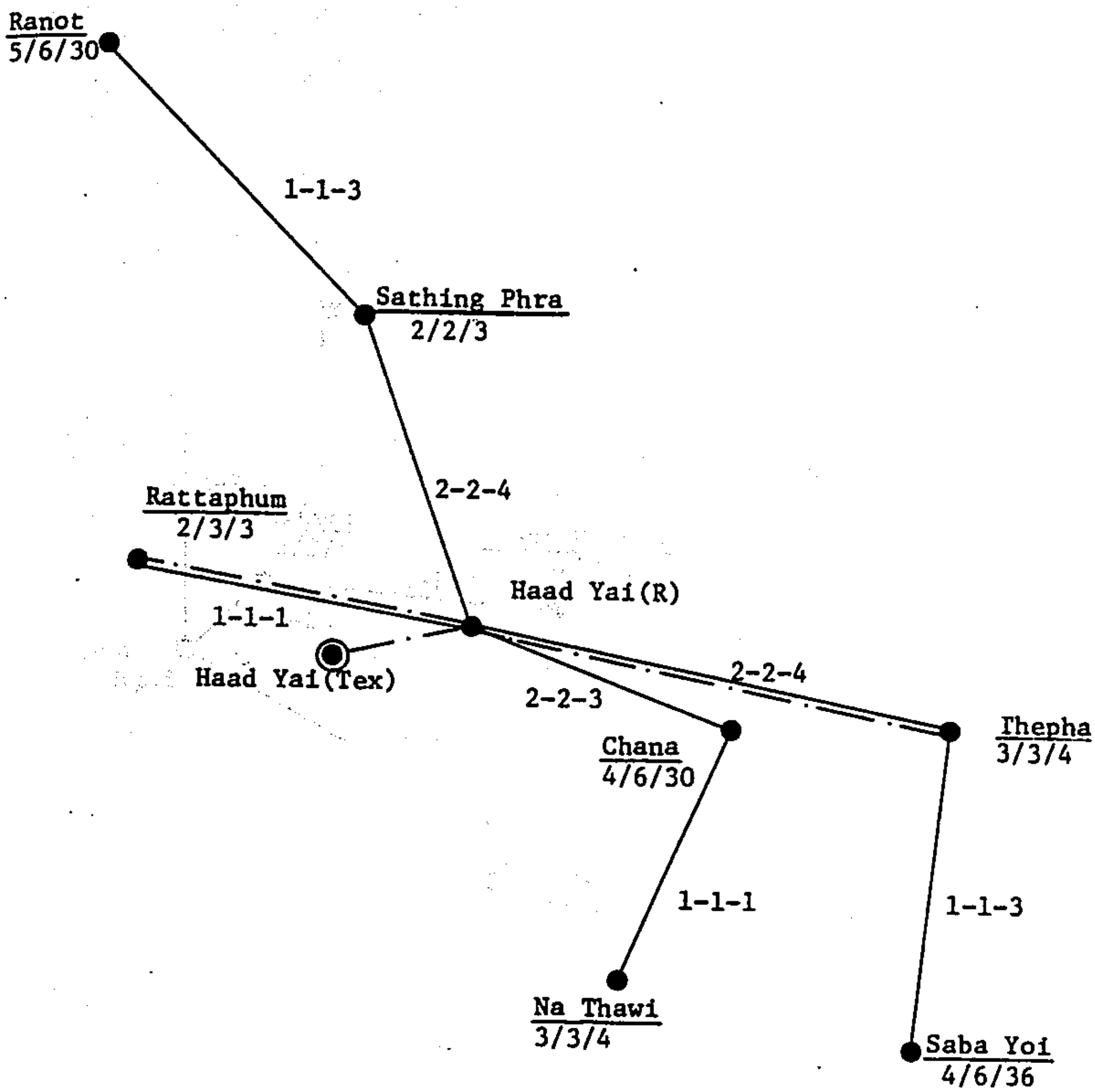
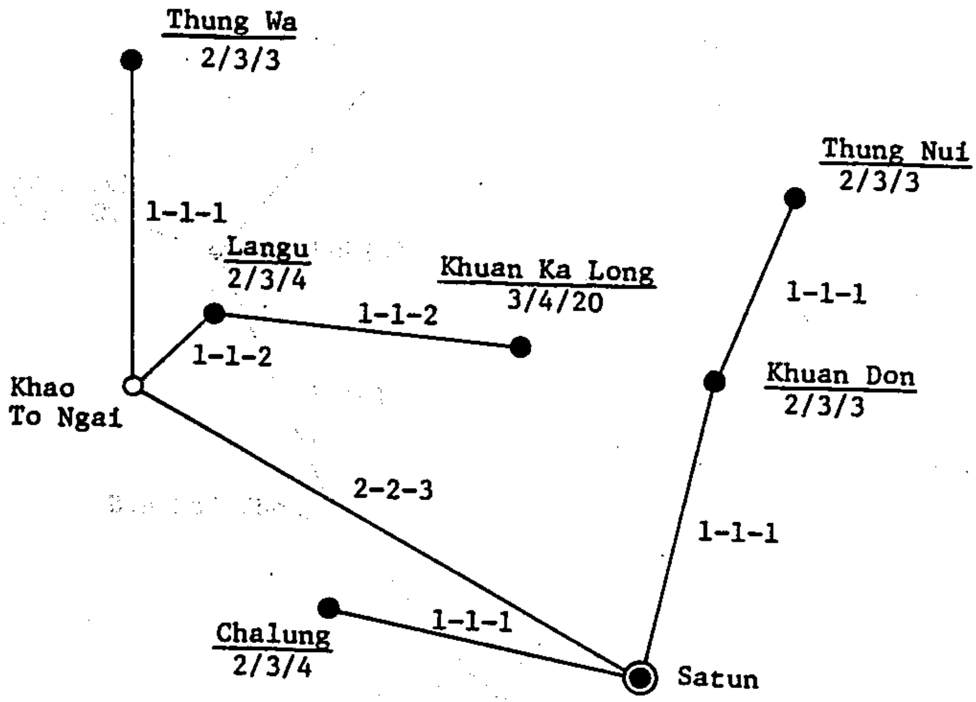


Circuit Assignment Diagram for Terrestrial System : Haad Yai Area(7405)



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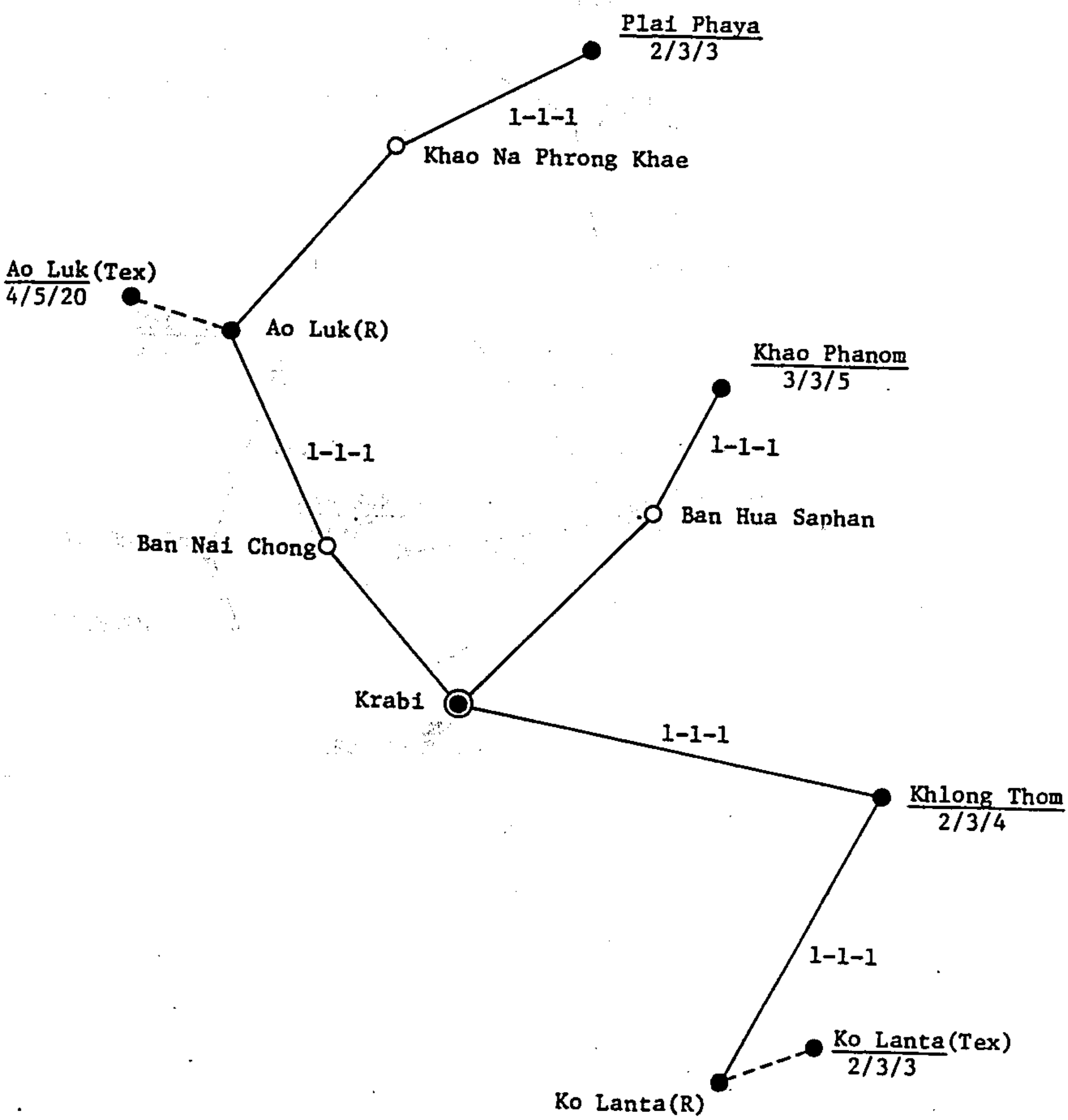
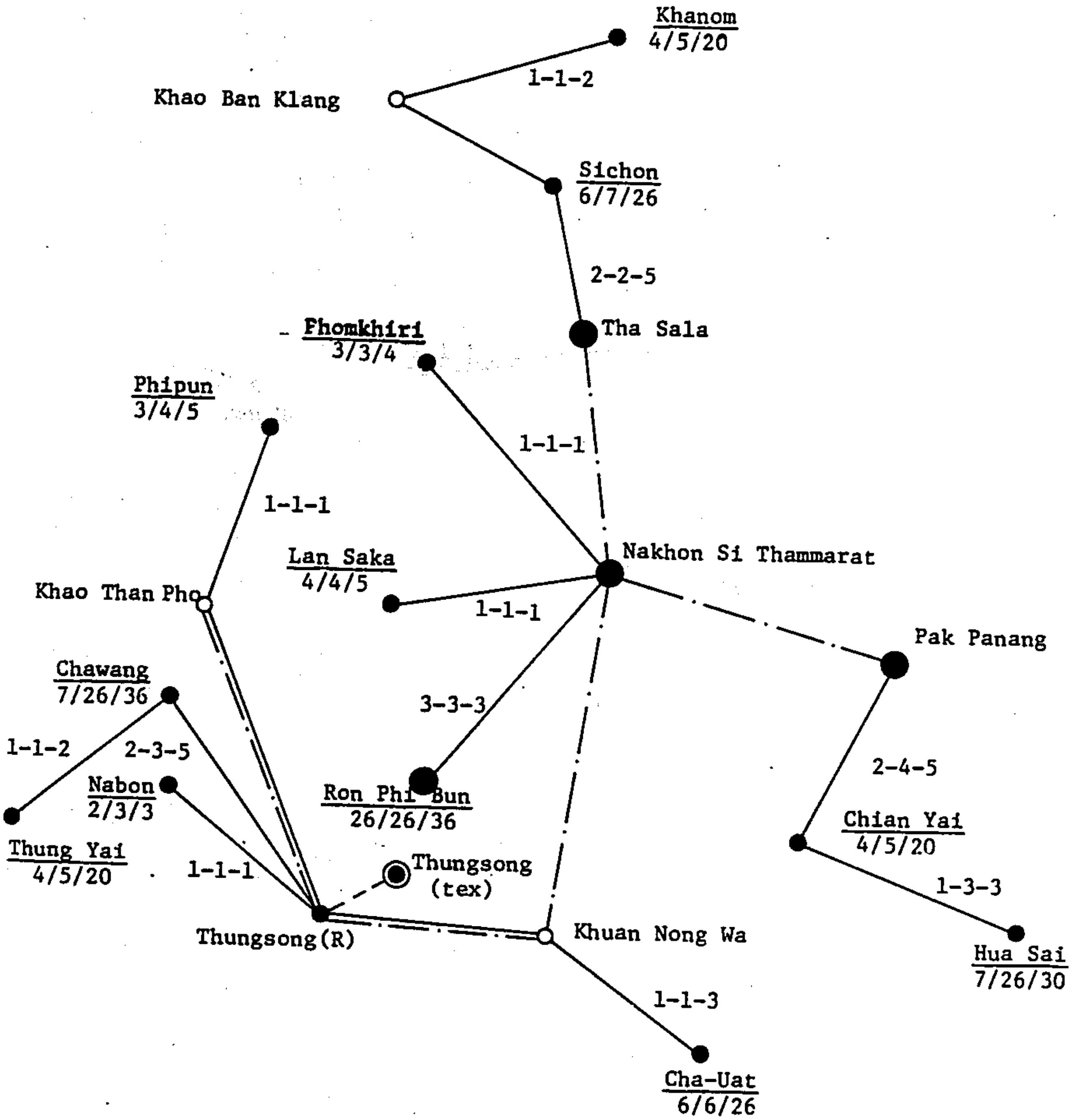
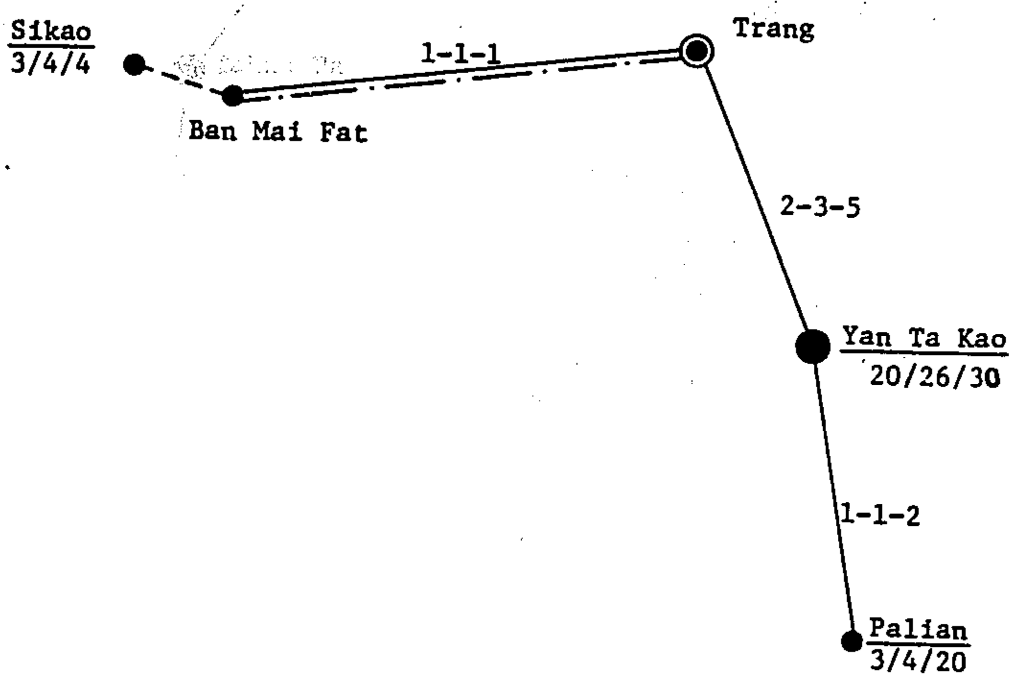


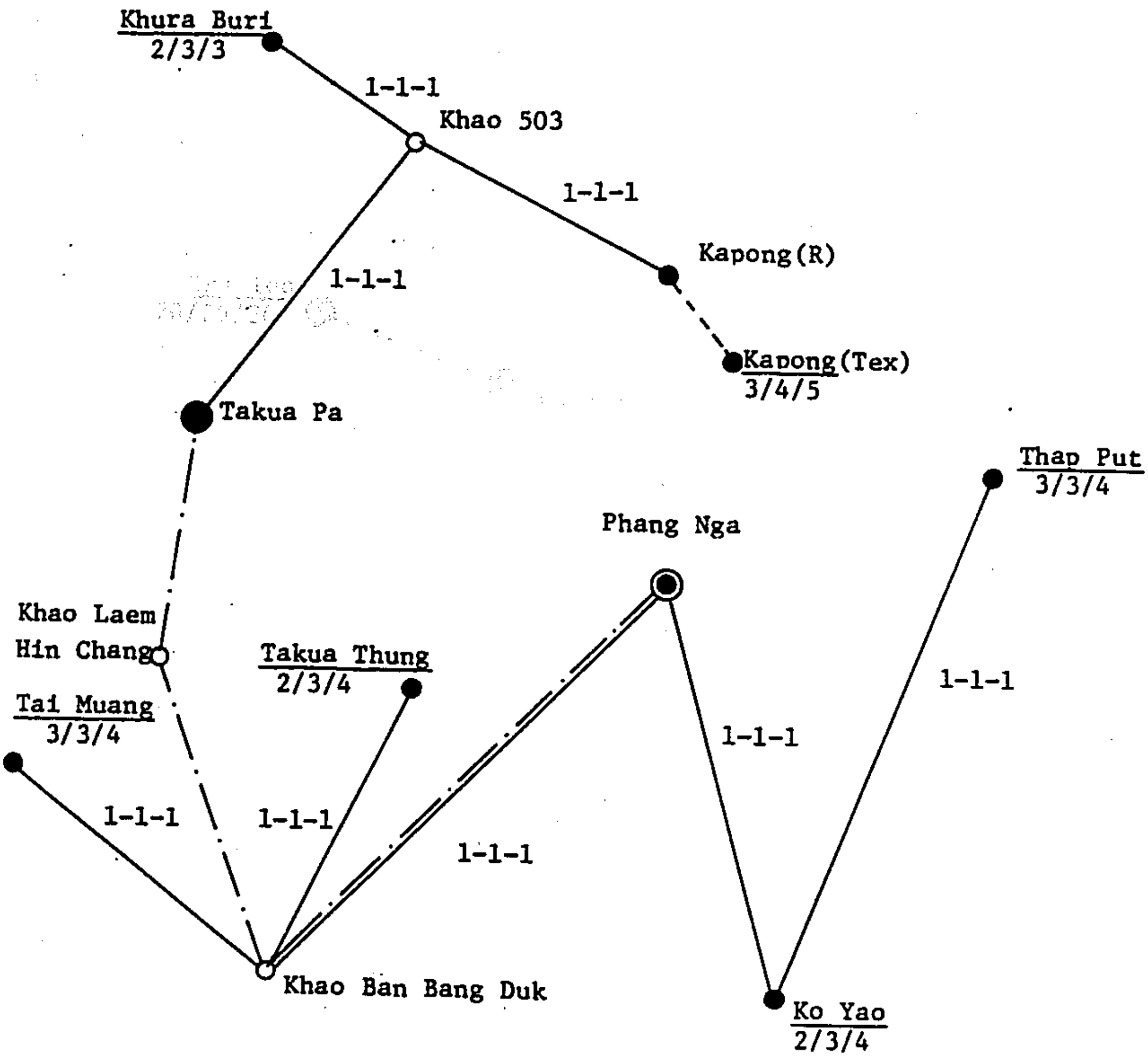
Circuit Assignment Diagram for Terrestrial System : Krabi Area(7501)



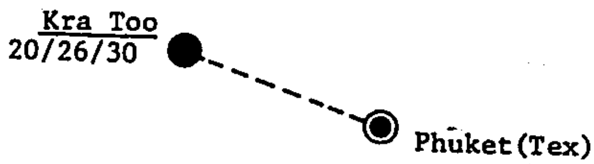
Circuit Assignment Diagram for Terrestrial System : Thungsong Area(7505)



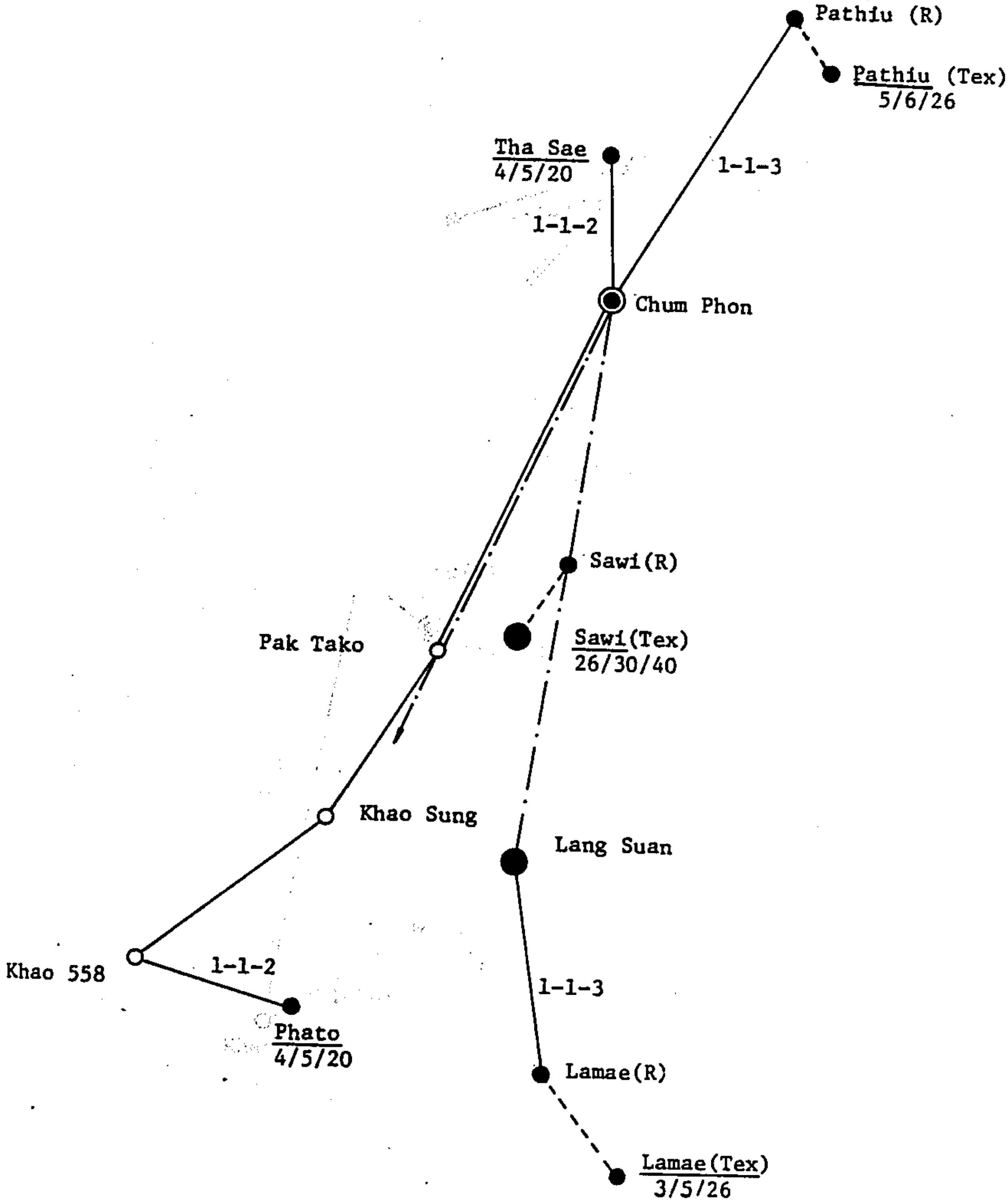
Circuit Assignment Diagram for Terrestrial System : Trang Area(7523)



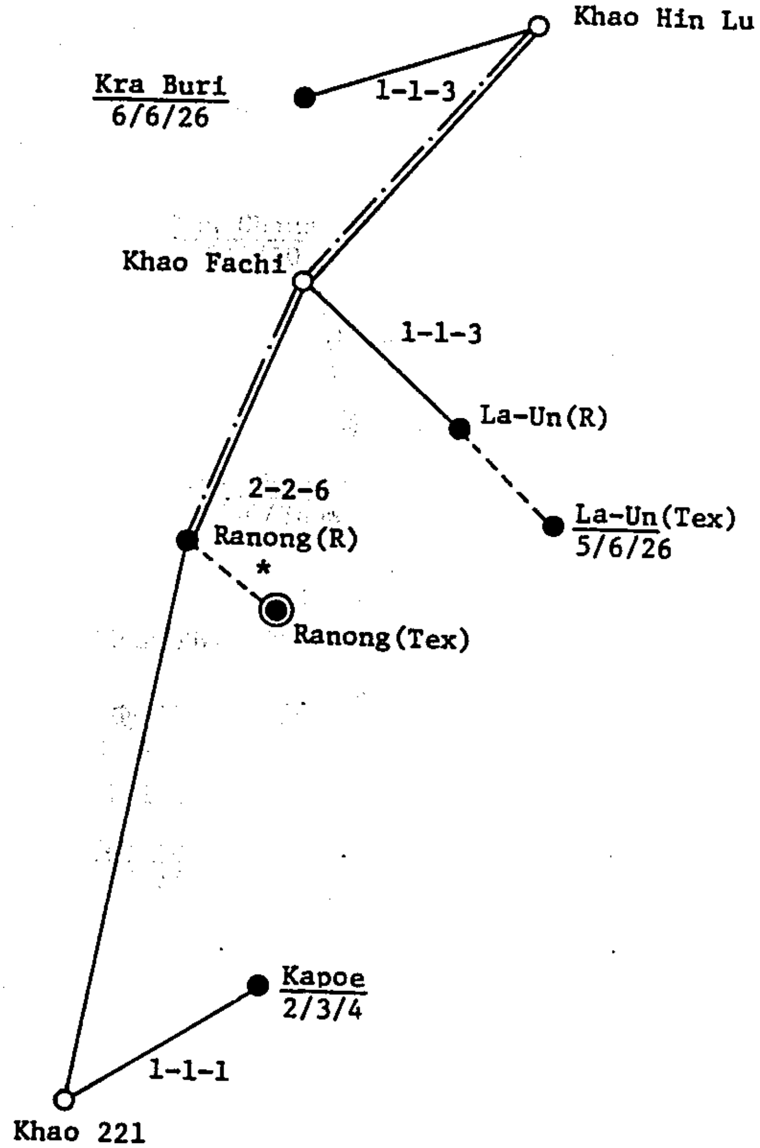
Circuit Assignment Diagram for Terrestrial System : Phang Nga Area(7601)



Circuit Assignment Diagram for Terrestrial System : Phuket Area(7609)

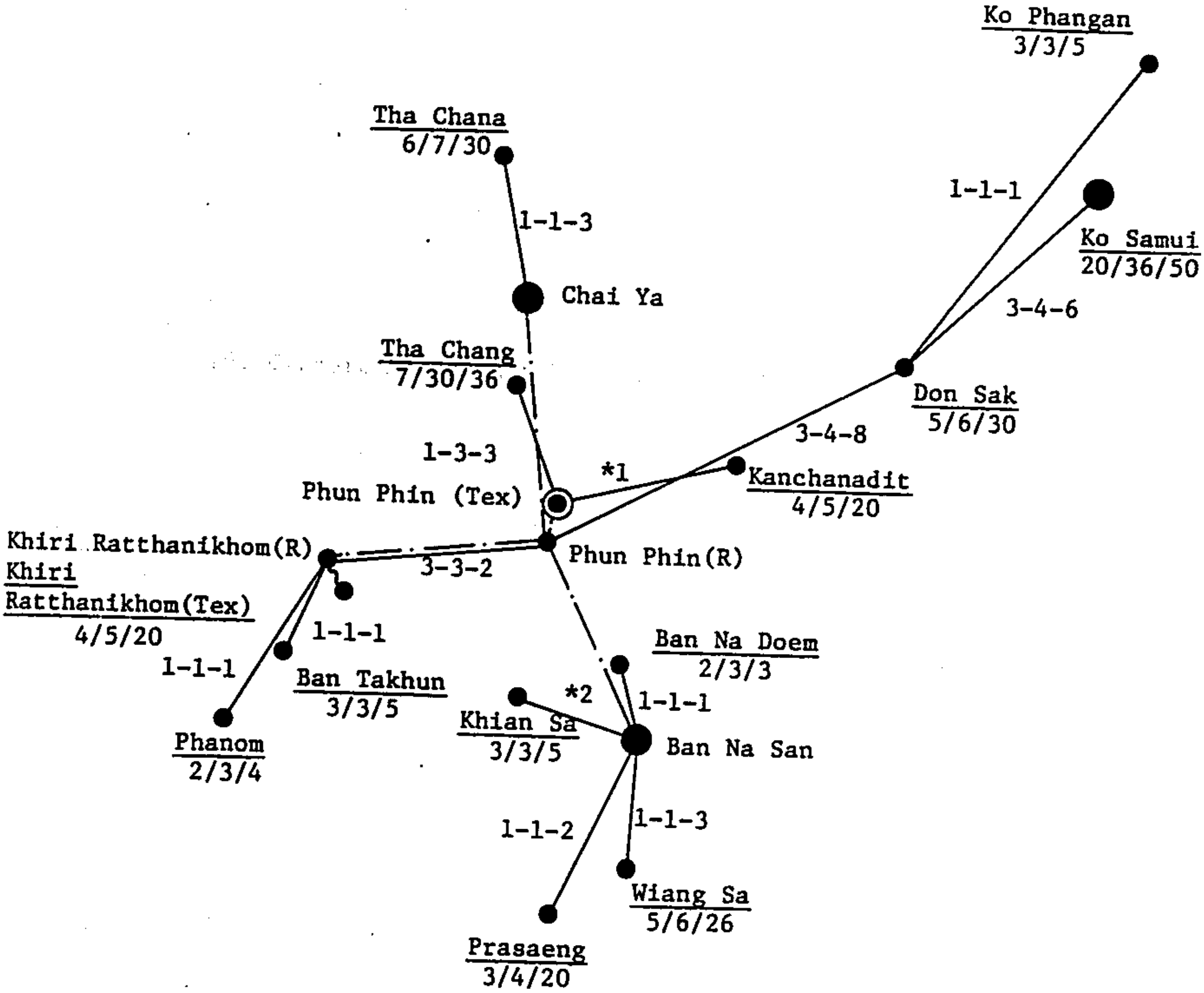


Circuit Assignment Diagram for Terrestrial System : Chum Phon Area(7701)



* : Existing Cable

Circuit Assignment Diagram for Terrestrial System : Ranong Area(7707)



*1 : 1-1-2

*2 : 1-1-1

Circuit Assignment Diagram for Terrestrial System : Phun Phin Area(7711)

10. Circuit Assignment Diagram for Satellite System

Contents for Circuit Assignment Diagram for Satellite System

Lengend :

Tertiary / Secondary / Primary Center

Local Exchange (including Mobile Exchange)

Terminal Station (including SG/G Branching Station)

Repeater Station

Site Name — Underlined site name is for Rural Long Distance Public Telephone Service and Mobile Exchange Station in this Study.

Newly planned Rural Earth Station

Newly planned radio link

Existing radio link

Cable link

(X/Y/X)

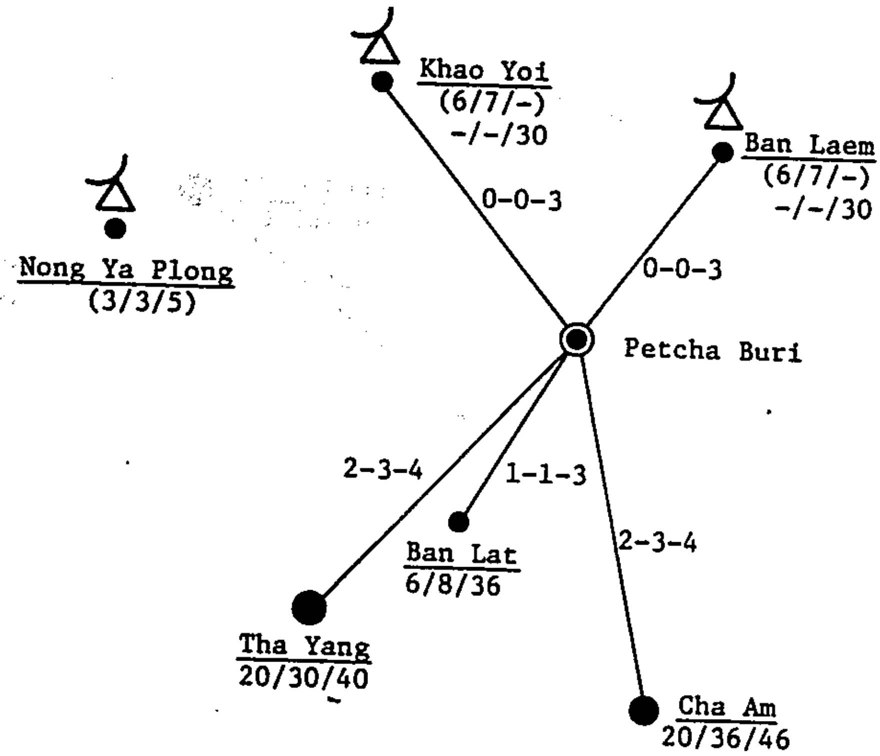
- Number of circuits required in 1994
- Number of circuits required in 1989
- Number of circuits required in 1984

X/Y/Z

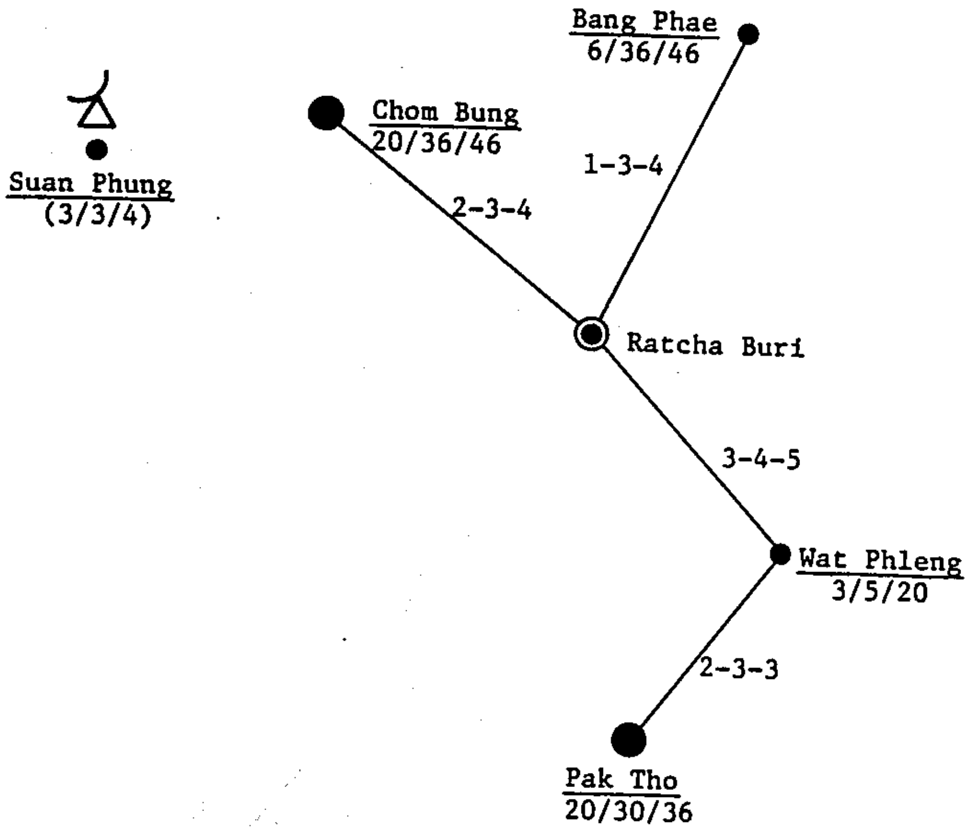
- Number of circuits required in 1994
- Number of circuits required in 1989
- Number of circuits required in 1984

X-Y-Z

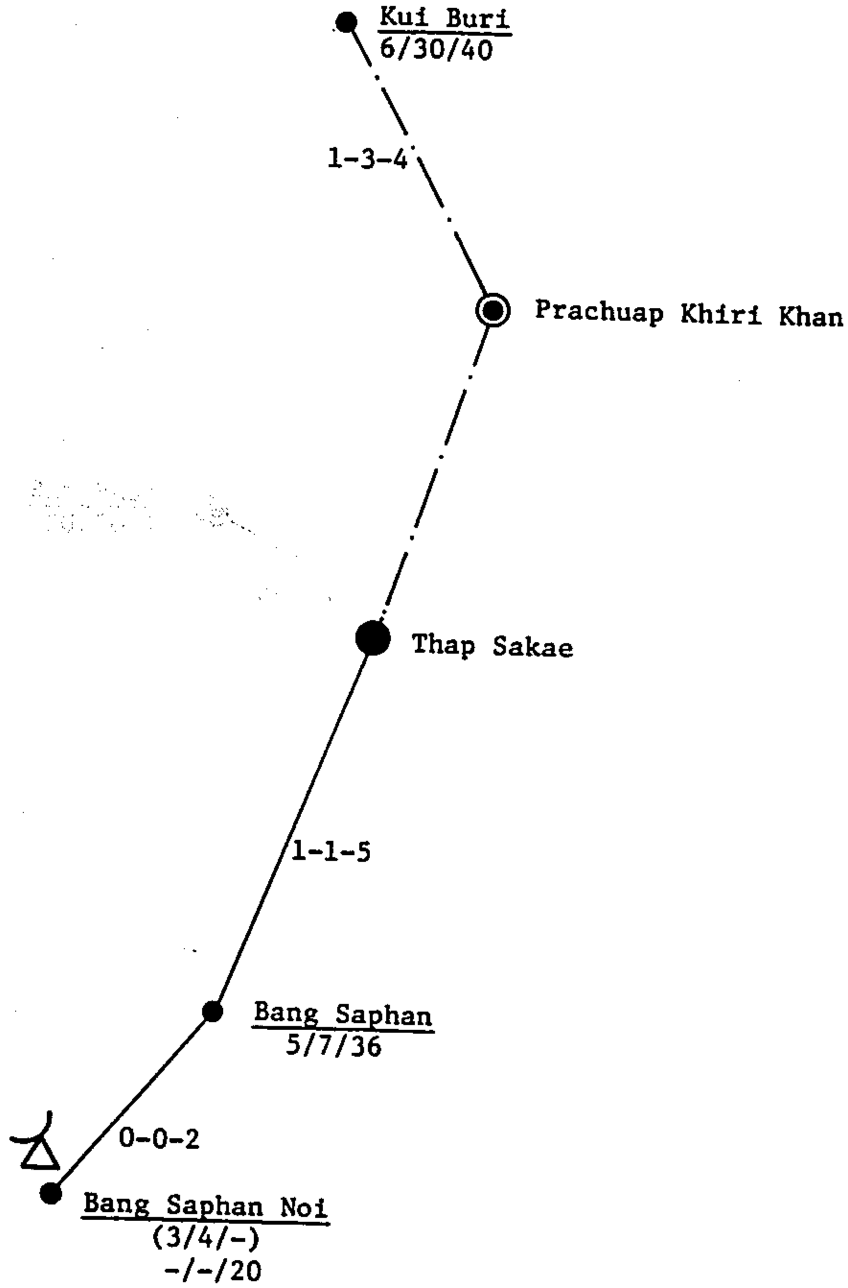
- Number of basic groups required in 1994
- Number of basic groups required in 1989
- Number of basic groups required in 1984



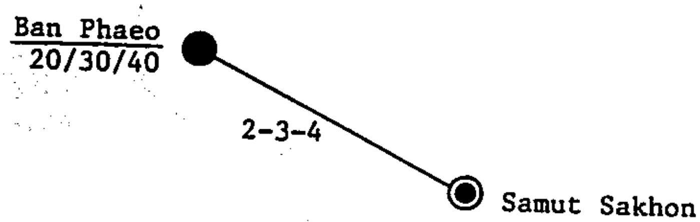
Circuit Assignment Diagram for Satellite System : Petcha Buri Area(3201)



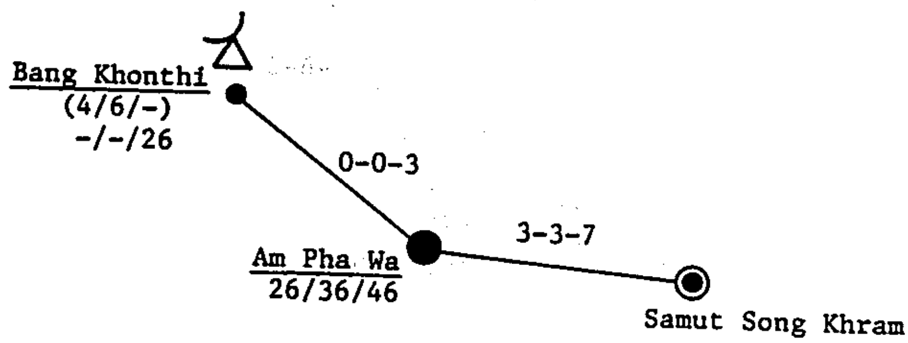
Circuit Assignment Diagram for Satellite System : Ratcha Buri Area(3207)



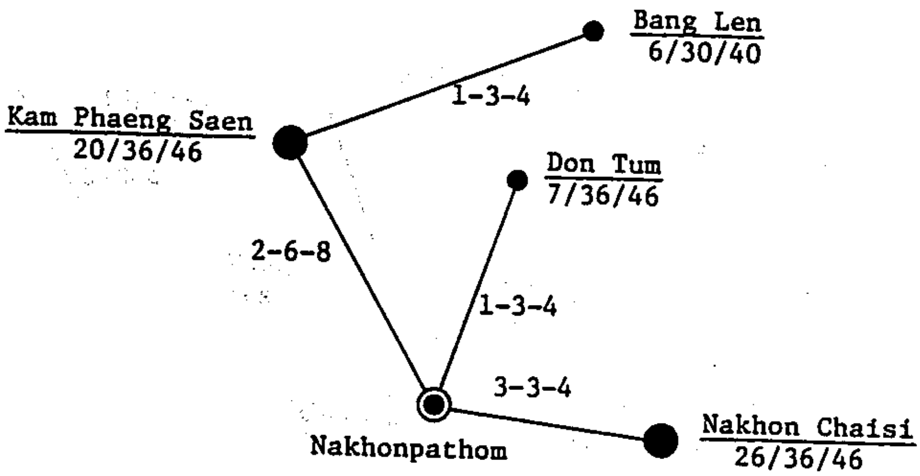
Circuit Assignment Diagram for Satellite System : Prachuap Khiri Khan Area(3215)



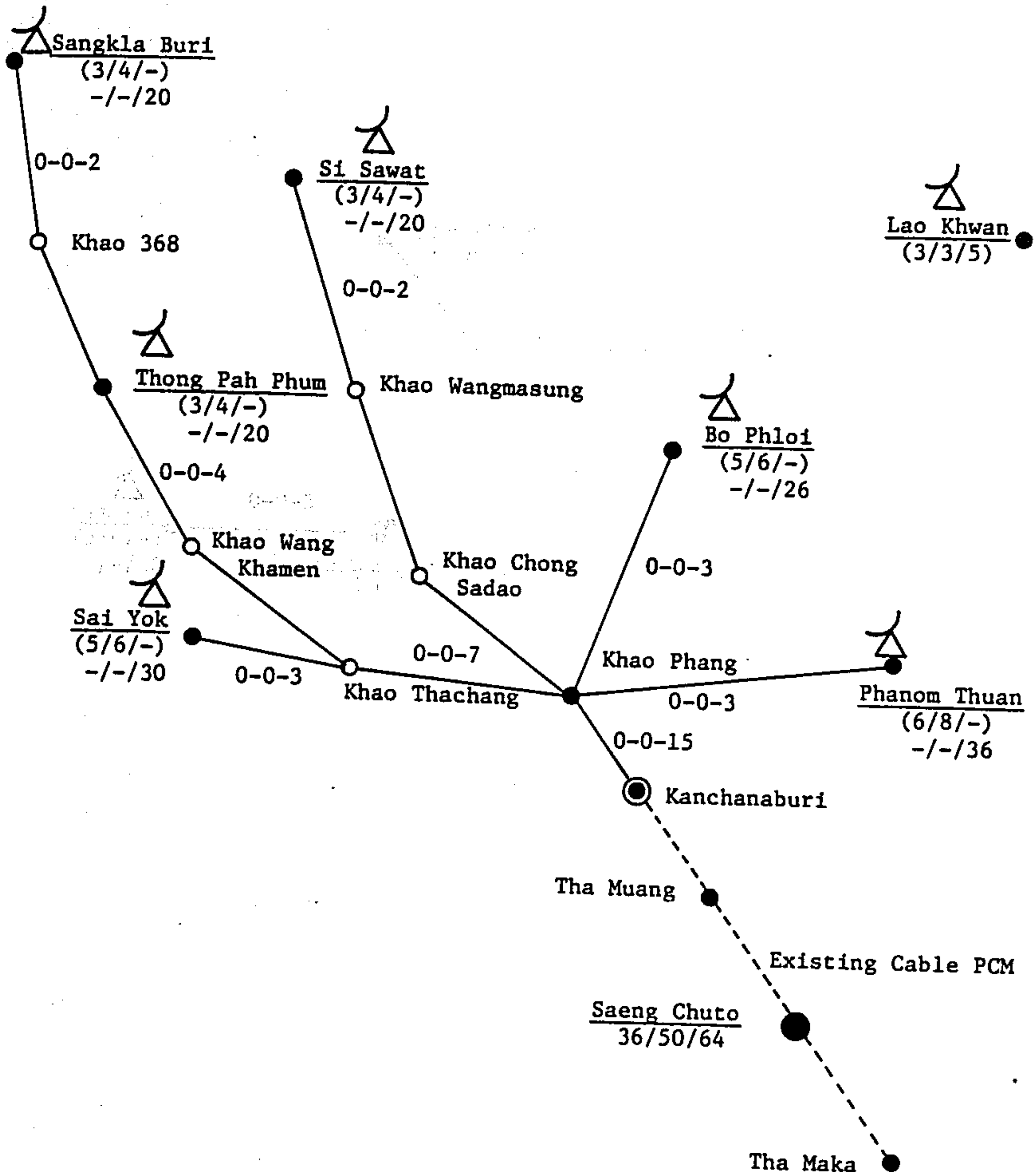
Circuit Assignment Diagram for Satellite System : Samut Sakhon Area(3401)



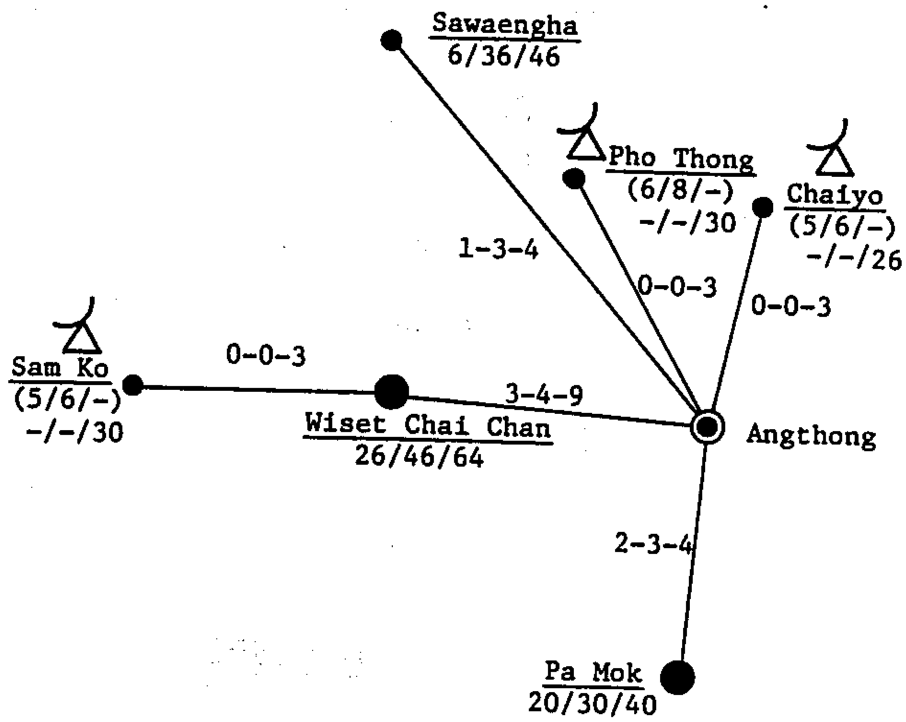
Circuit Assignment Diagram for Satellite System : Samut Song Khram Area(3404)



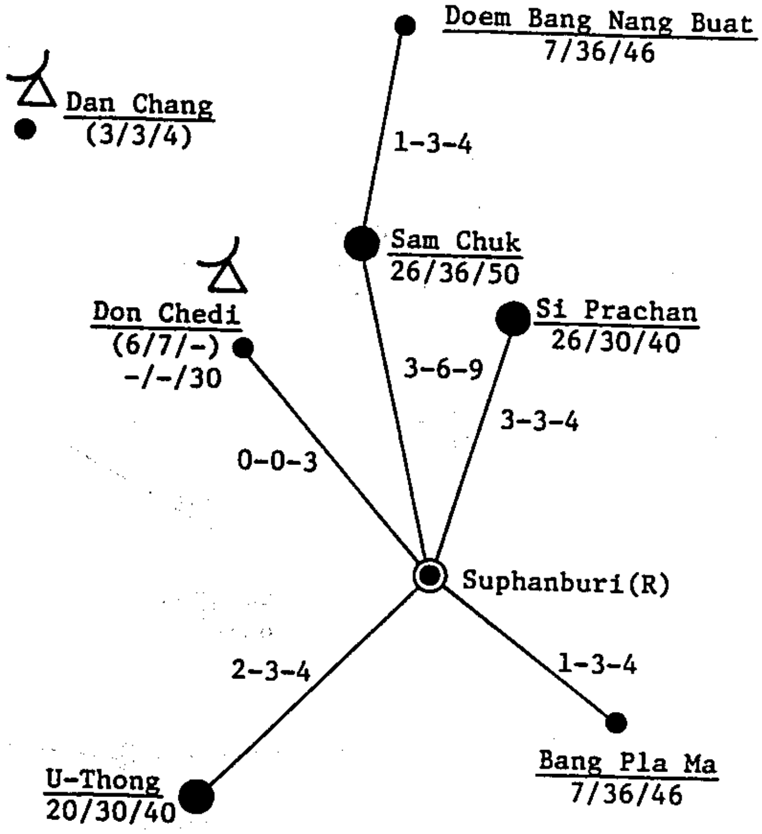
Circuit Assignment Diagram for Satellite System : Nakhonpathom Area(3407)



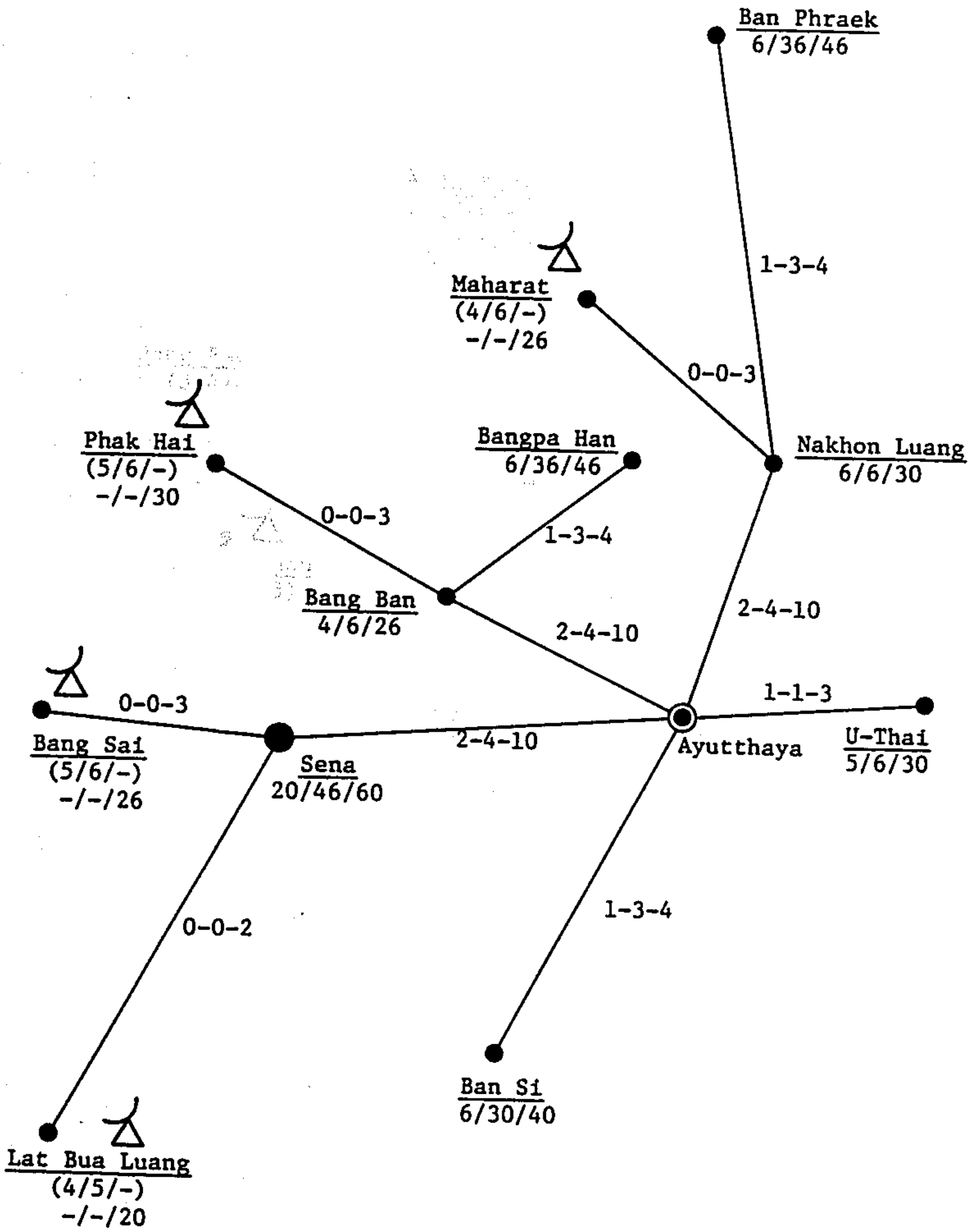
Circuit Assignment Diagram for Satellite System : Kanchanaburi Area(3413)



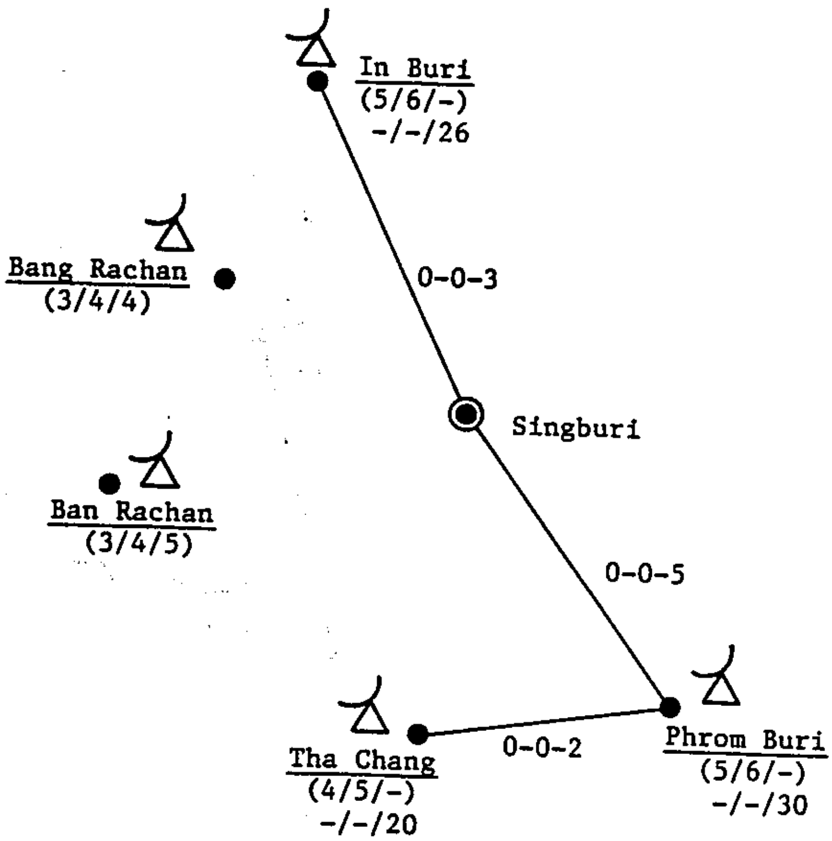
Circuit Assignment Diagram for Satellite System : Angthong Area (3501)



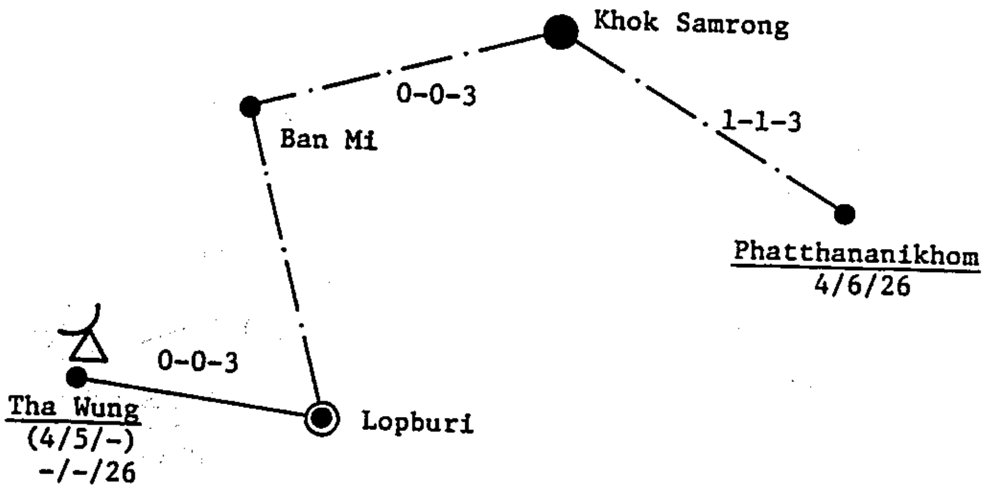
Circuit Assignment Diagram for Satellite System : Suphanburi Area(3508)



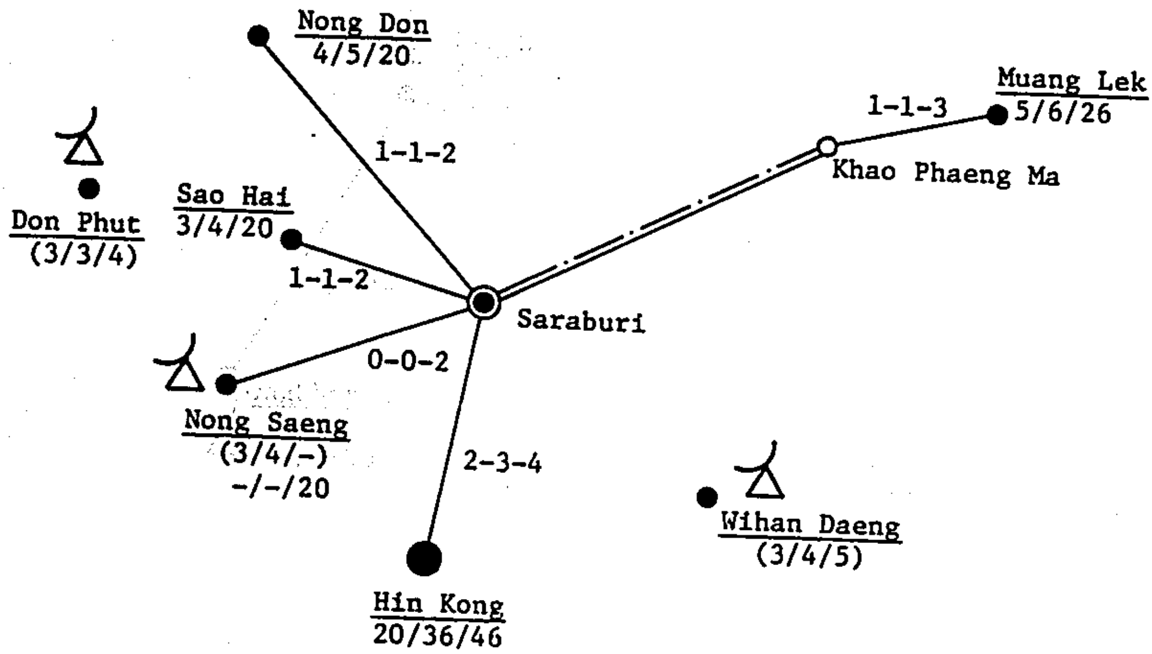
Circuit Assignment Diagram for Satellite System : Ayutthaya Area(3516)



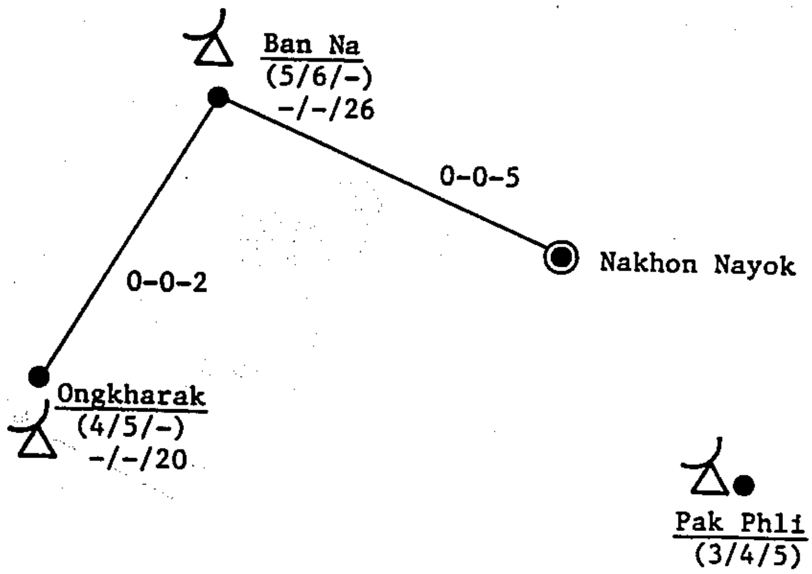
Circuit Assignment Diagram for Satellite System : Singburi Area(3601)



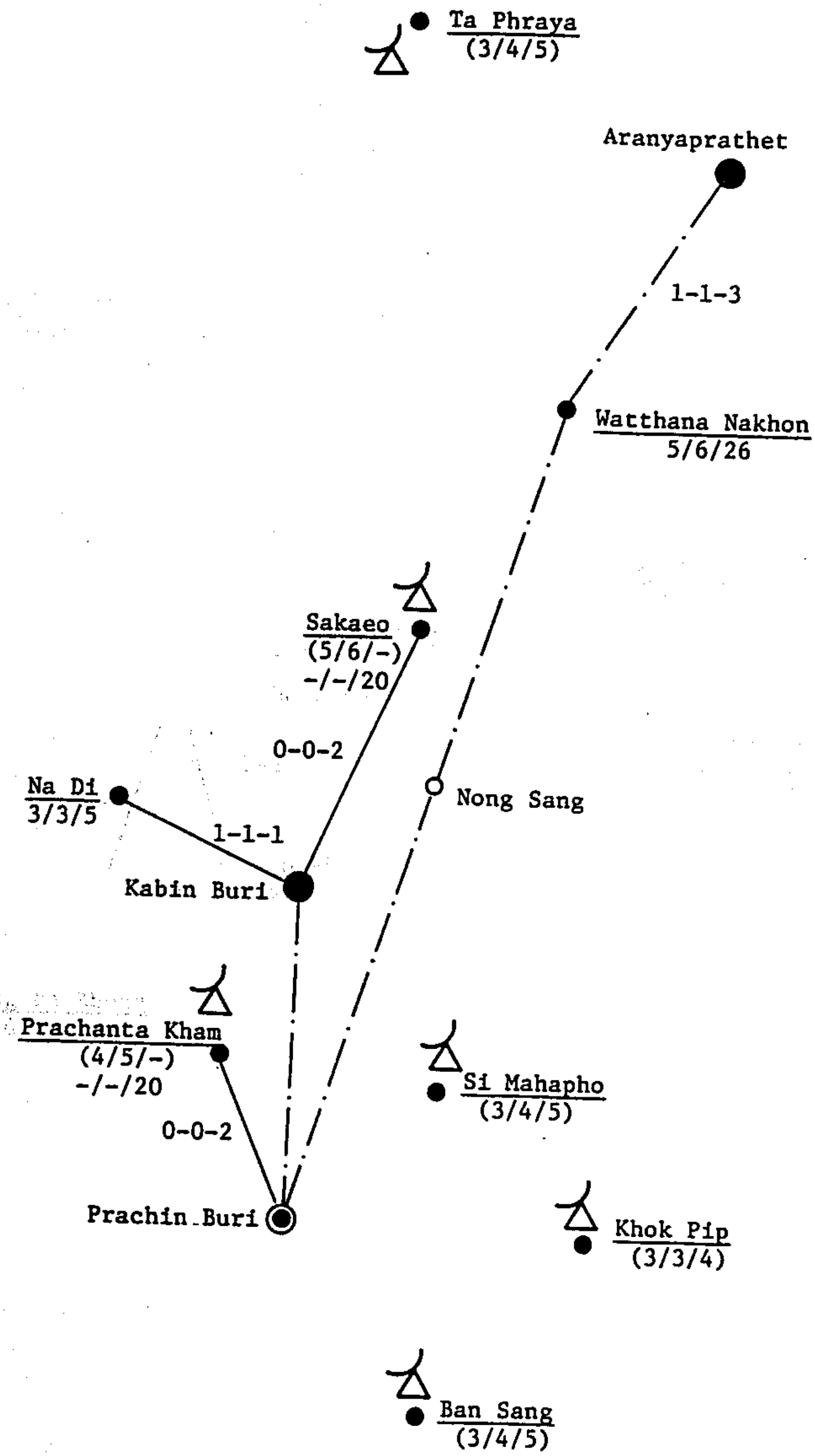
Circuit Assignment Diagram for Satellite System : Lopburi Area(3606)



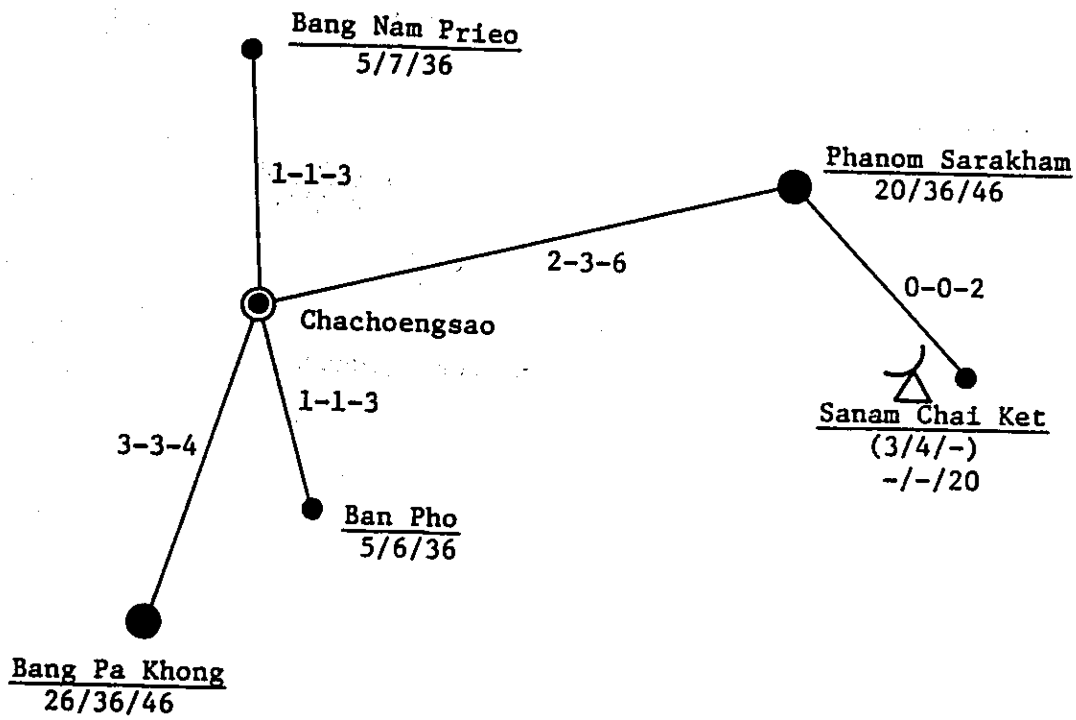
Circuit Assignment Diagram for Satellite System : Saraburi Area(3613)



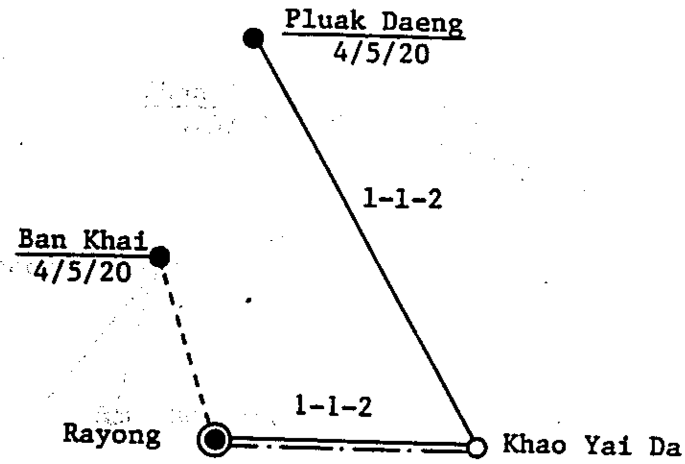
Circuit Assignment Diagram for Satellite System : Nakhon Nayok Area(3701)



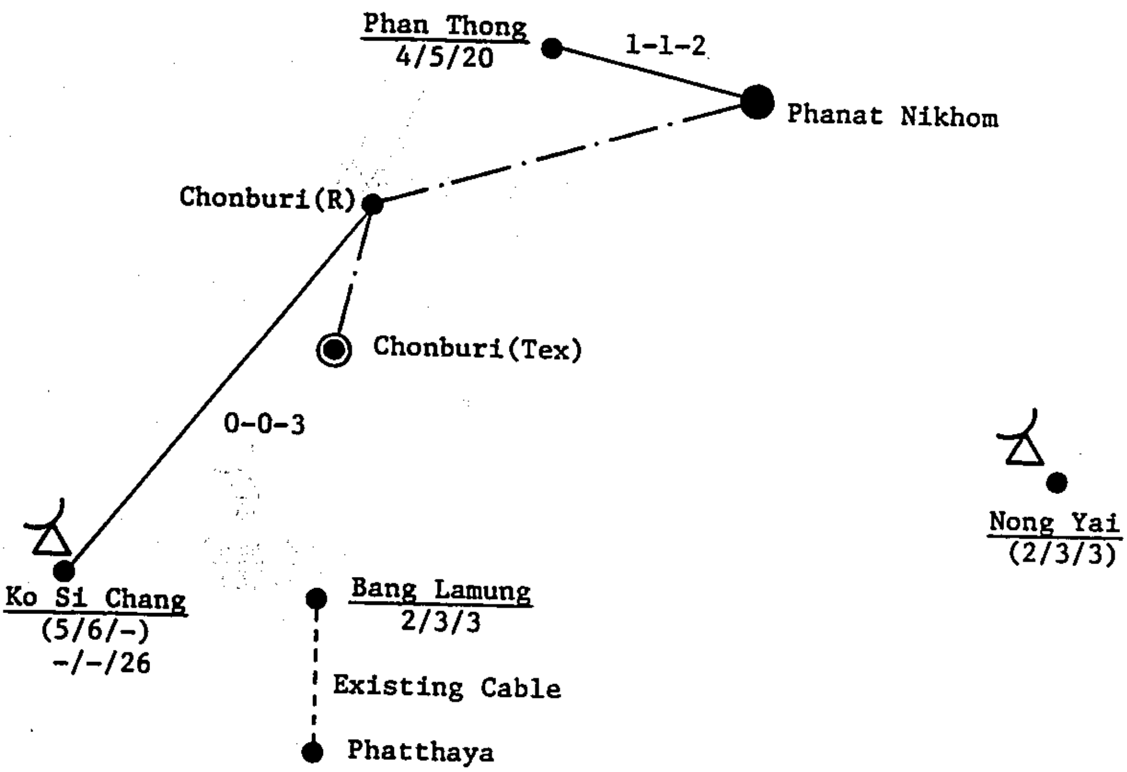
Circuit Assignment Diagram for Satellite System : Prachin Buri Area(3705)



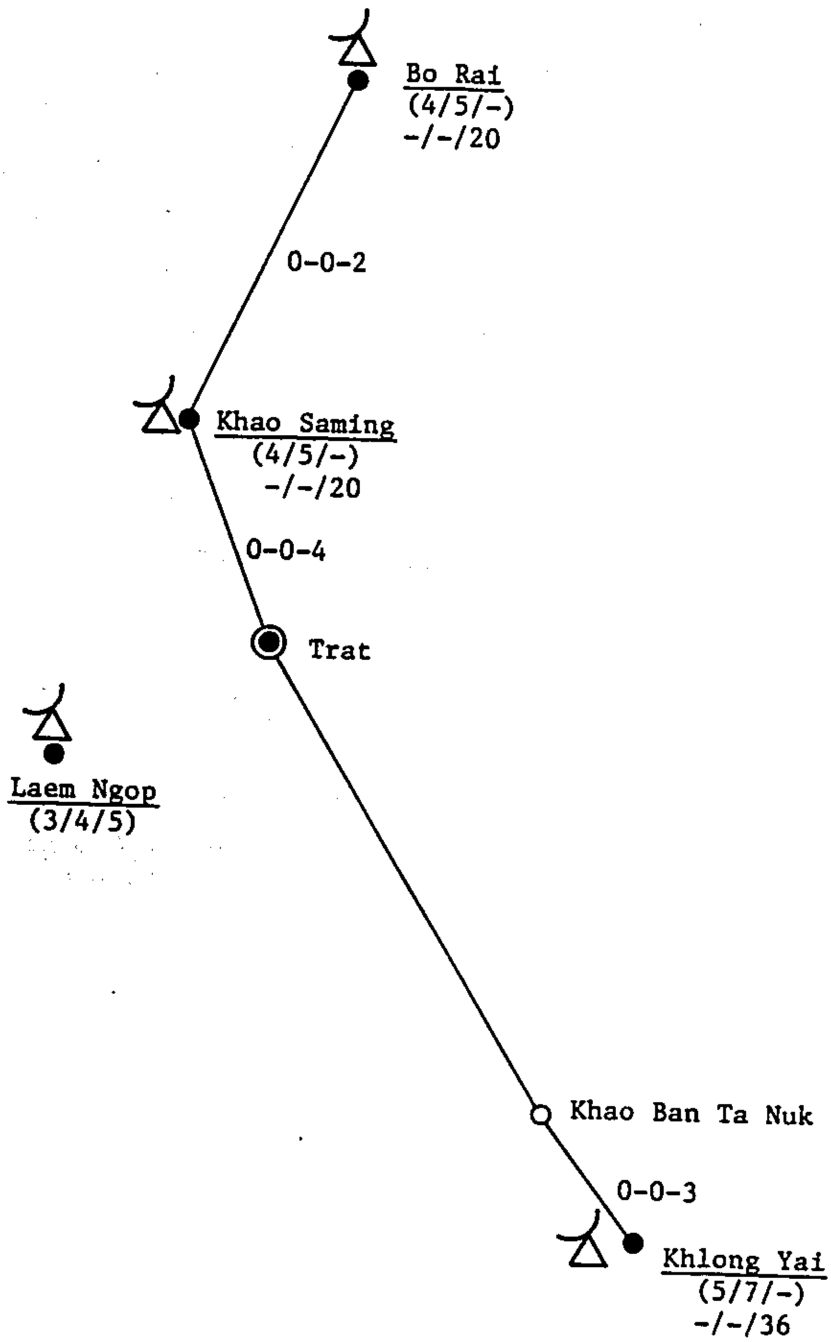
Circuit Assignment Diagram for Satellite System : Chachoengsao Area(3801)



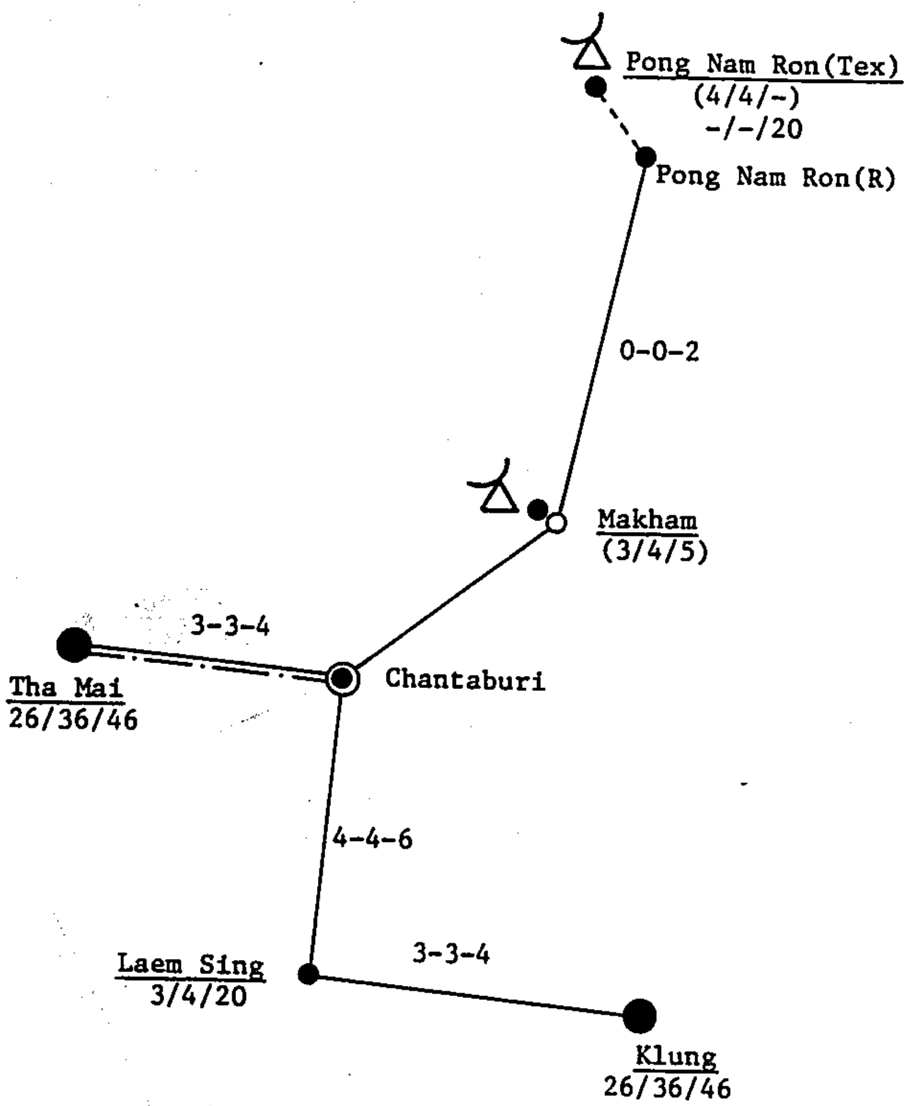
Circuit Assignment Diagram for Satellite System : Rayong Area (3808)



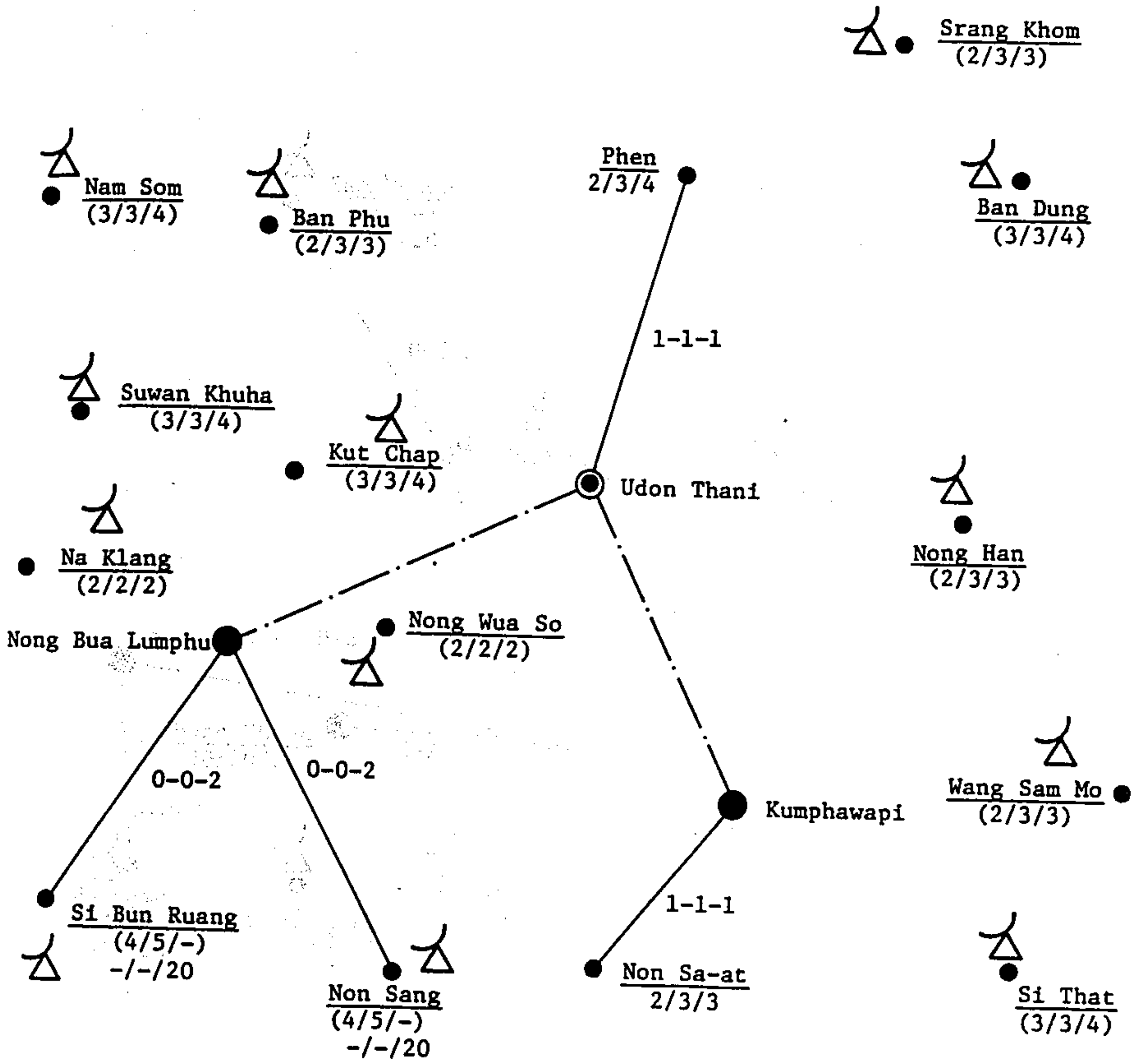
Circuit Assignment Diagram for Satellite System : Chonburi Area (3815)



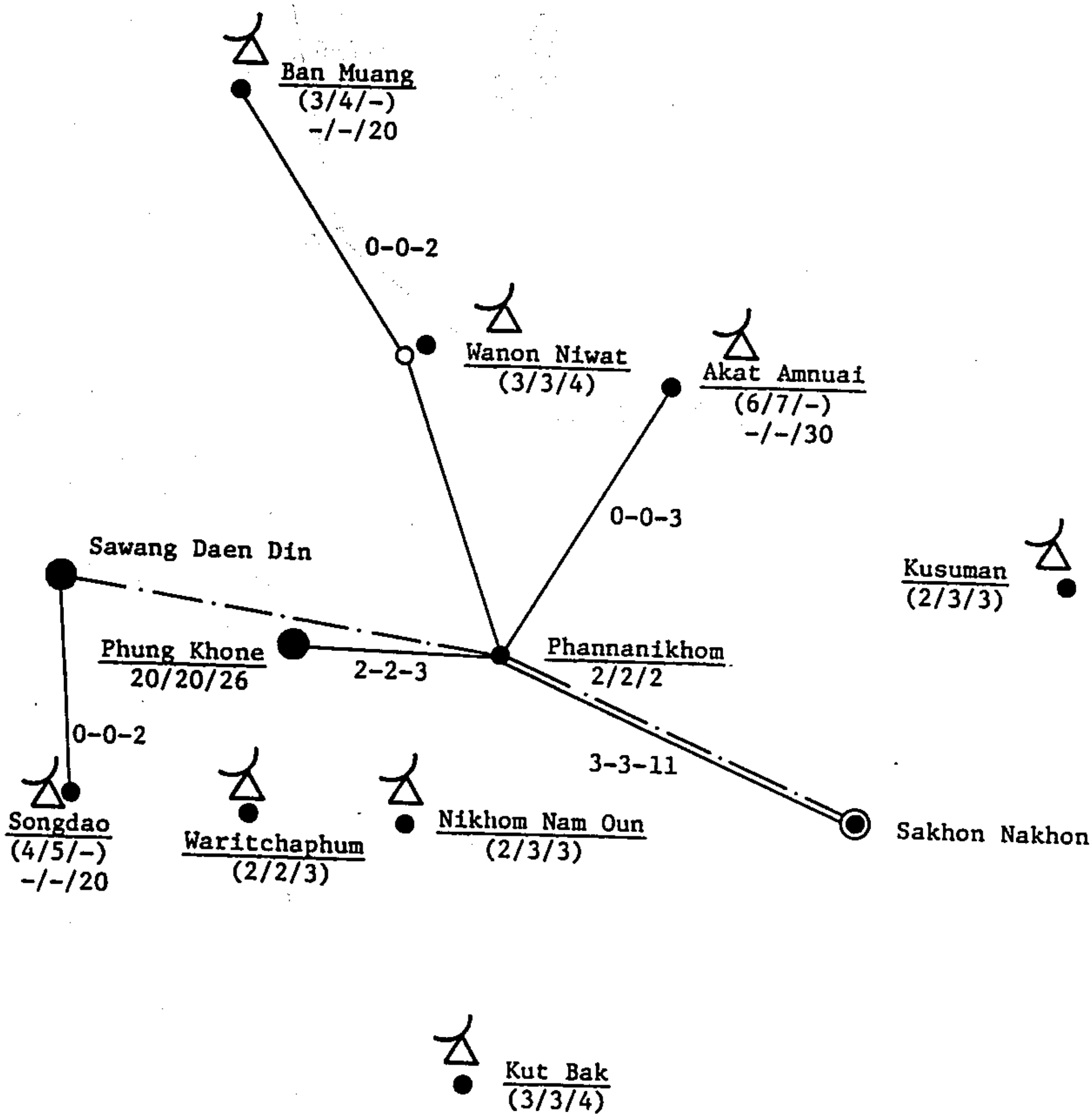
Circuit Assignment Diagram for Satellite System : Trat Area (3901)



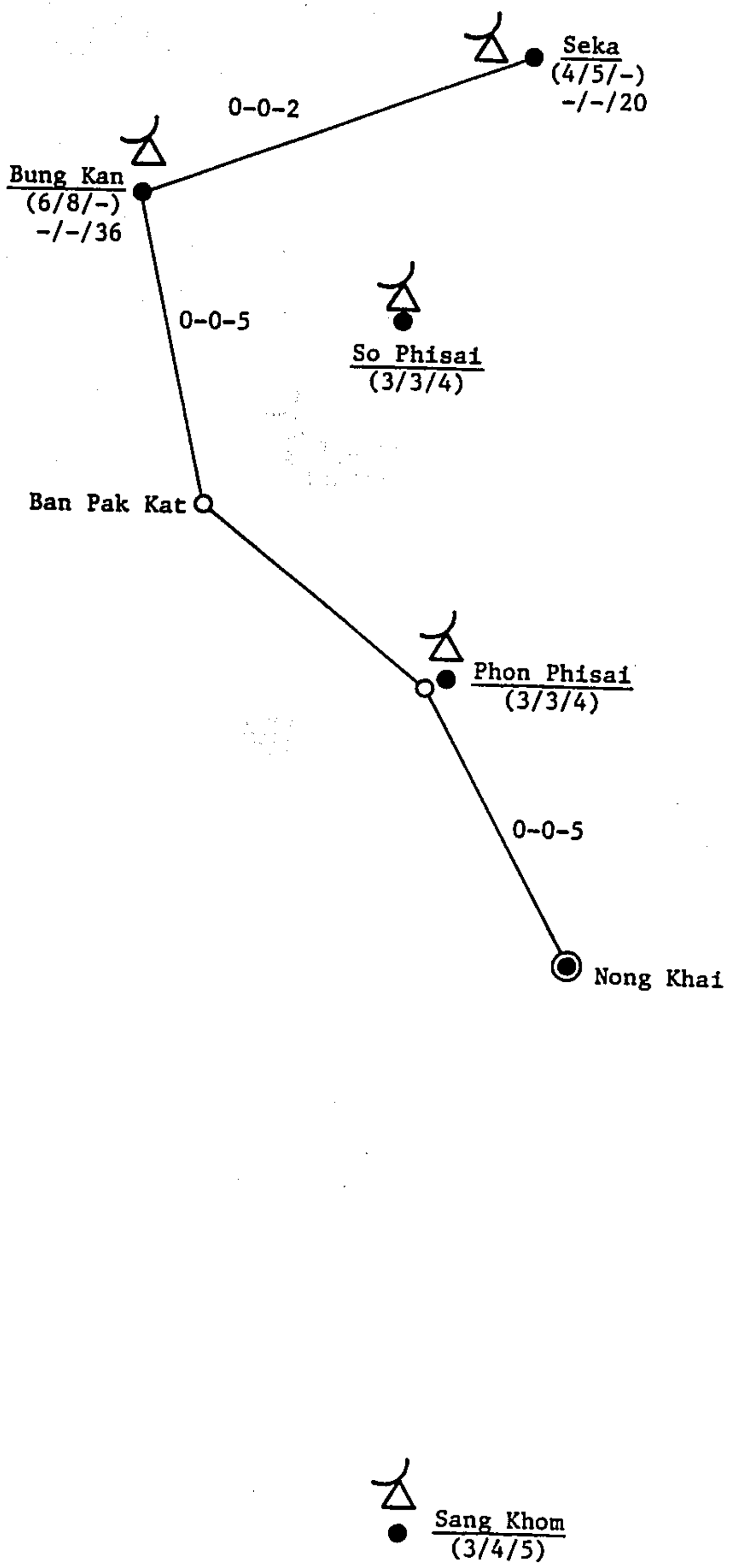
Circuit Assignment Diagram for Satellite System : Chantaburi Area(3905)



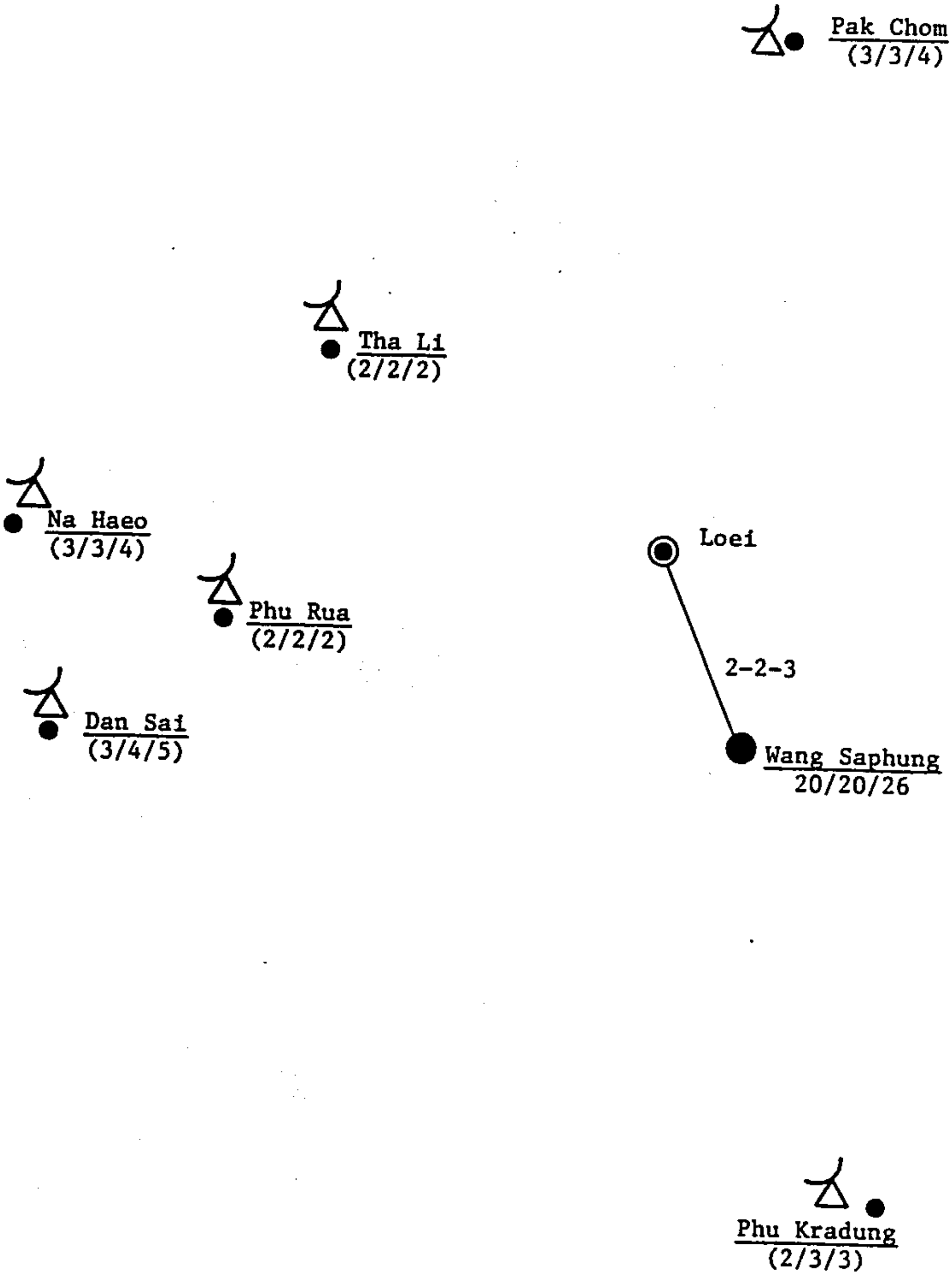
Circuit Assignment Diagram for Satellite System : Udon Thani Area (4201)



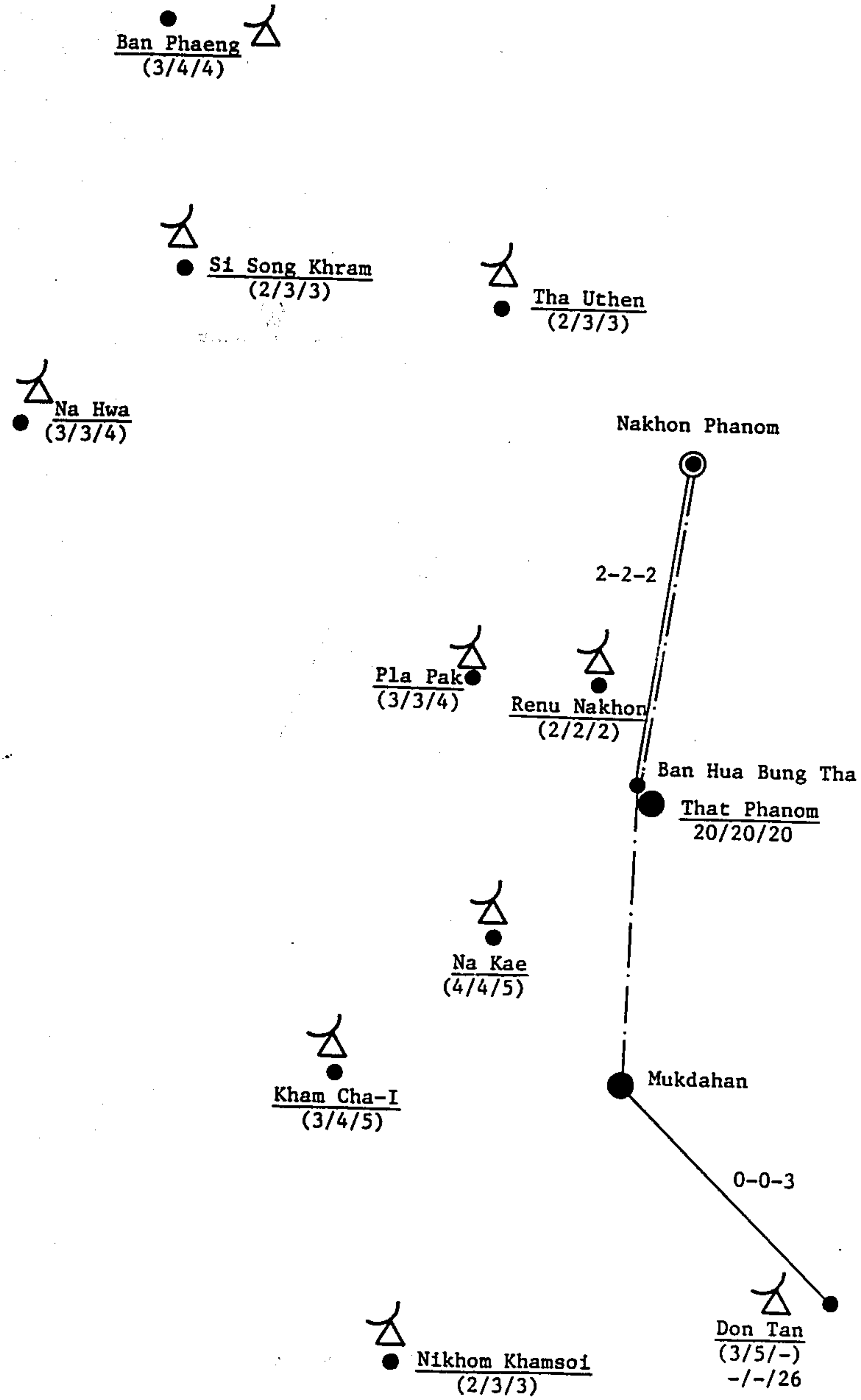
Circuit Assignment Diagram for Satellite System : Sakhon Nakhon Area(4211)



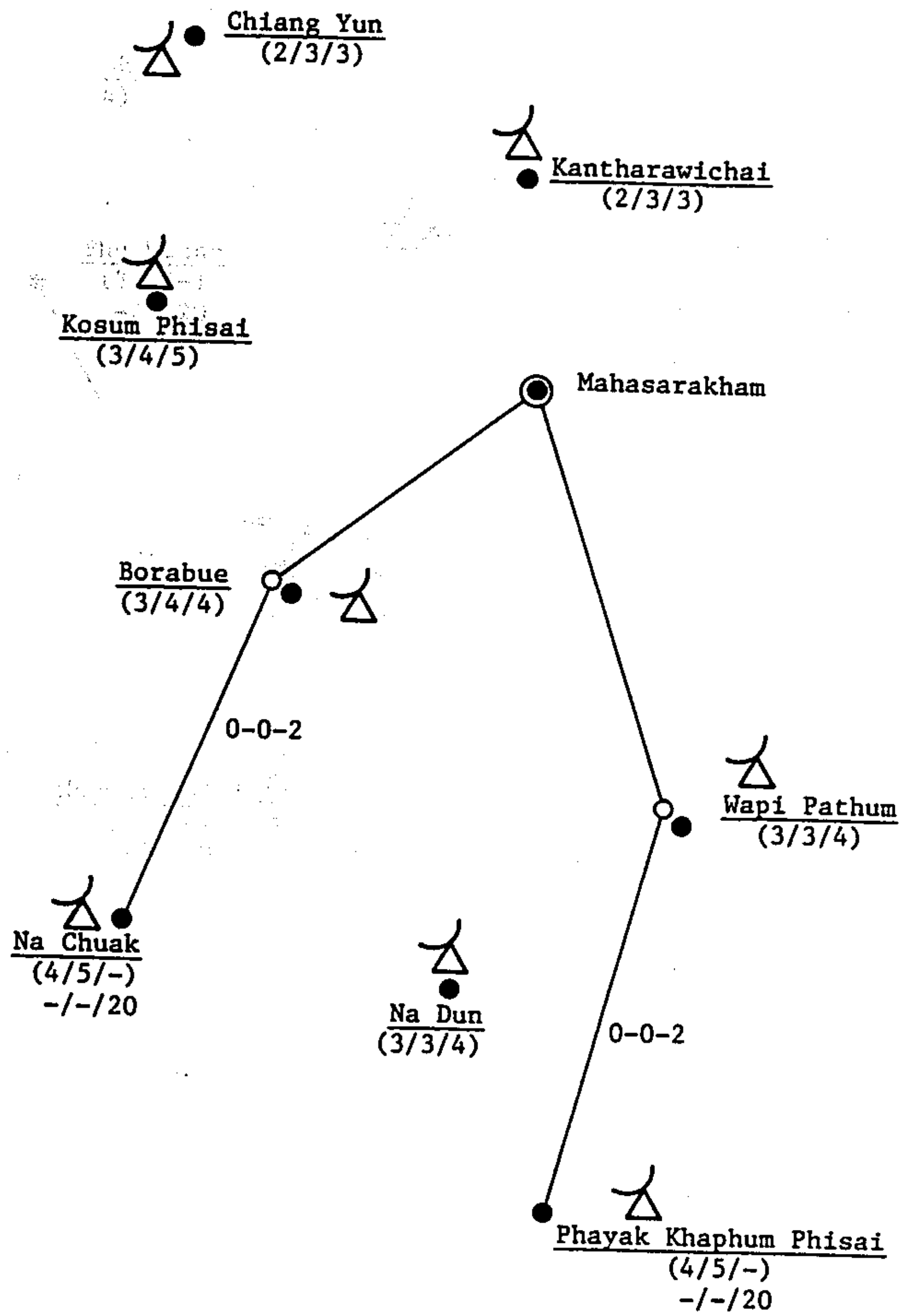
Circuit Assignment Diagram for Satellite System : Nong Khai Area(4219)



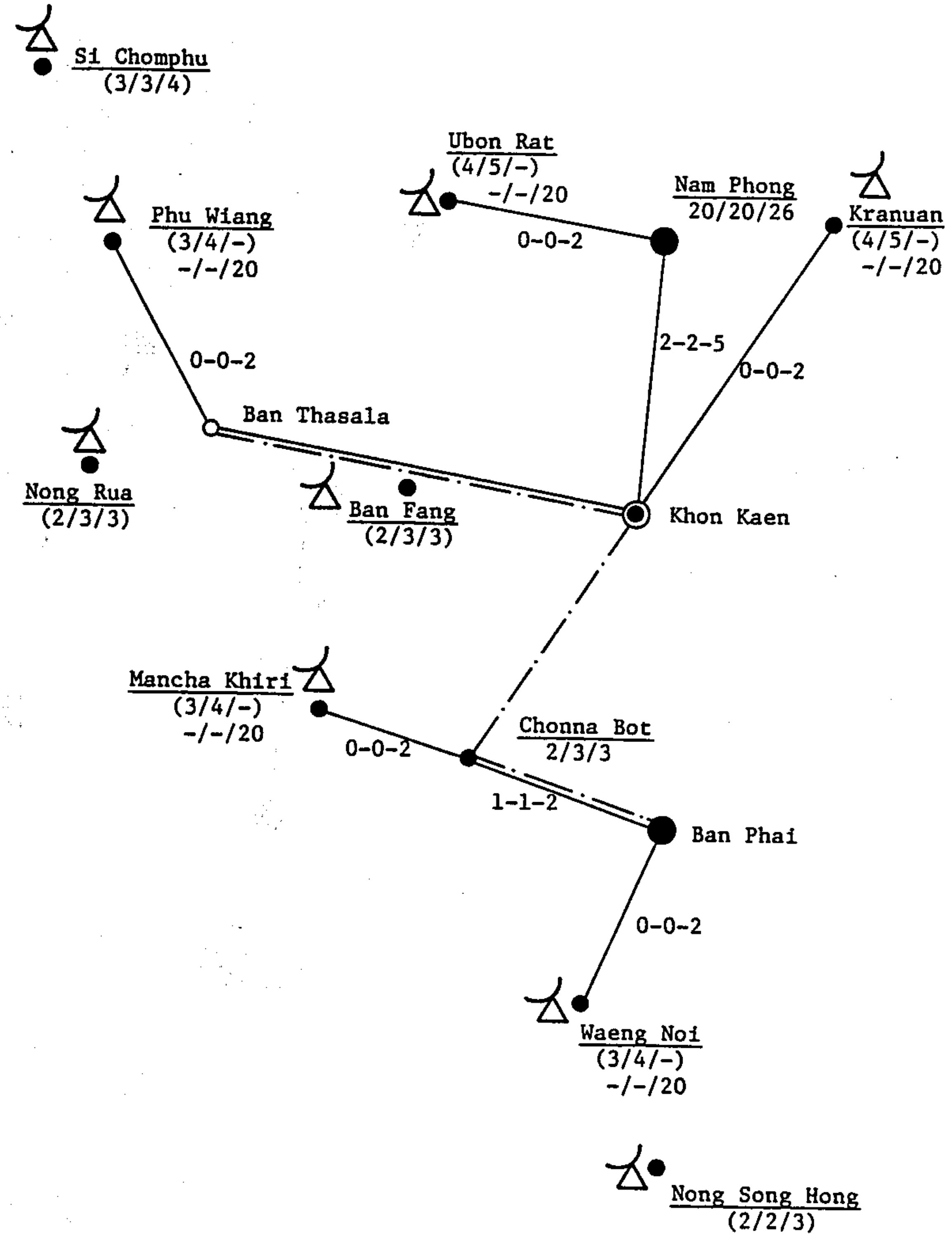
Circuit Assignment Diagram for Satellite System : Loei Area (4226)



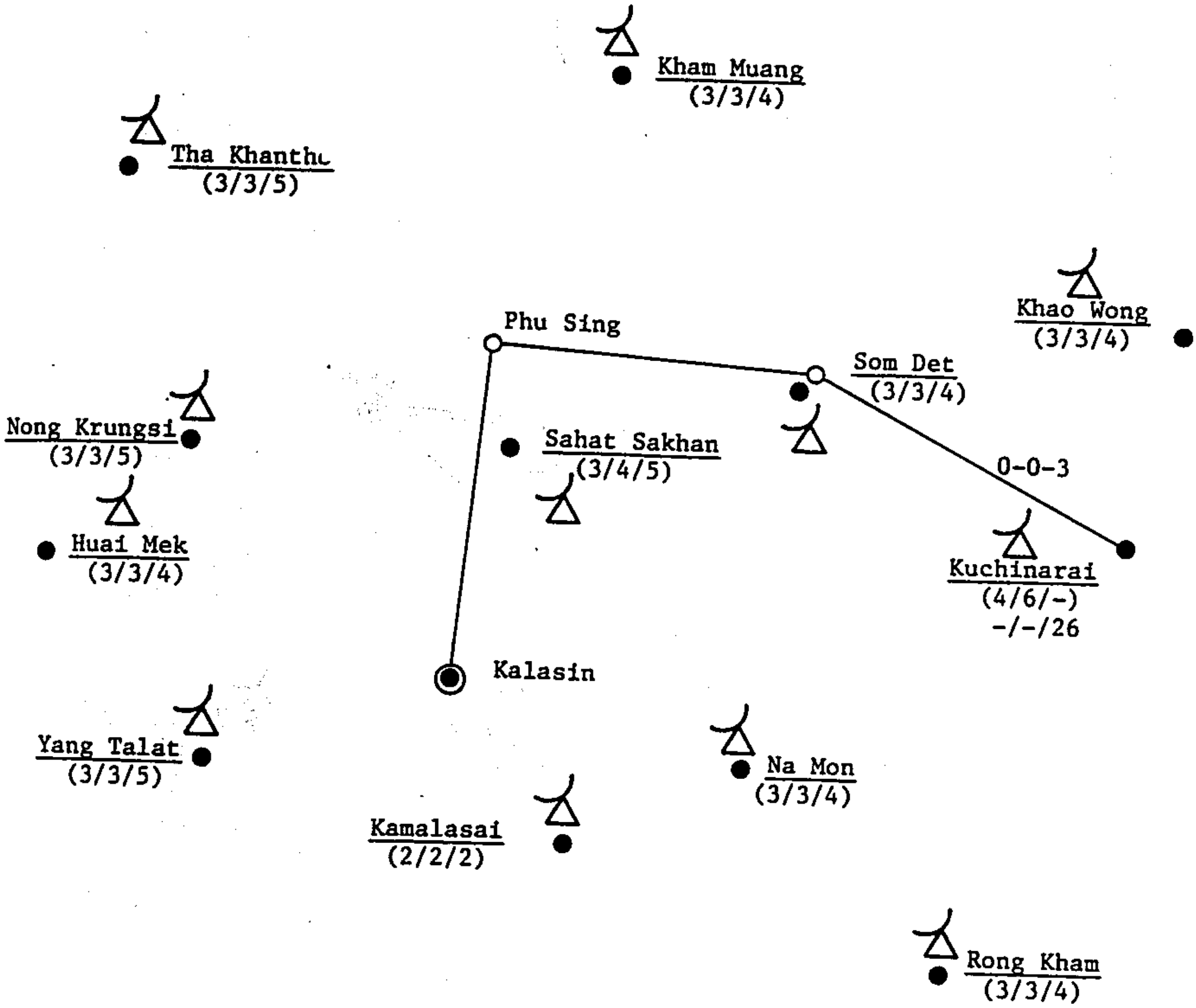
Circuit Assignment Diagram for Satellite System : Nakhon Phanom Area(4232)



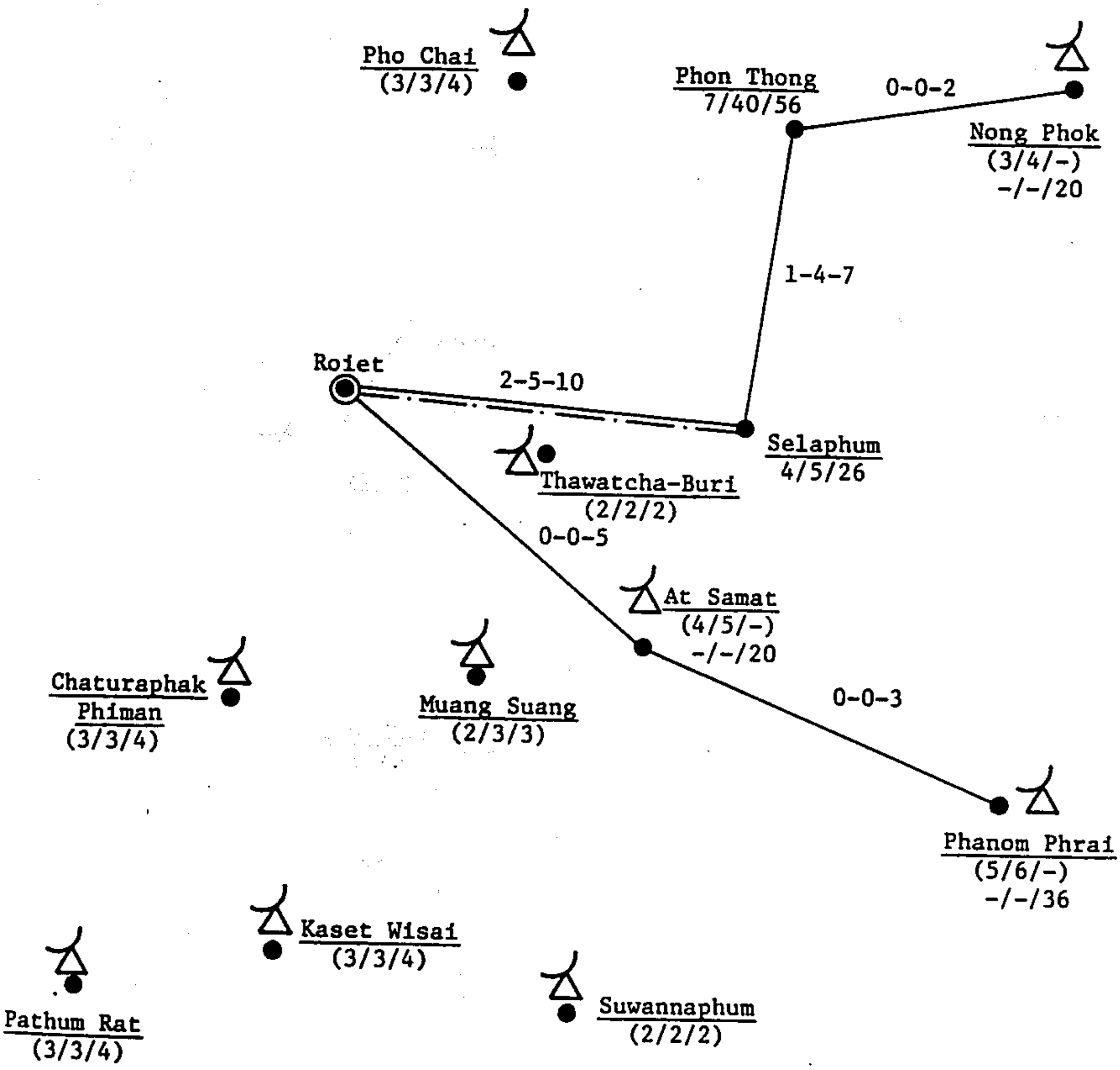
Circuit Assignment Diagram for Satellite System : Mahasarakham Area (4301)



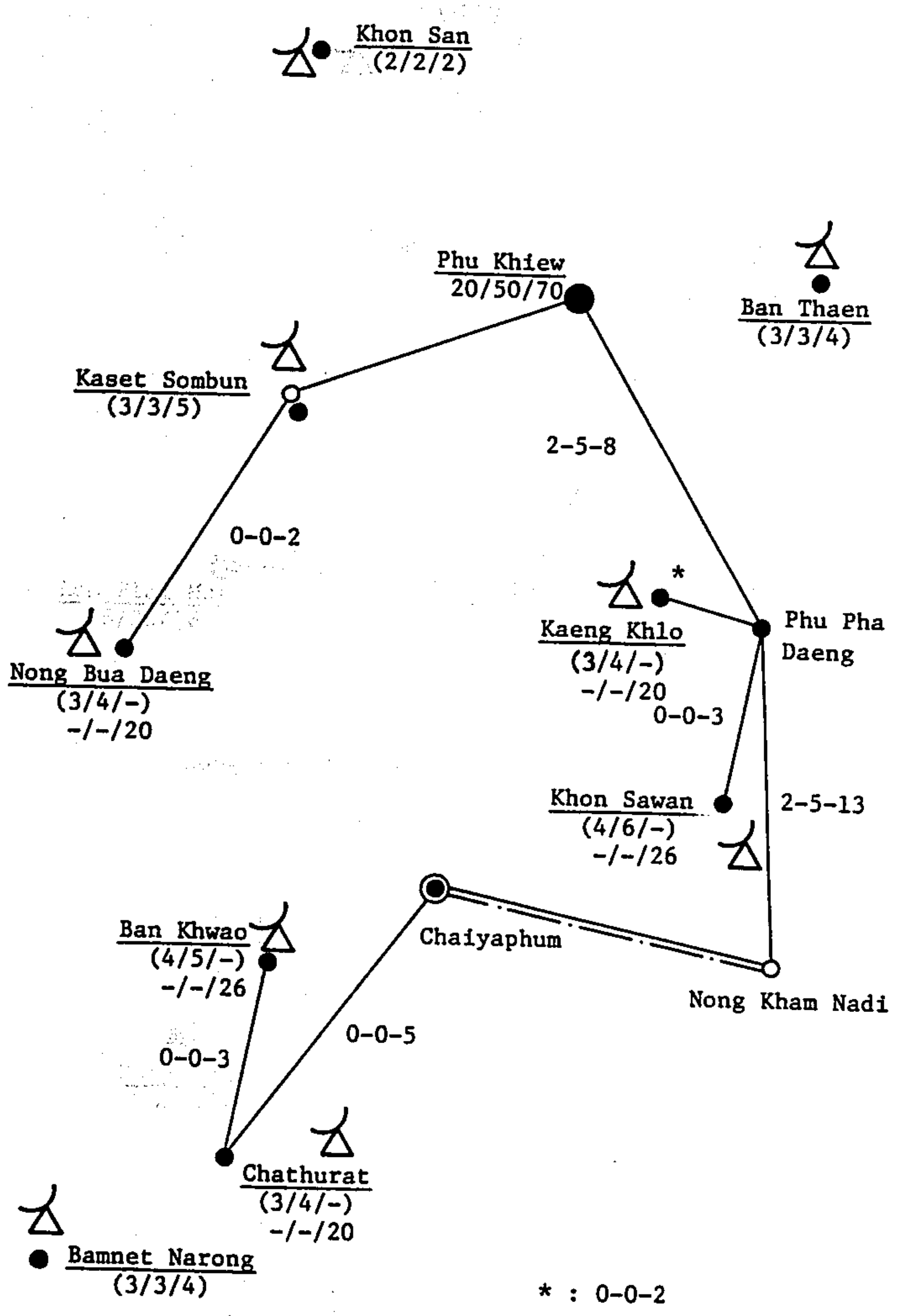
Circuit Assignment Diagram for Satellite System : Khon Kaen Area(4309)



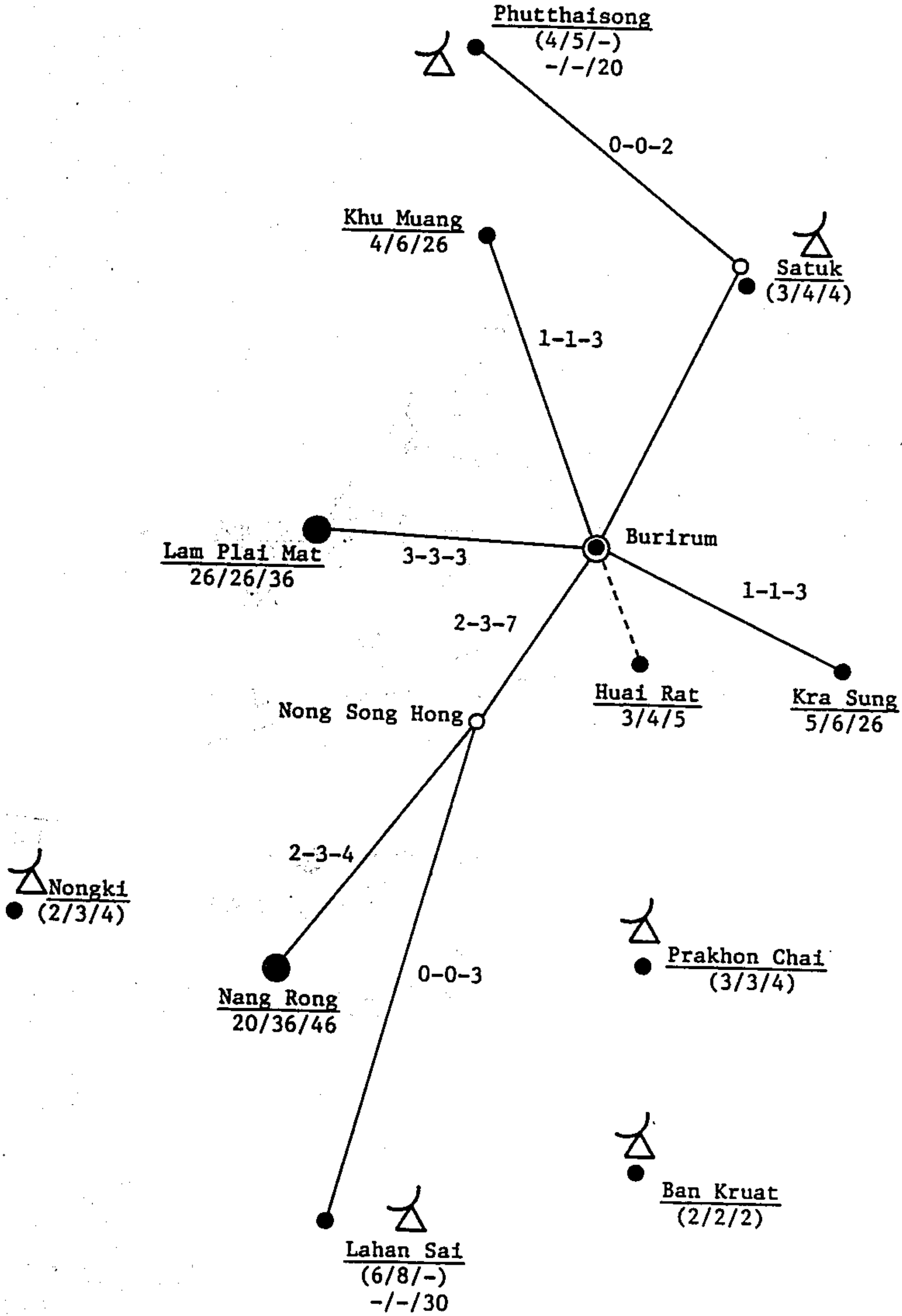
Circuit Assignment Diagram for Satellite System : Kalasin Area(4321)



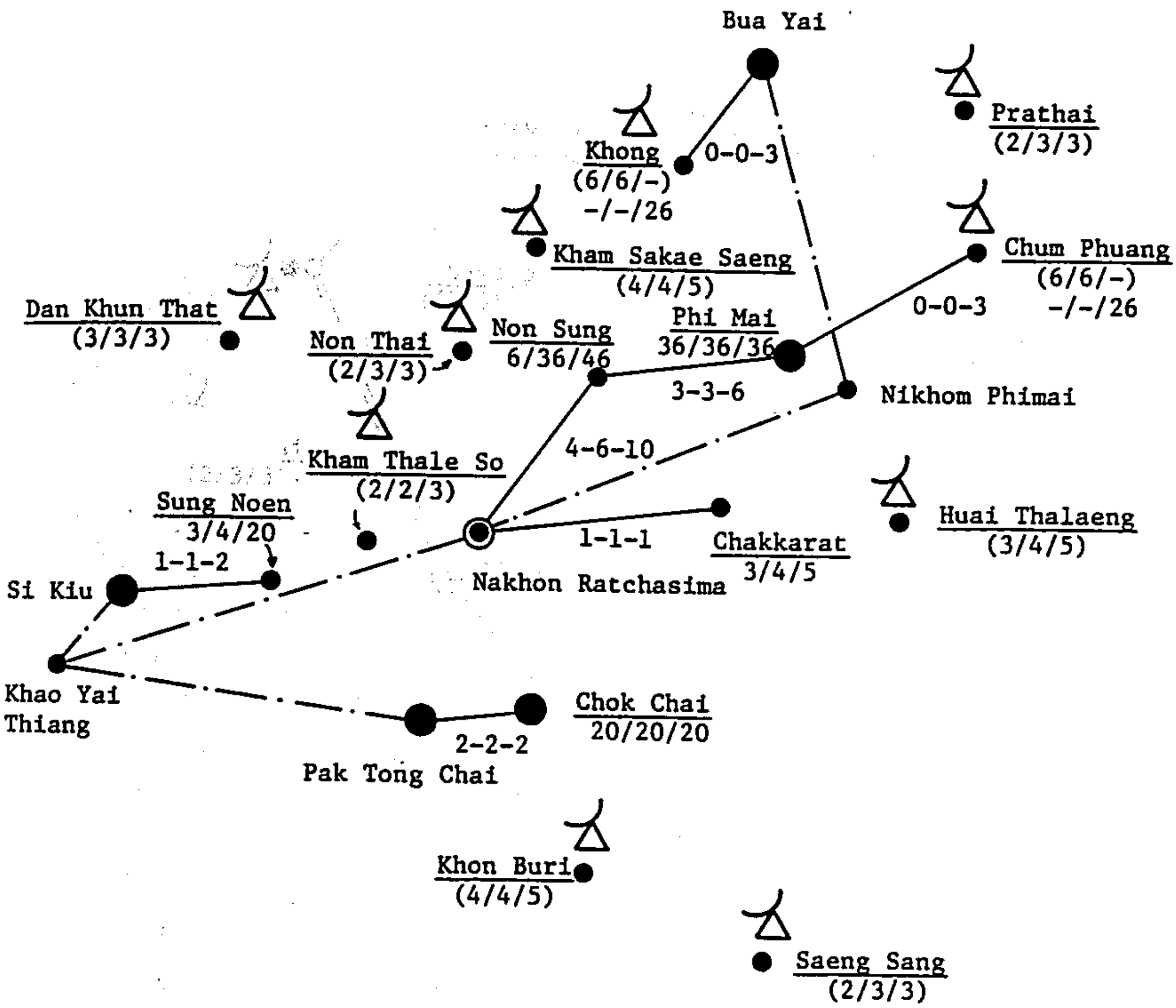
Circuit Assignment Diagram for Satellite System : Roiet Area(4328)



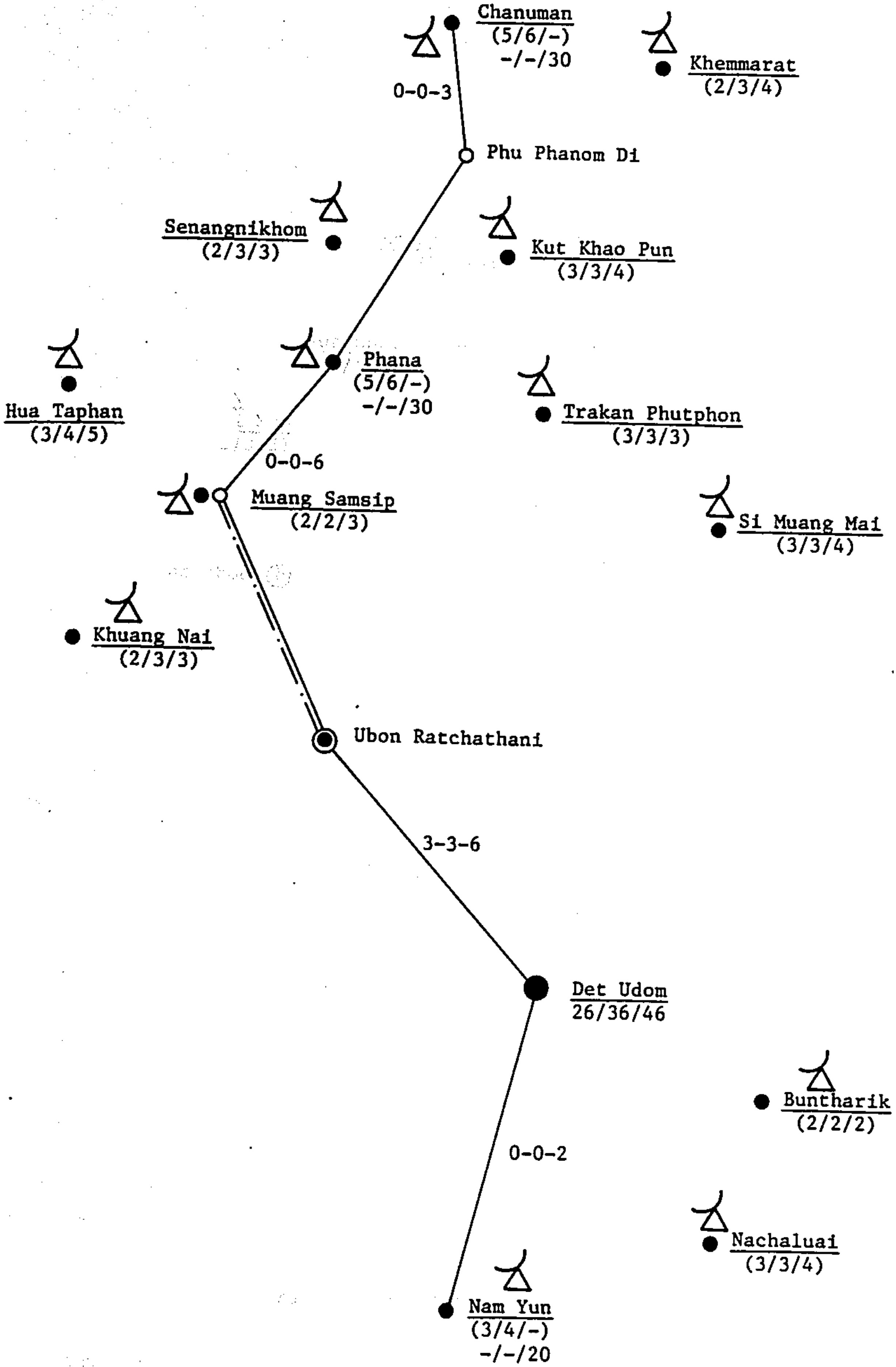
Circuit Assignment Diagram for Satellite System : Chaiyaphum Area (4401)



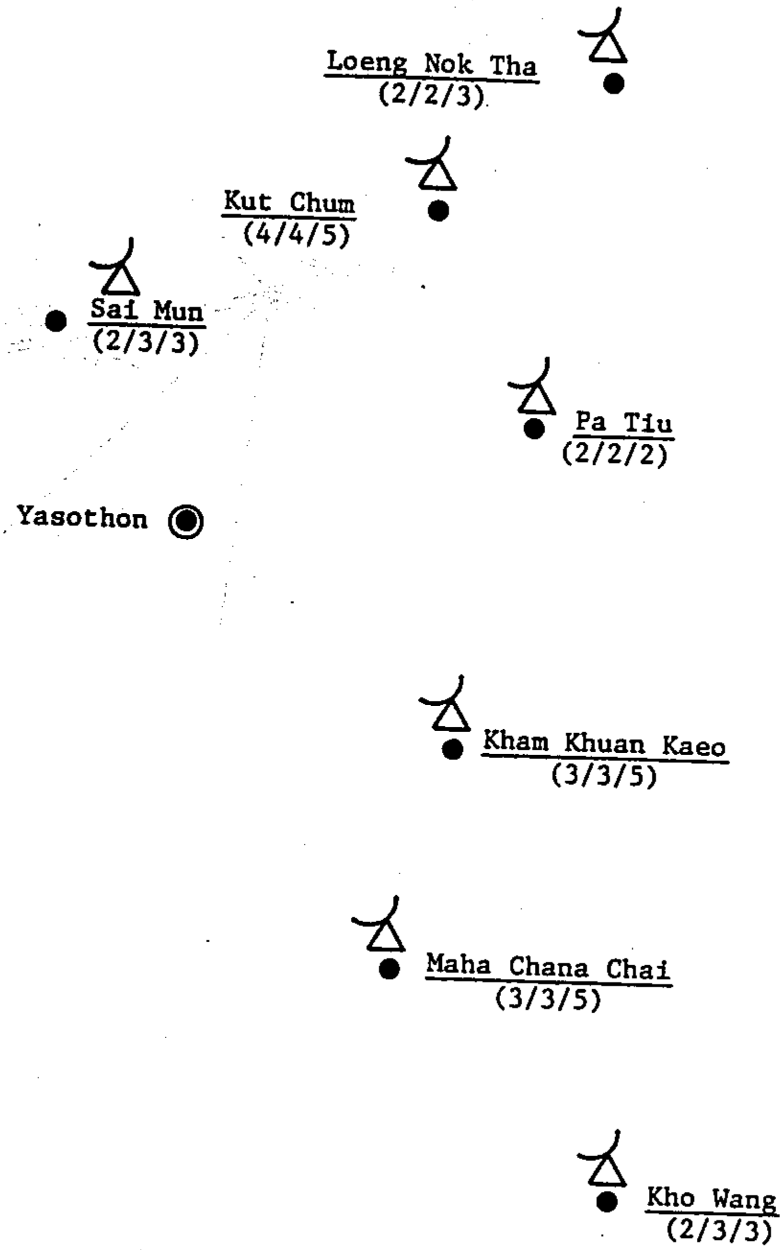
Circuit Assignment Diagram for Satellite System : Burirum Area(4412)



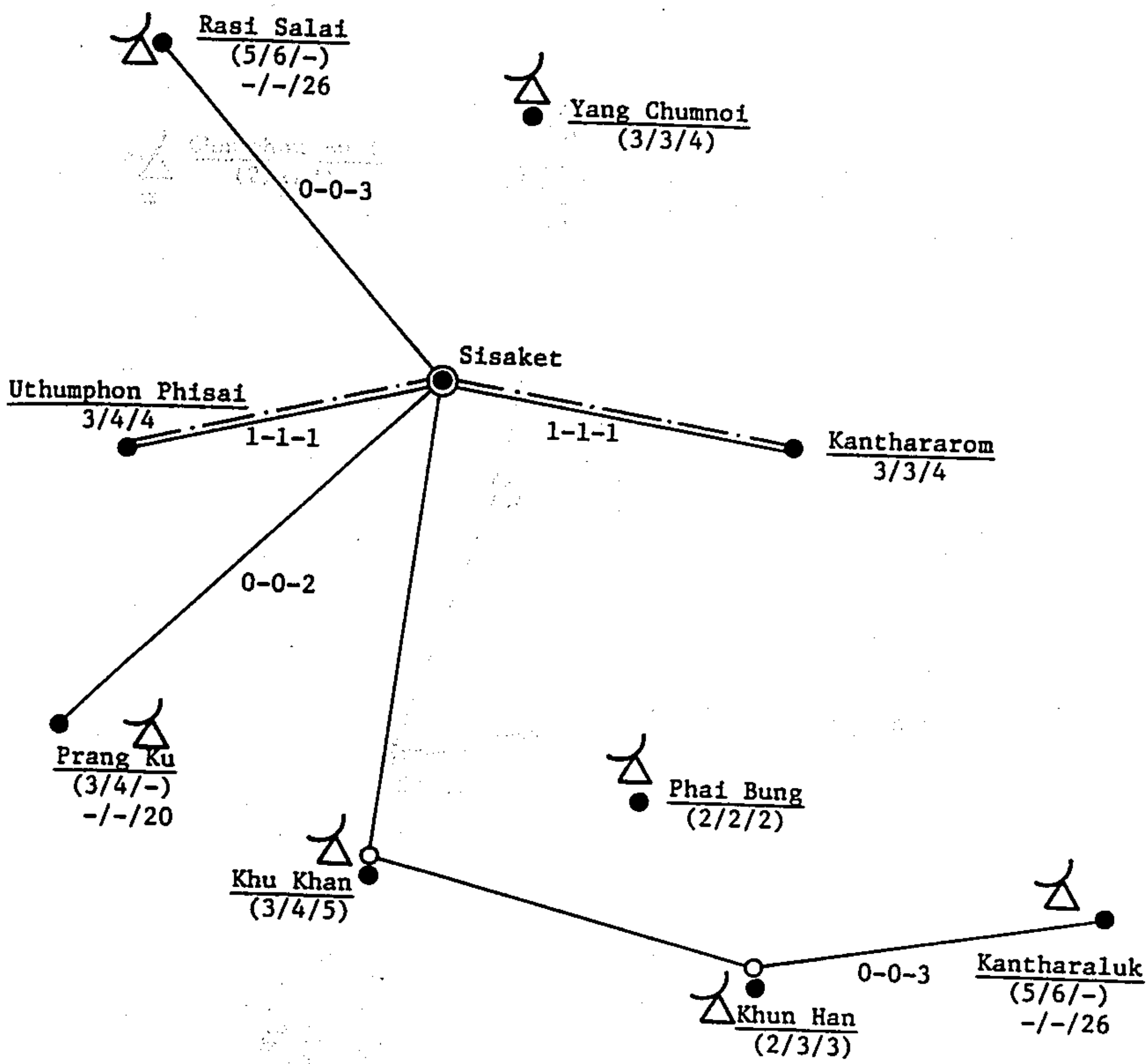
Circuit Assignment Diagram for Satellite System : Nakhon Ratchasima Area(4421)



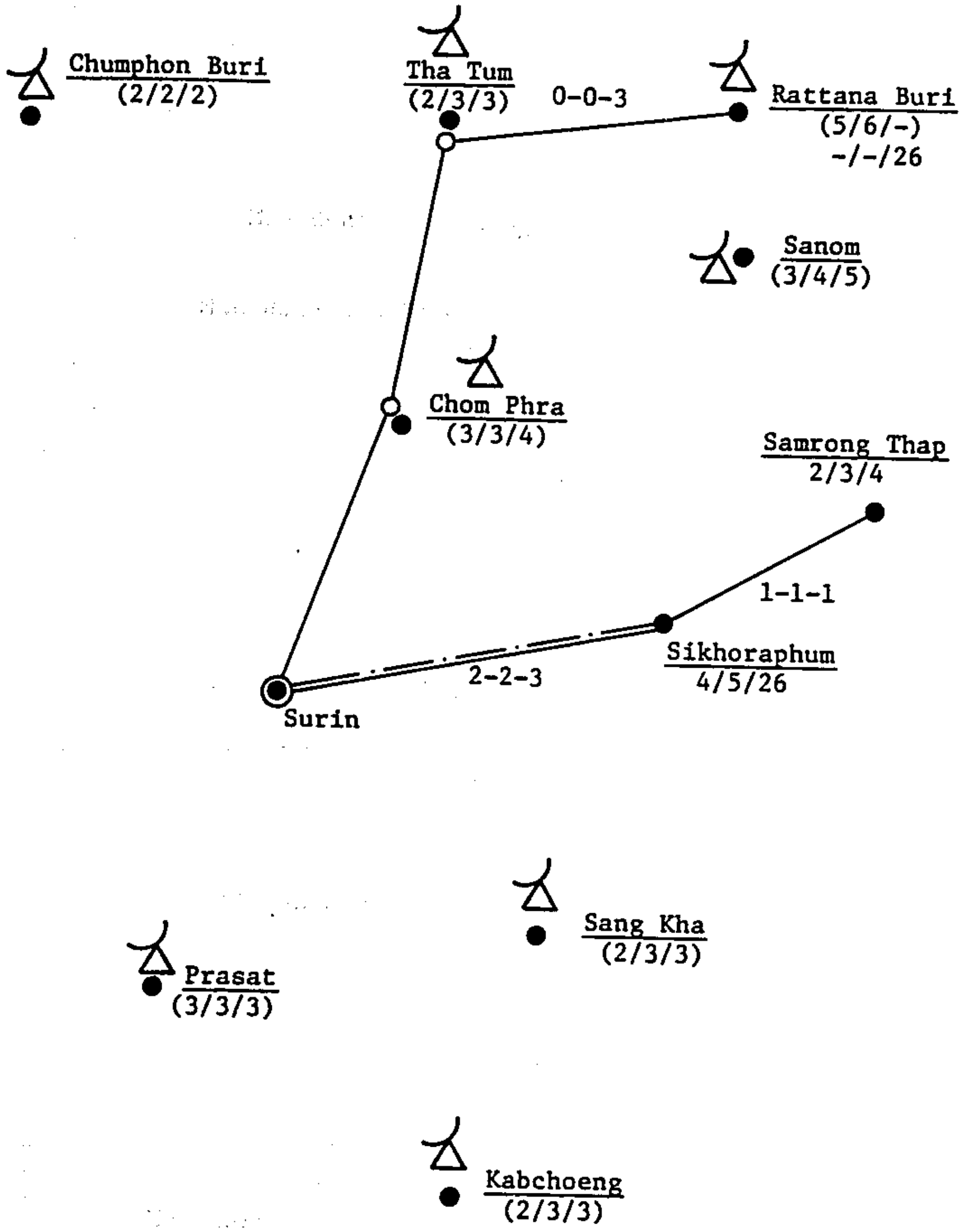
Circuit Assignment Diagram for Satellite System : Ubon Ratchathani Area(4501)



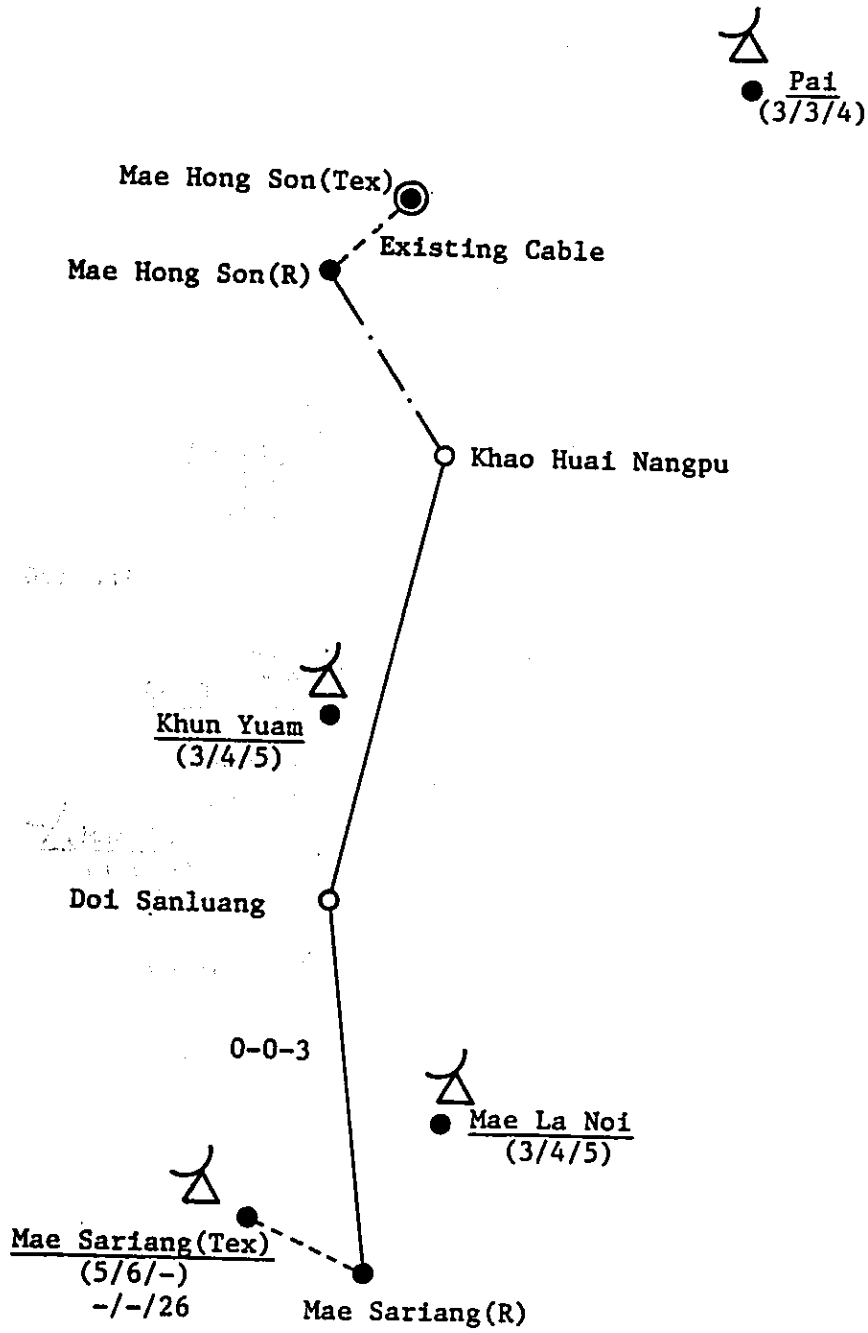
Circuit Assignment Diagram for Satellite System : Yasothon Area(4515)



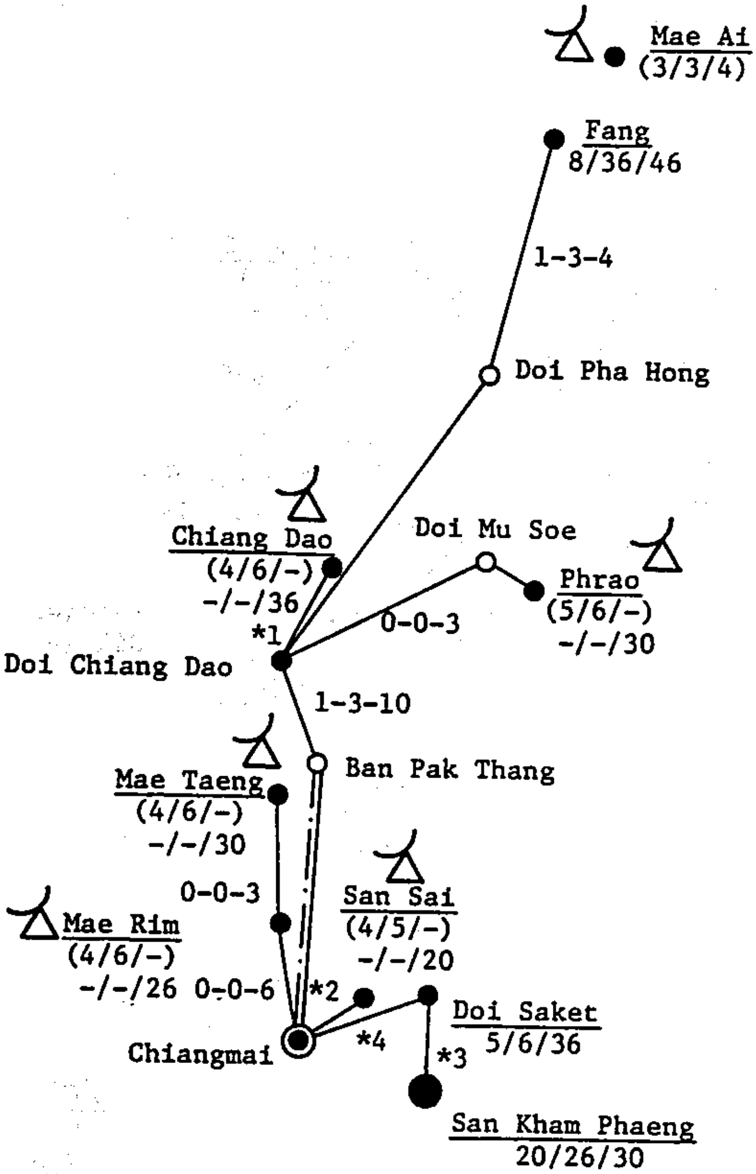
Circuit Assignment Diagram for Satellite System : Sisaket Area(4522)



Circuit Assignment Diagram for Satellite System : Surin Area(4530)

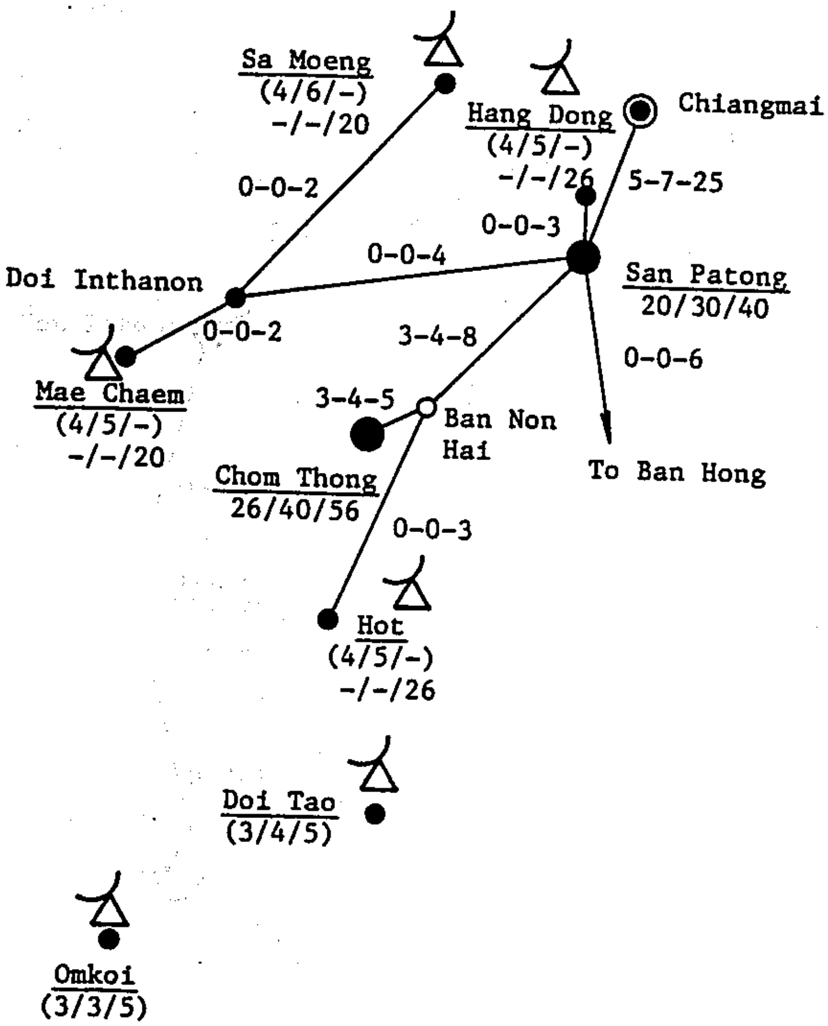


Circuit Assignment Diagram for Satellite System : Mae Hong Son Area(5301)

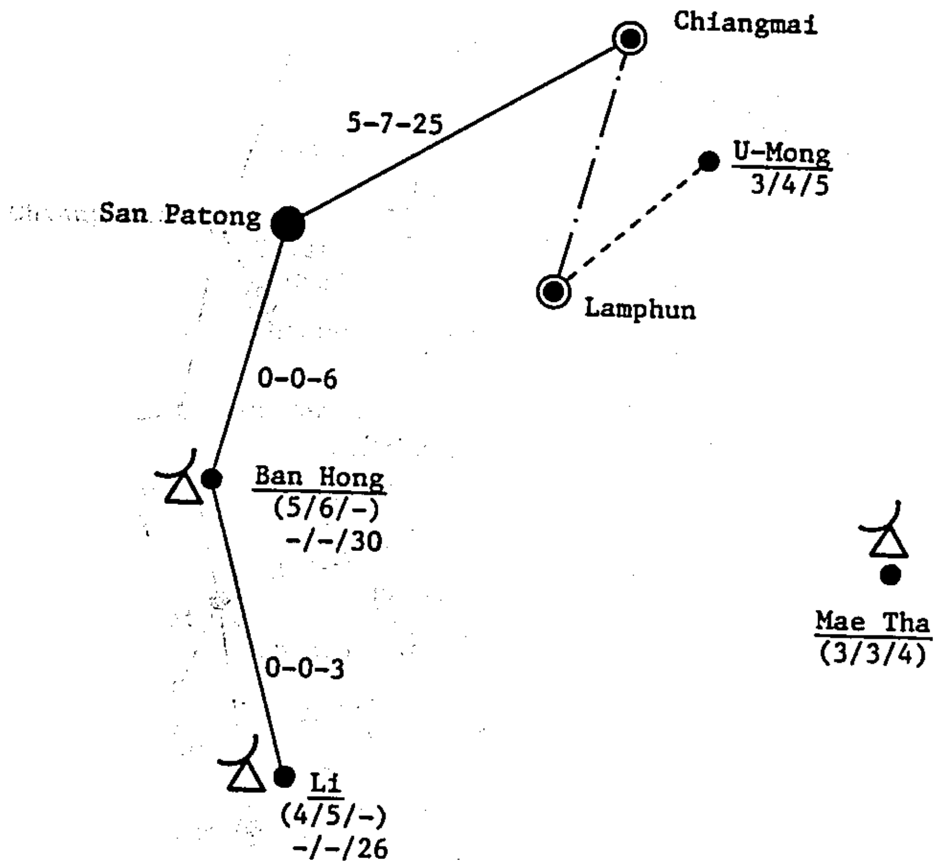


*1: 0-0-3
*2: 0-0-2
*3: 2-3-3
*4: 3-4-6

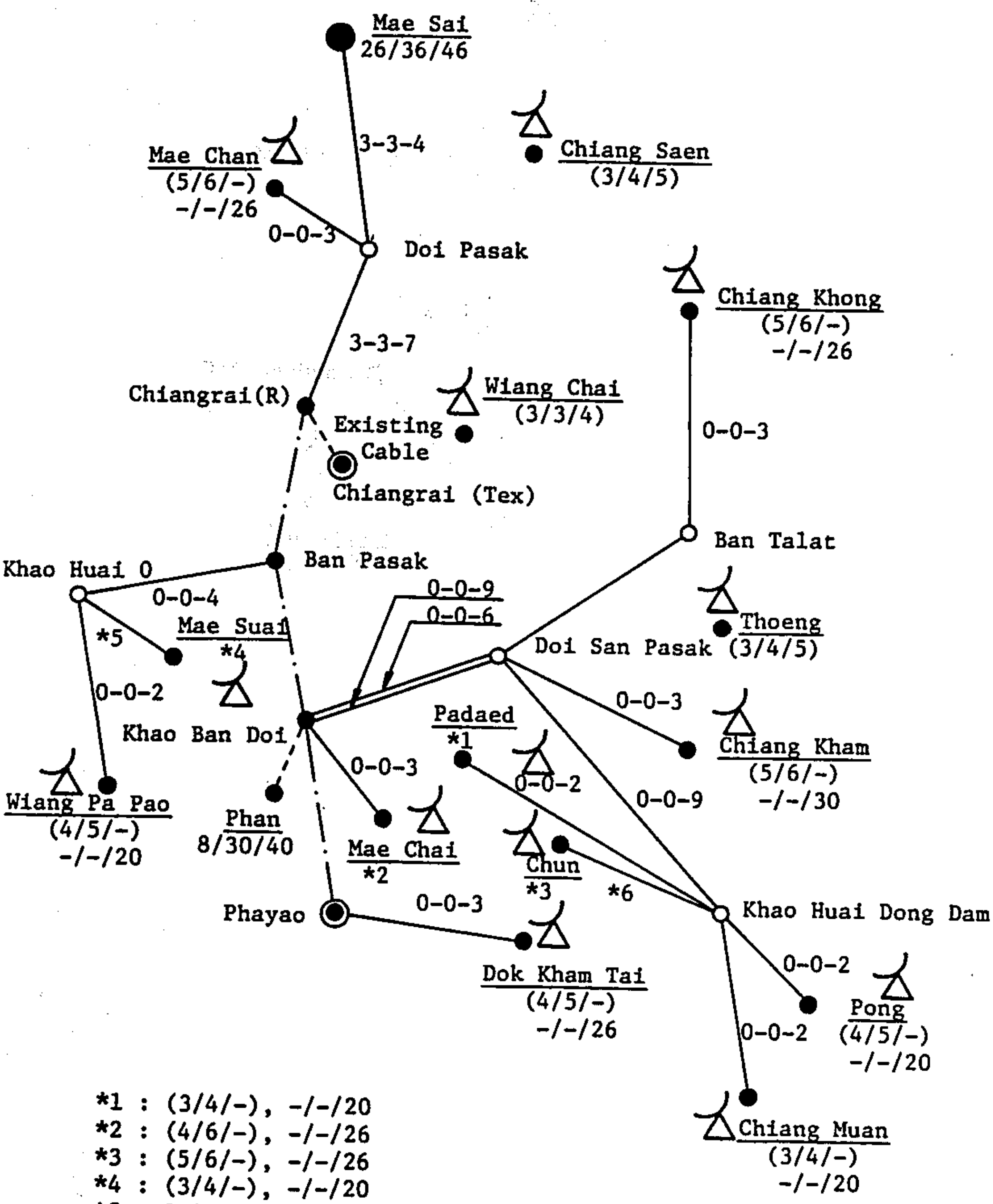
Circuit Assignment Diagram for Satellite System : Chiangmai Area(5313)1/2



Circuit Assignment Diagram for Satellite System : Chiangmai Area(5313)2/2

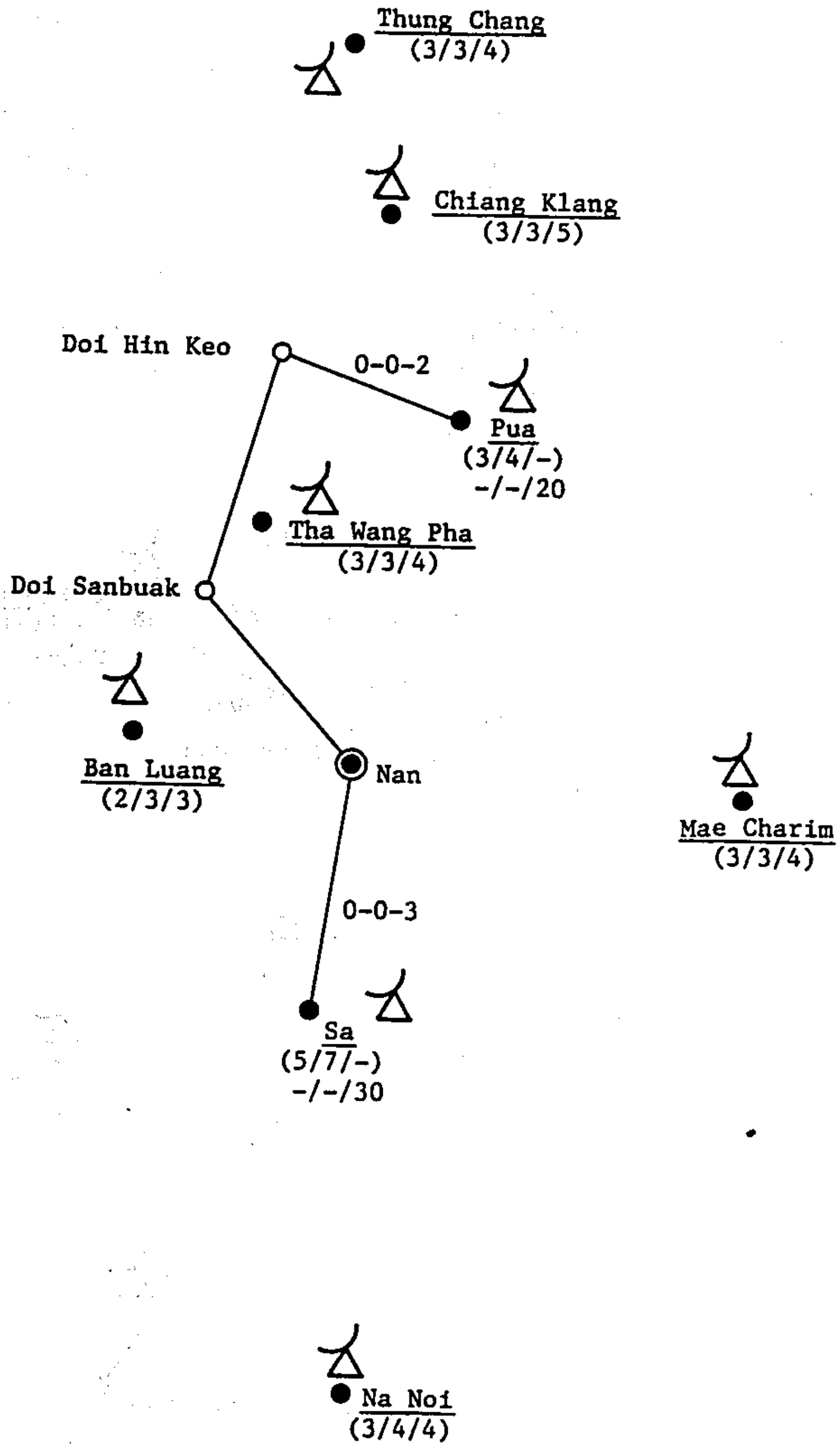


Circuit Assignment Diagram for Satellite System : Lamphun Area(5322)

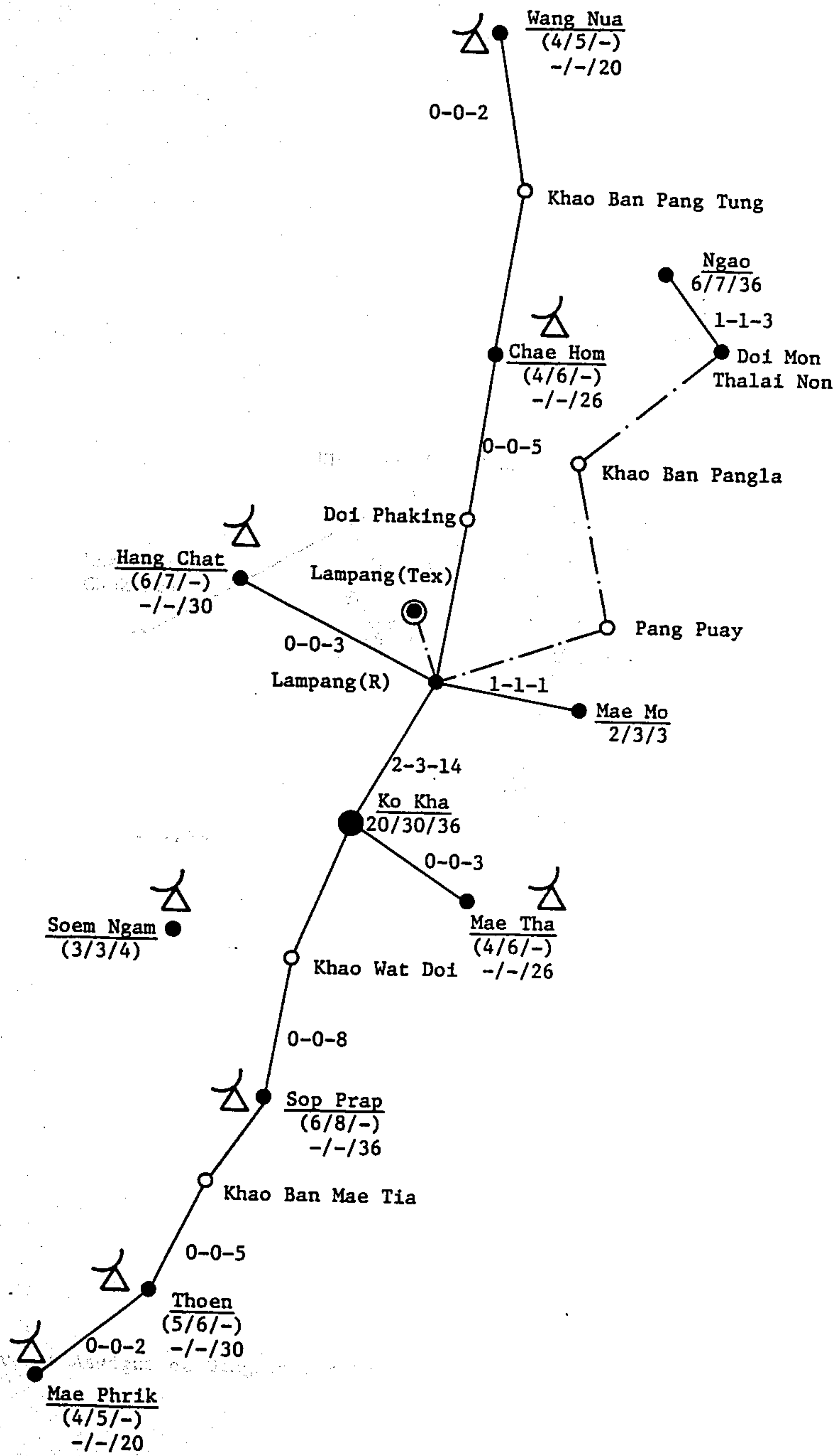


*1 : (3/4/-), -/-/20
*2 : (4/6/-), -/-/26
*3 : (5/6/-), -/-/26
*4 : (3/4/-), -/-/20
*5 : 0-0-2
*6 : 0-0-3

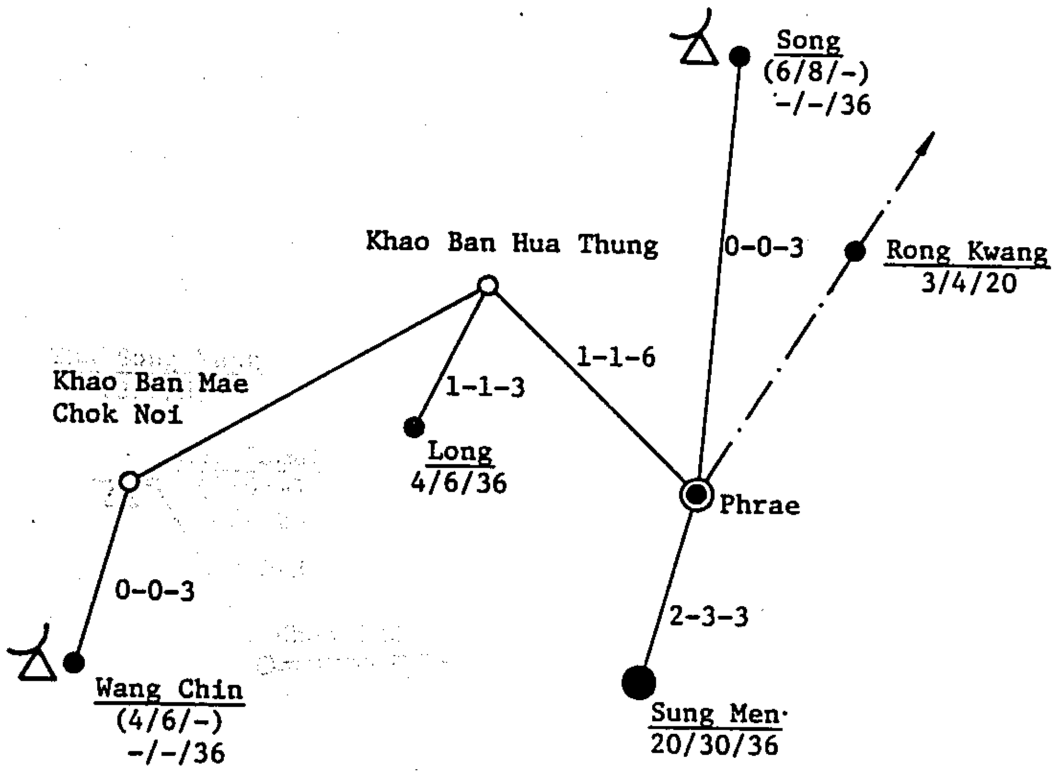
Circuit Assignment Diagram for Satellite System : Chiangrai Area(5401)



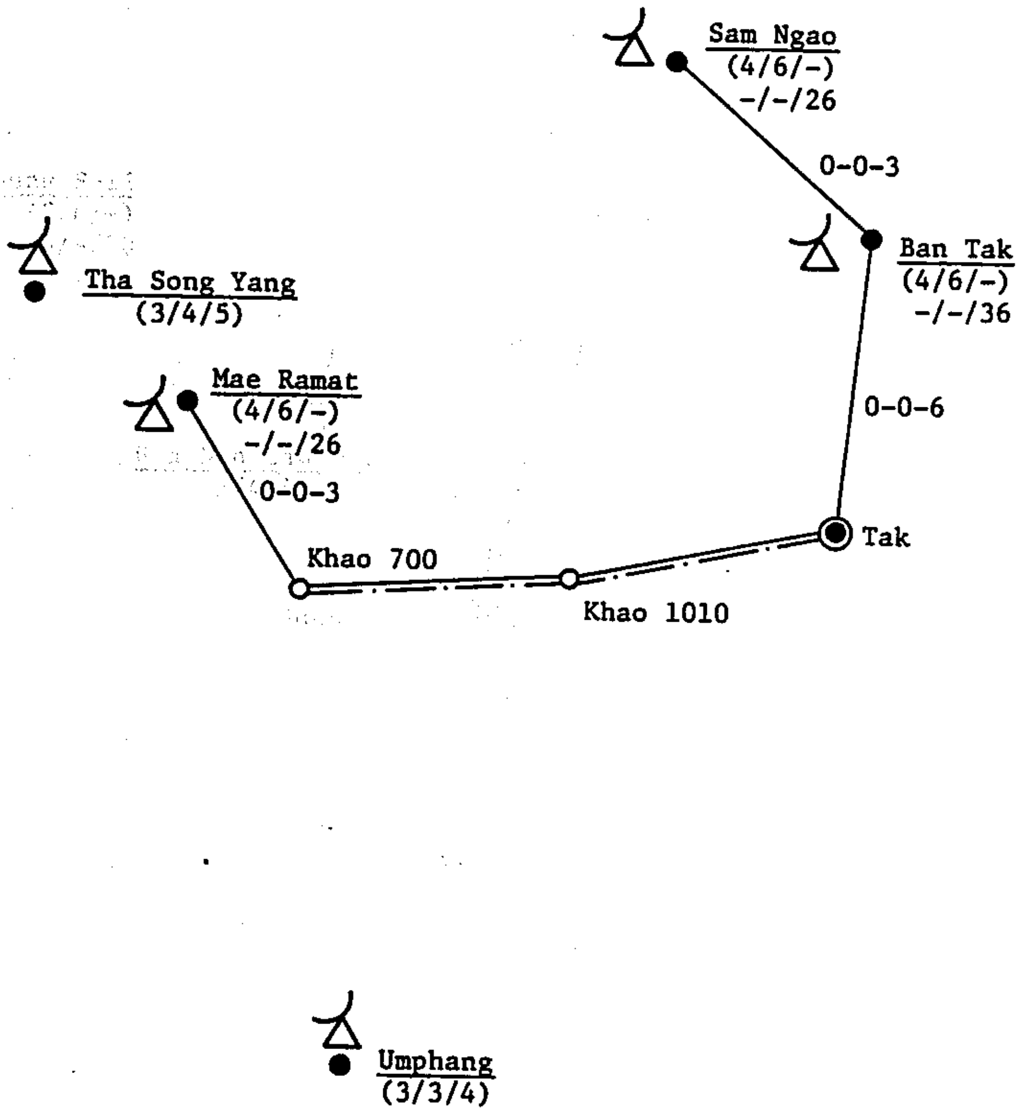
Circuit Assignment Diagram for Satellite System : Nan Area(5416)



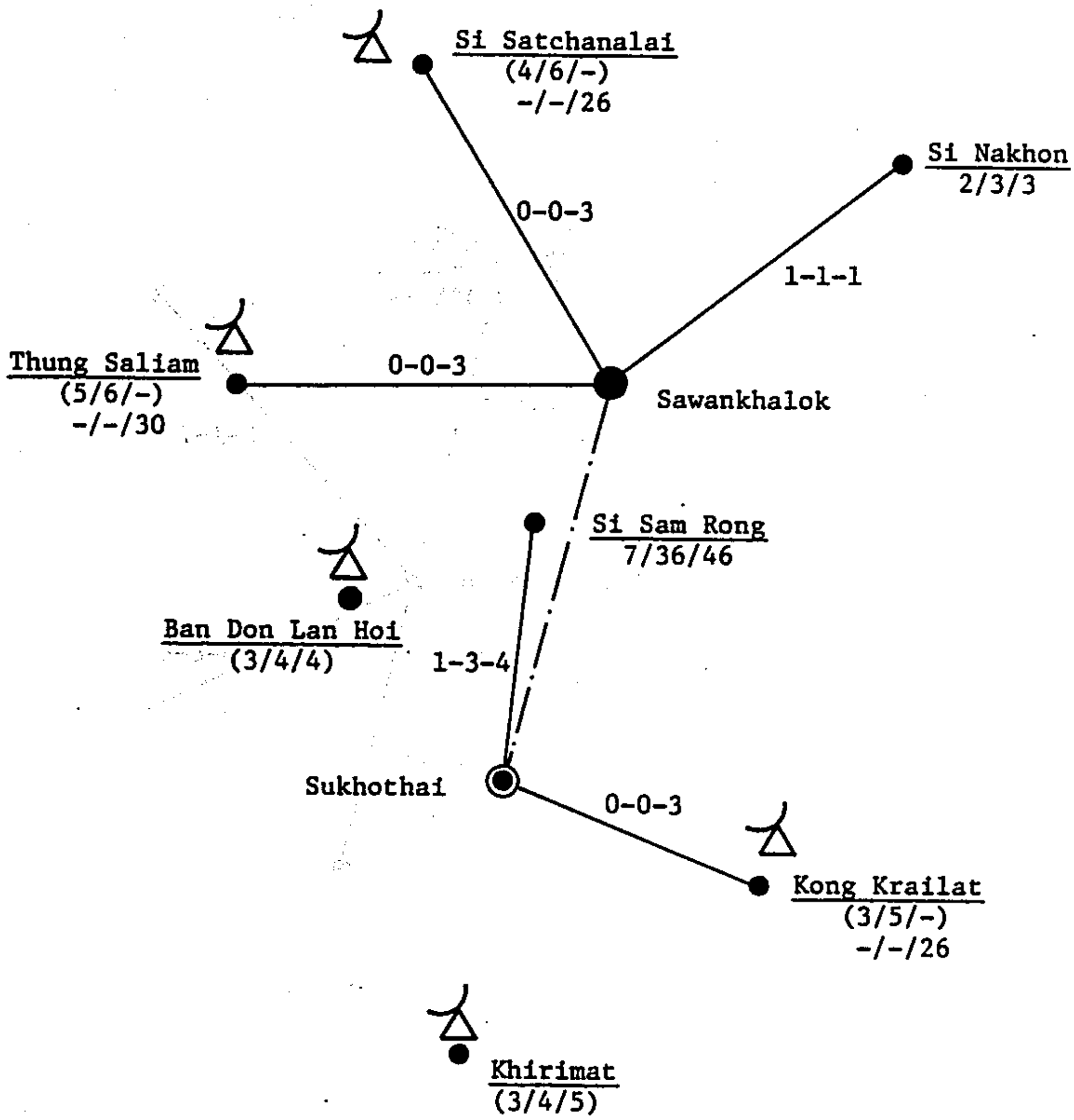
Circuit Assignment Diagram for Satellite System : Lampang Area(5422)



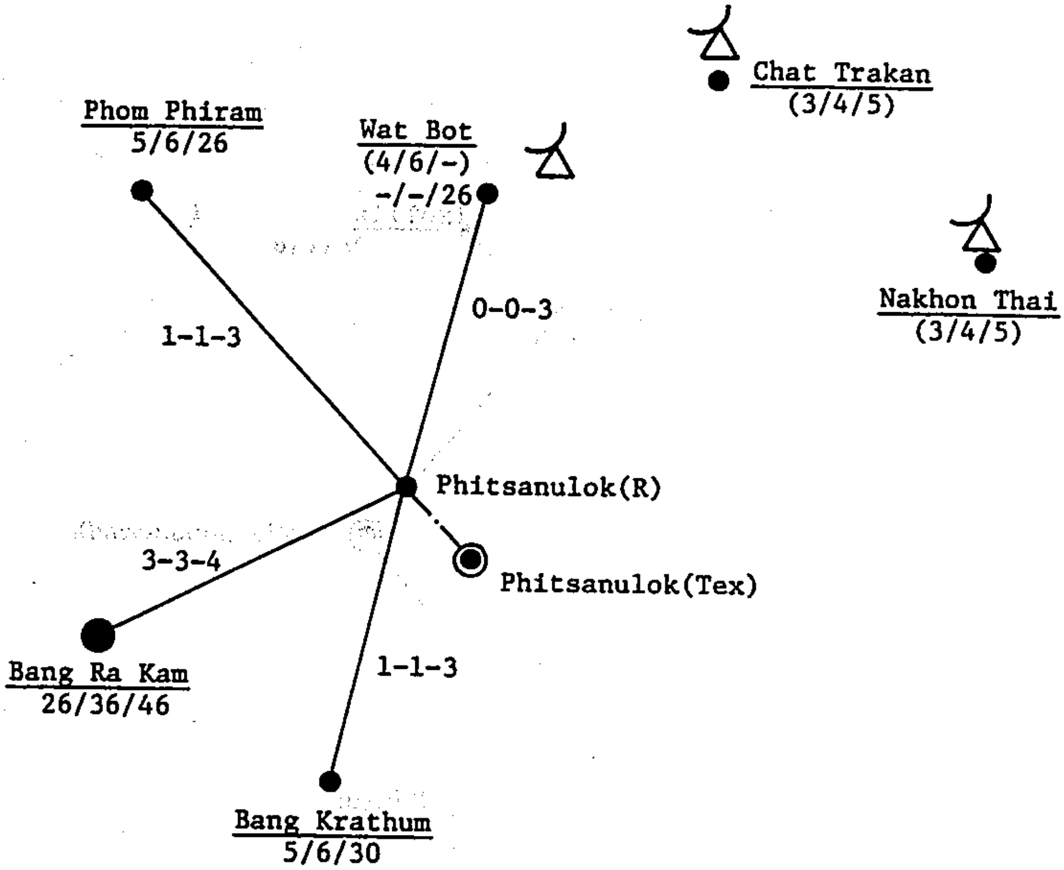
Circuit Assignment Diagram for Satellite System : Phrae Area(5432)



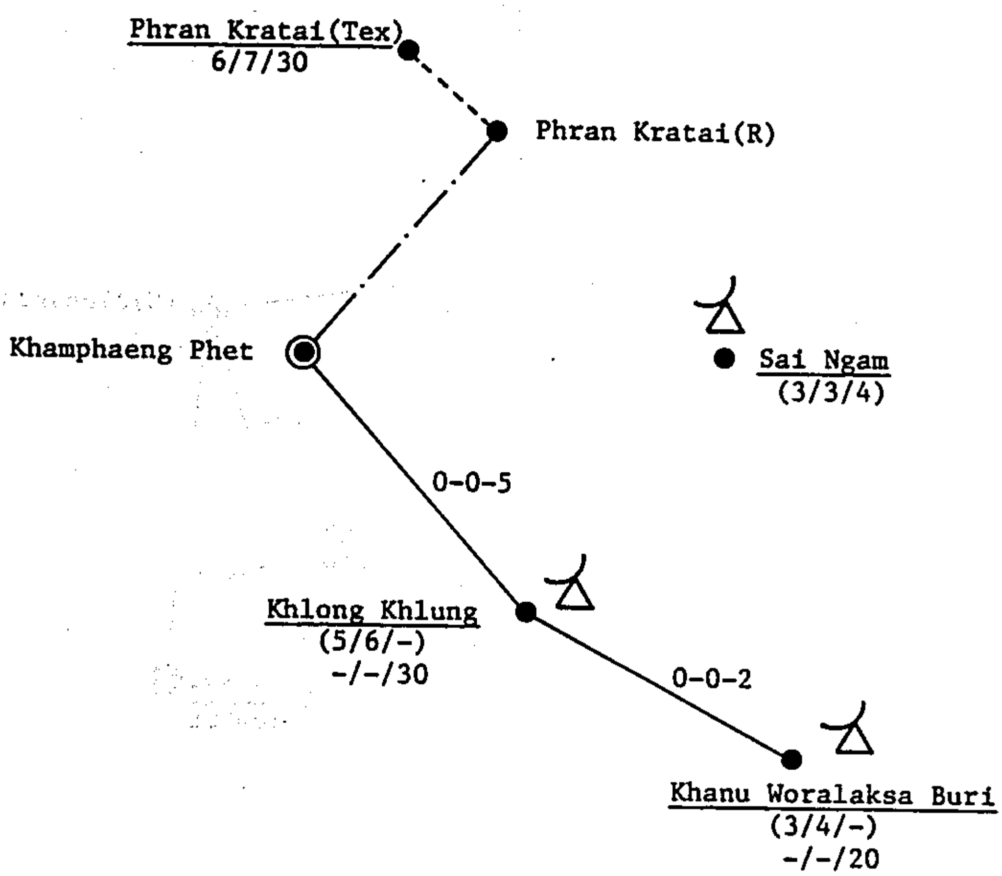
Circuit Assignment Diagram for Satellite System : Tak Area(5501)



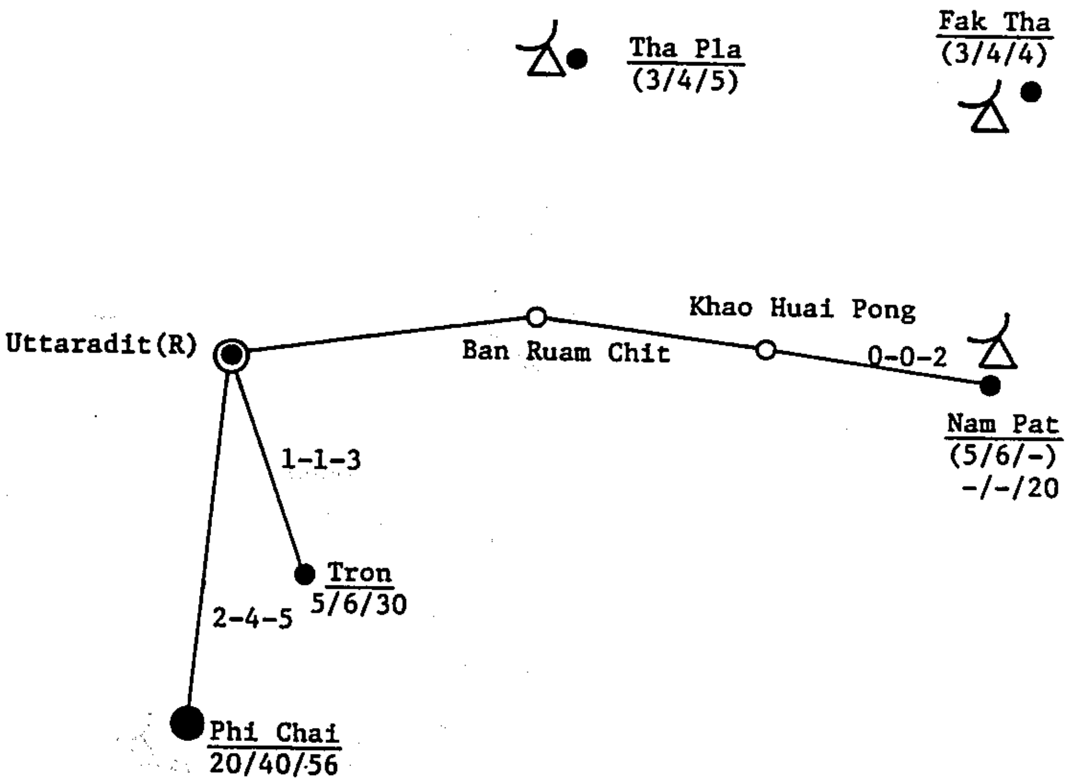
Circuit Assignment Diagram for Satellite System : Sukhothai Area(5508)



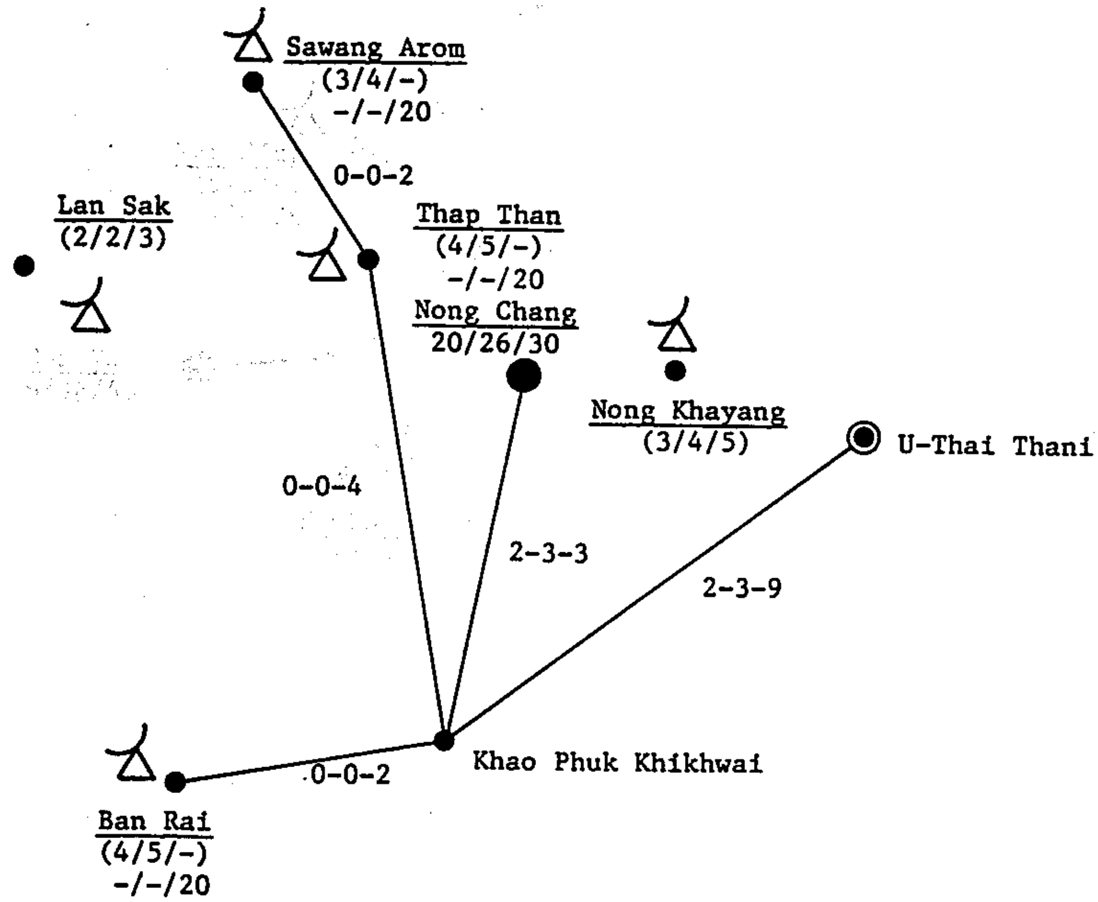
Circuit Assignment Diagram for Satellite System : Phitsanulok Area(5522)



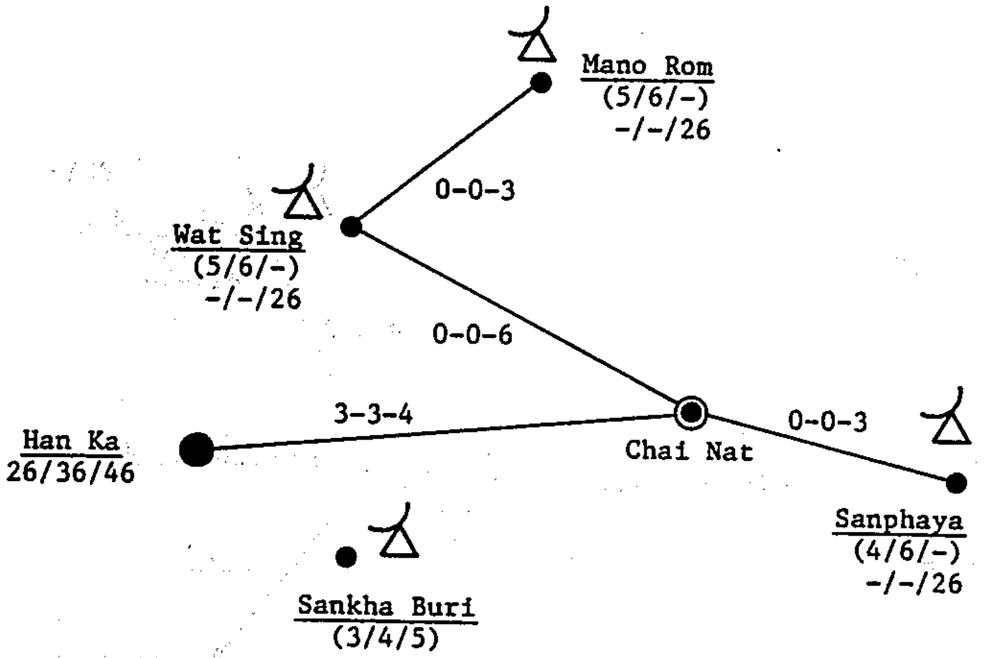
Circuit Assignment Diagram for Satellite System : Khamphaeng Phet Area(5523)



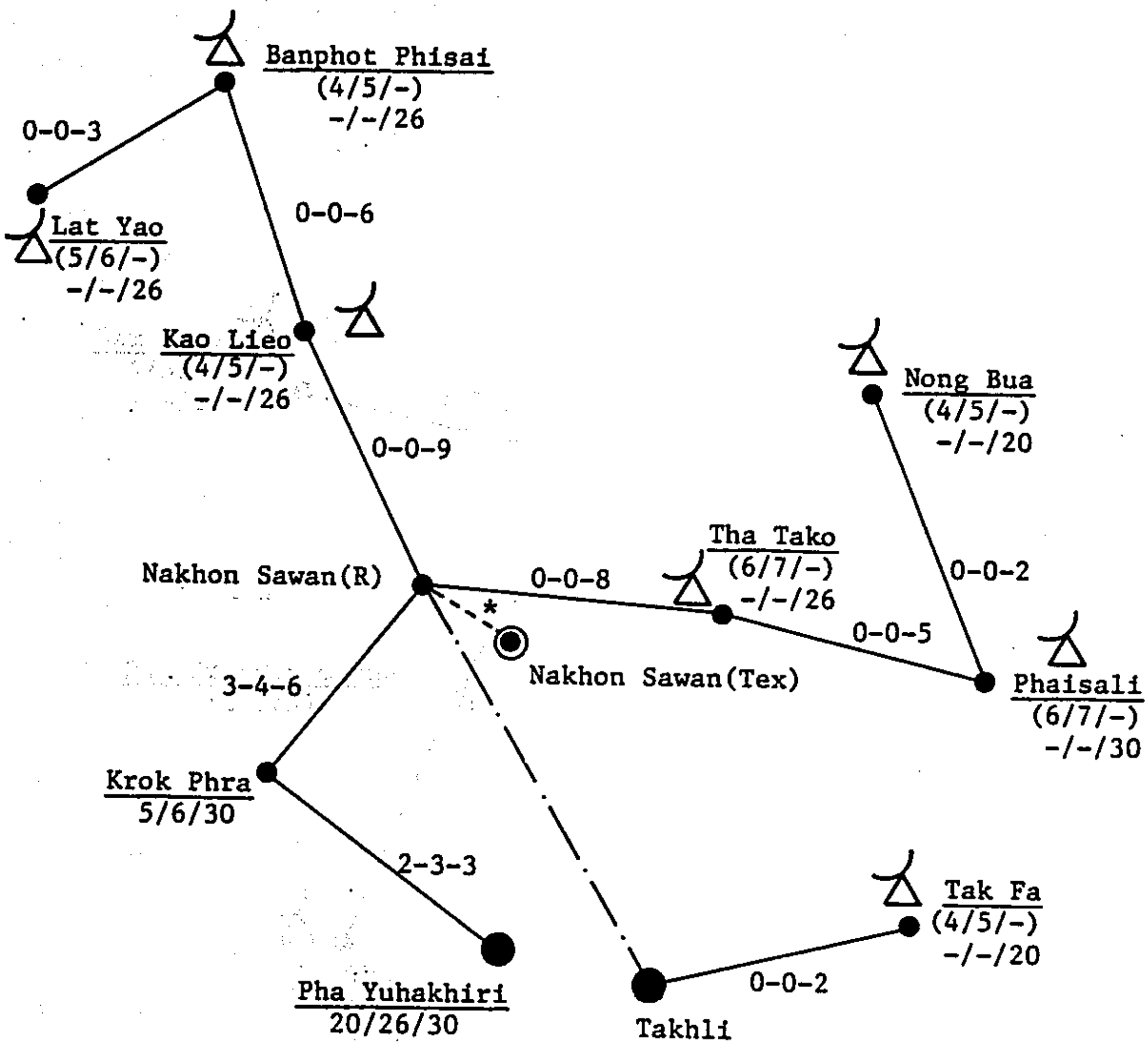
Circuit Assignment Diagram for Satellite System : Uttaradit Area(5527)



Circuit Assignment Diagram for Satellite System : U-Thai Thani Area(5601)

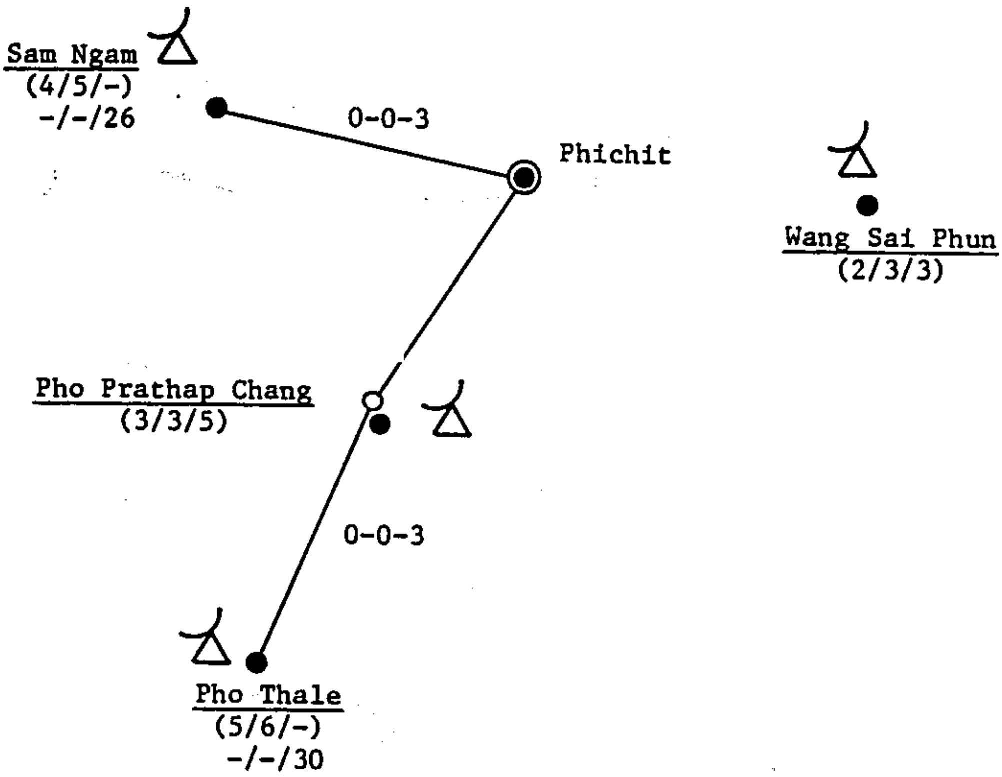


Circuit Assingment Diagram for Satellite System : Chai Nat Area(5607)

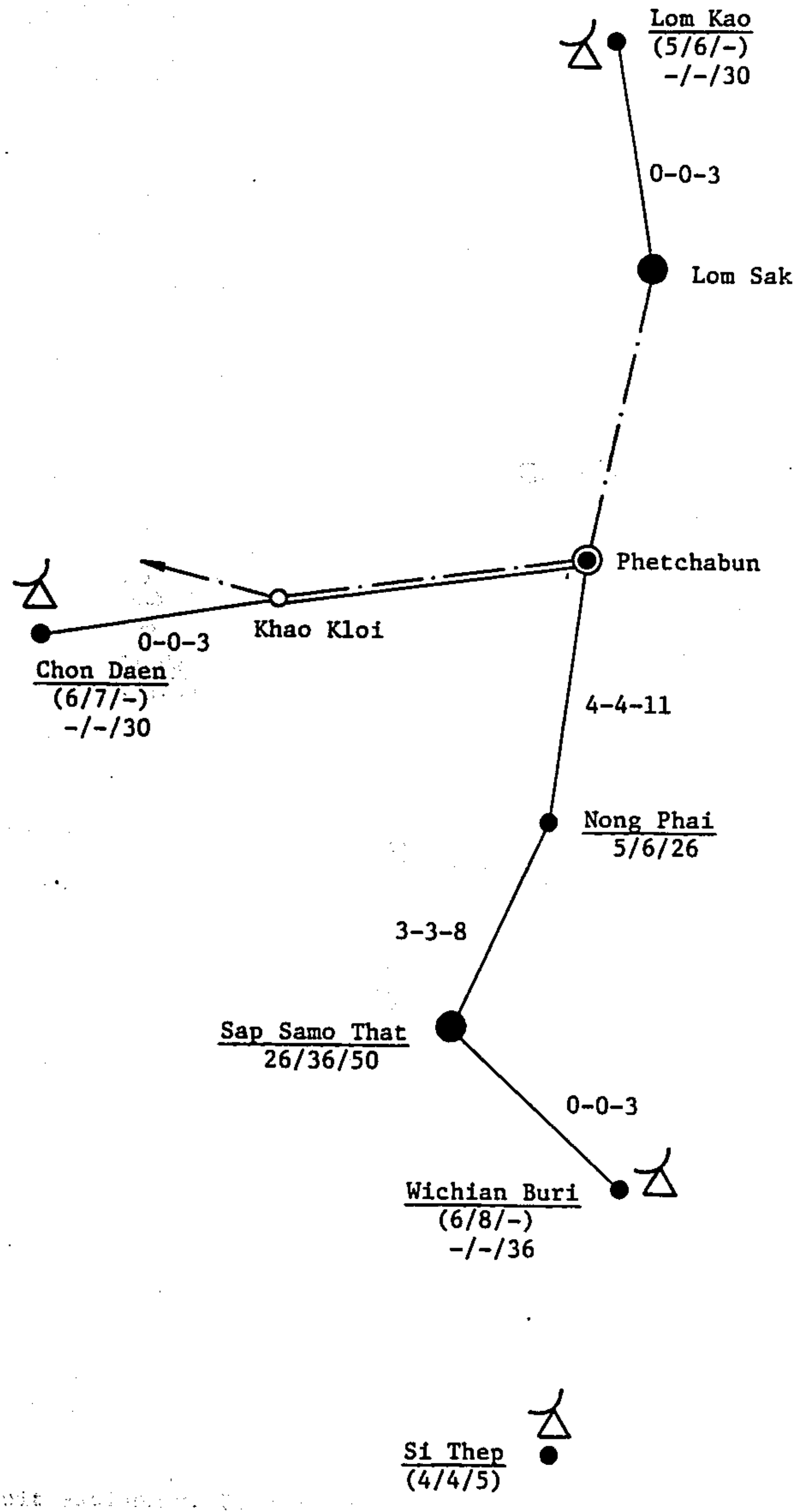


* : Existing Cable

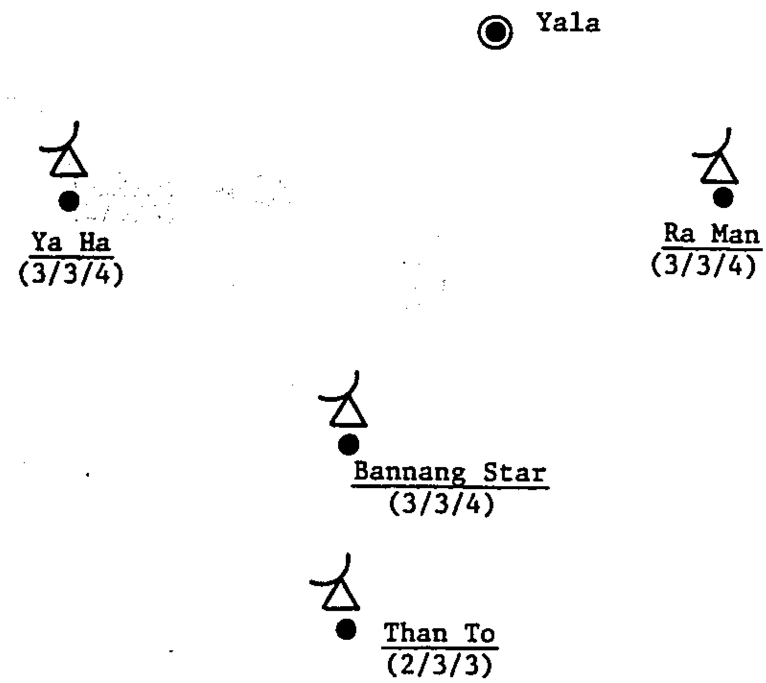
Circuit Assignment Diagram for Satellite System : Nakhon Sawan Area(5614)



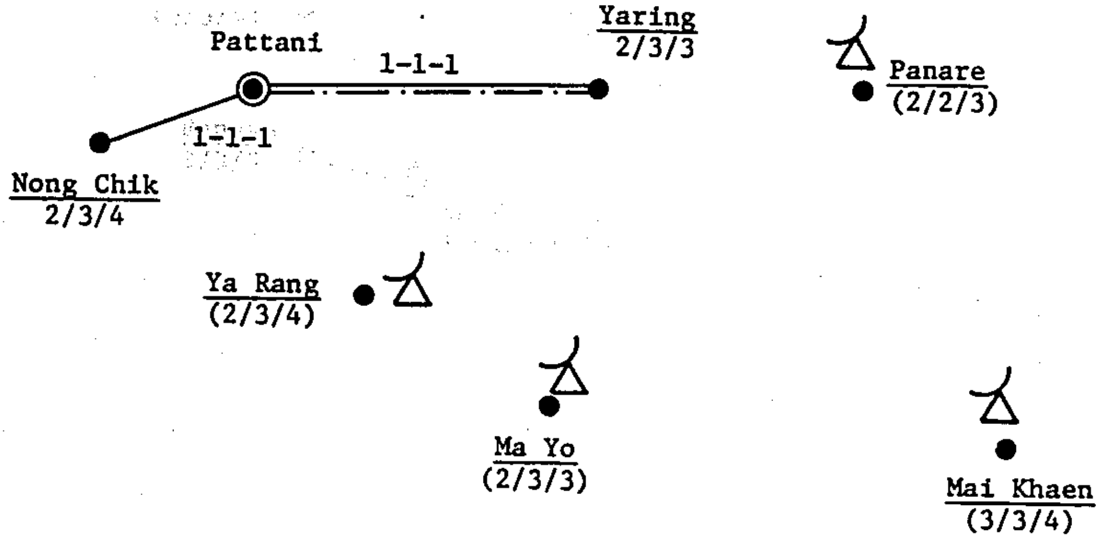
Circuit Assignment Diagram for Satellite System : Phichit Area(5623)



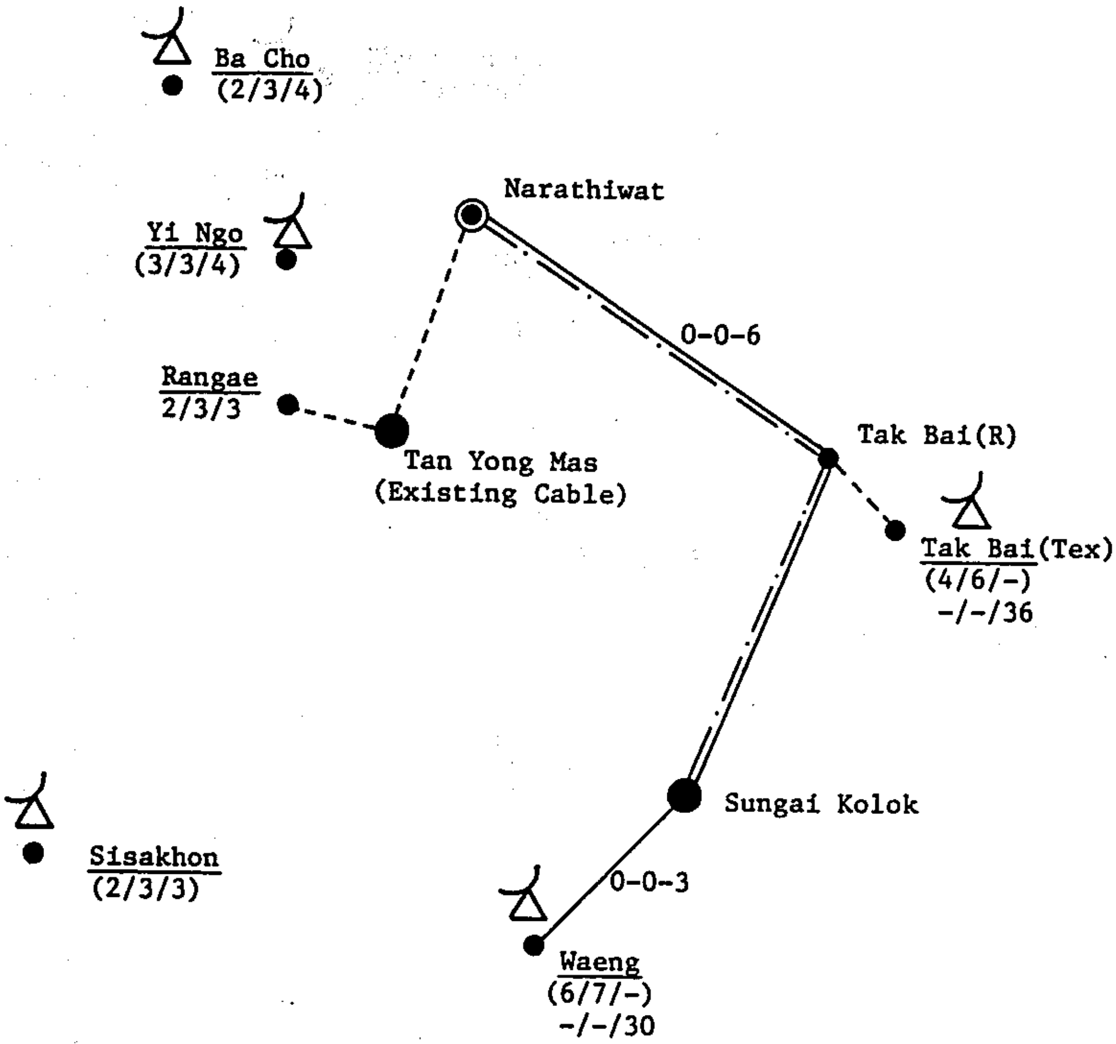
Circuit Assingment Diagram for Satellite System : Phetchabun Area(5628)



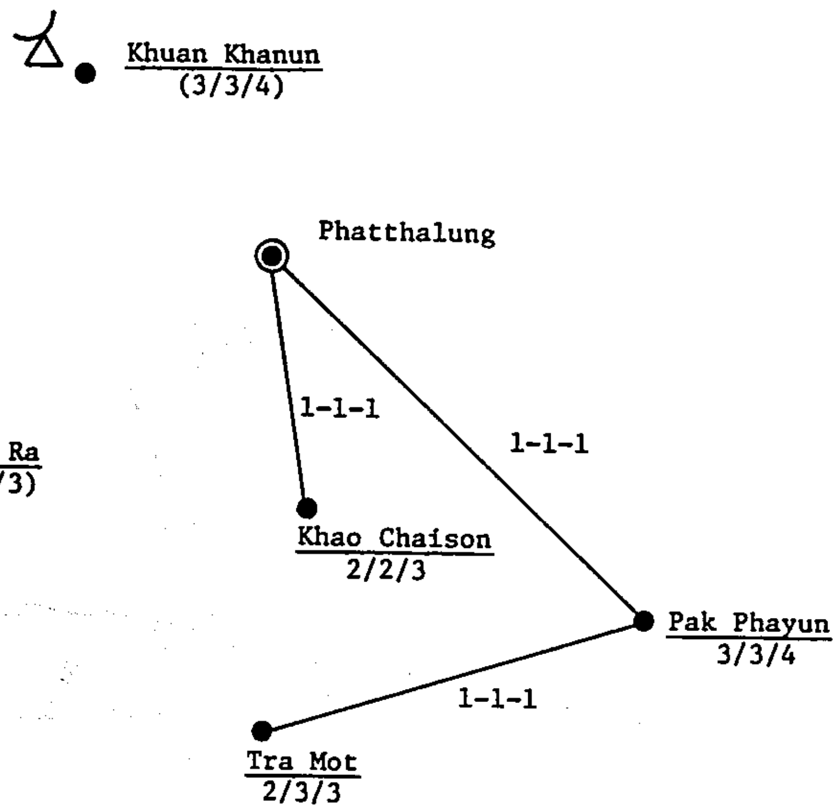
Circuit Assignment Diagram for Satellite System : Yala Area(7301)



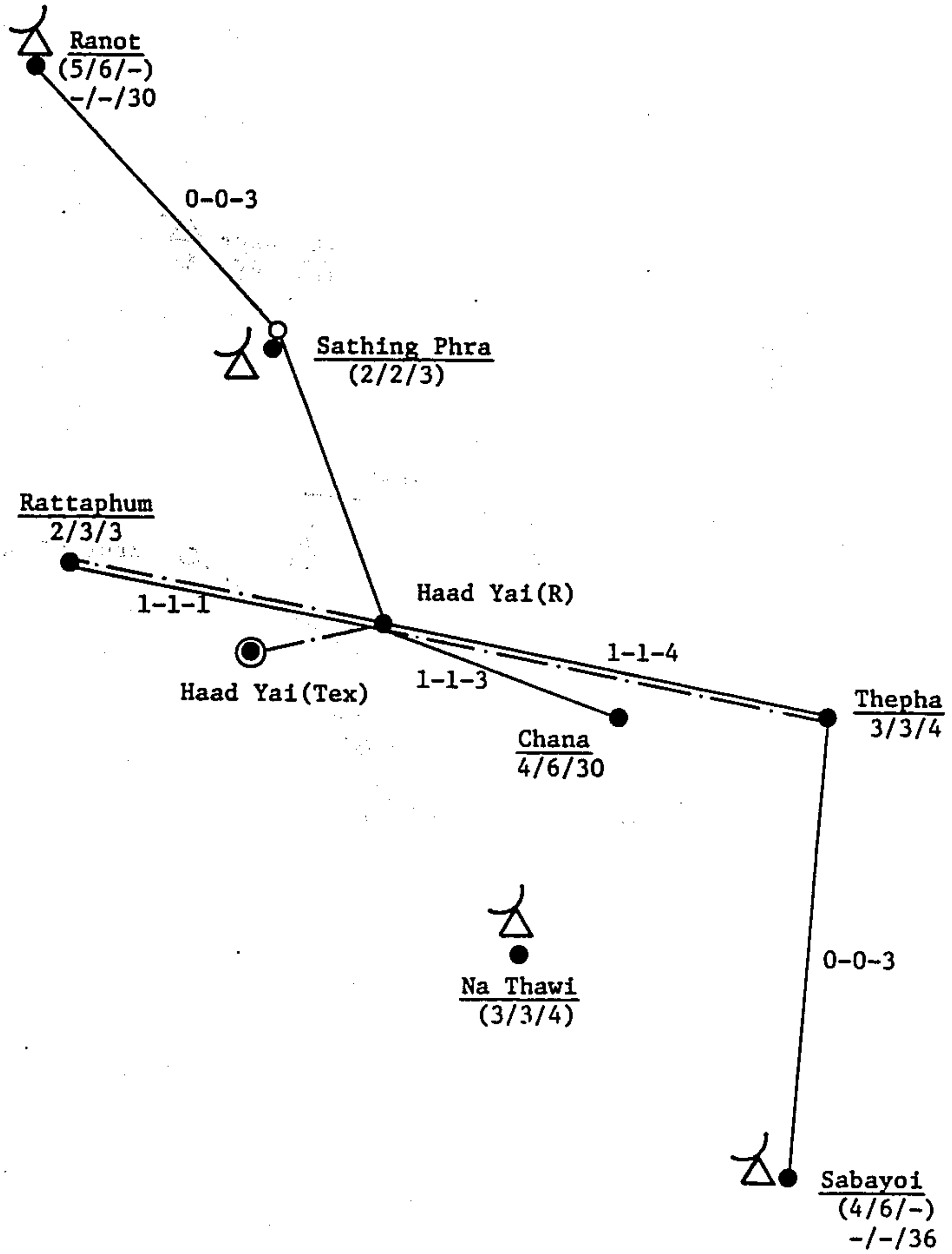
Circuit Assignment Diagram for Satellite System : Pattani Area(7313)



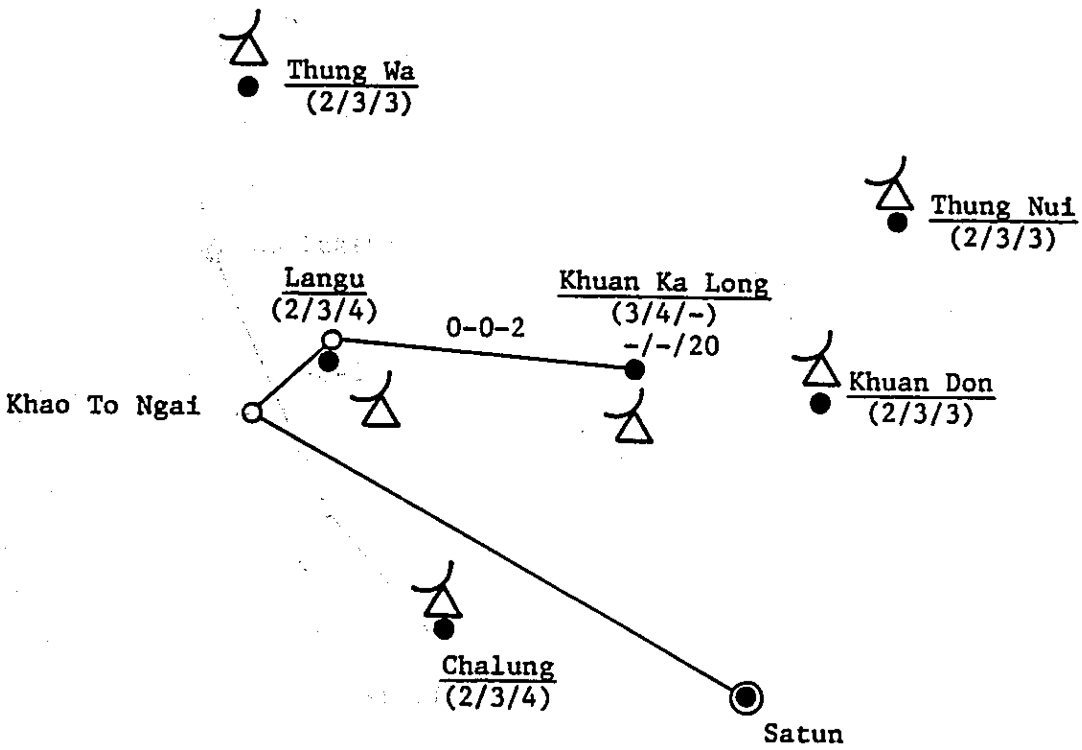
Circuit Assignment Diagram for Satellite System : Narathiwat Area(7314)



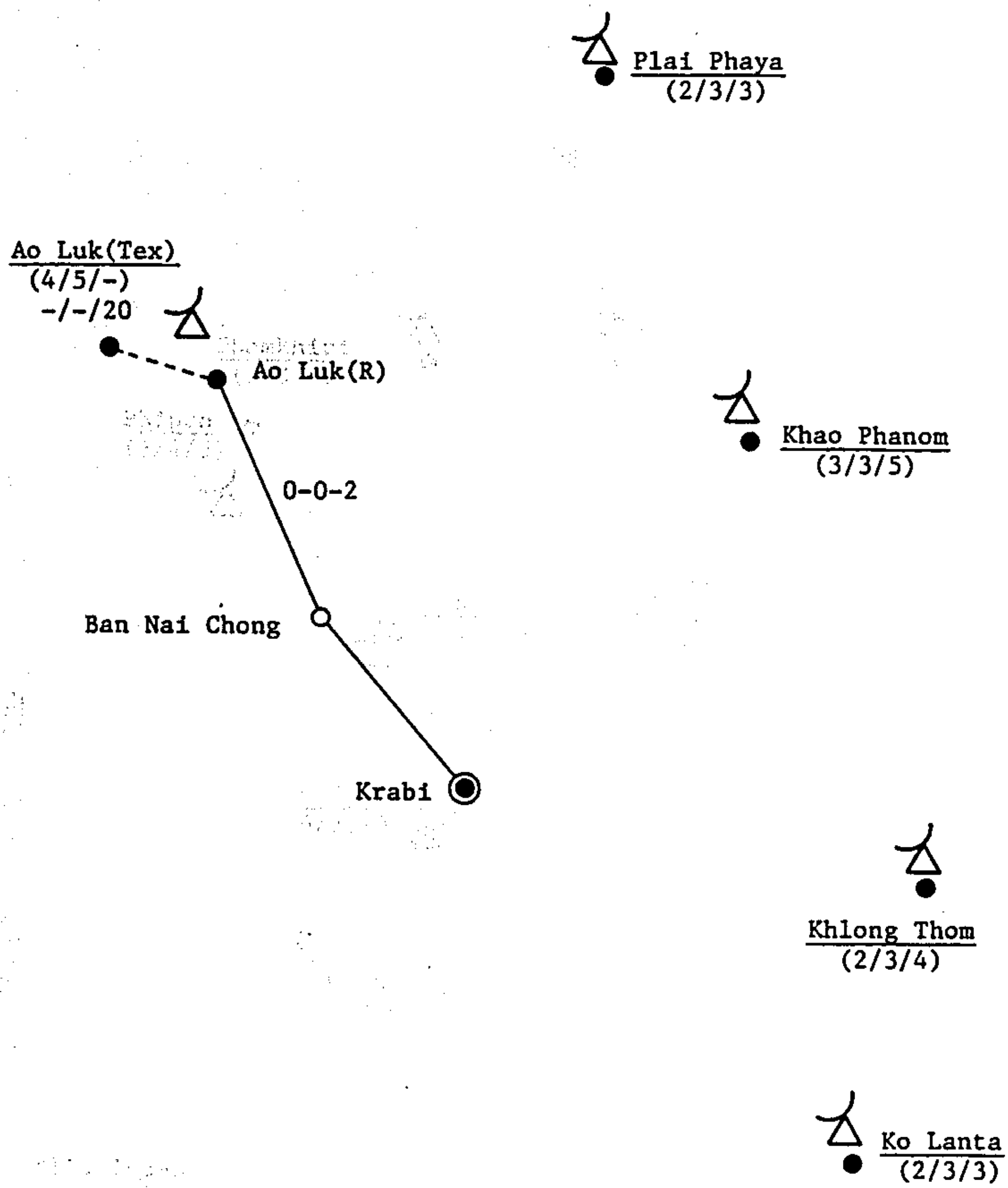
Circuit Assignment Diagram for Satellite System : Phatthalung Area(7401)



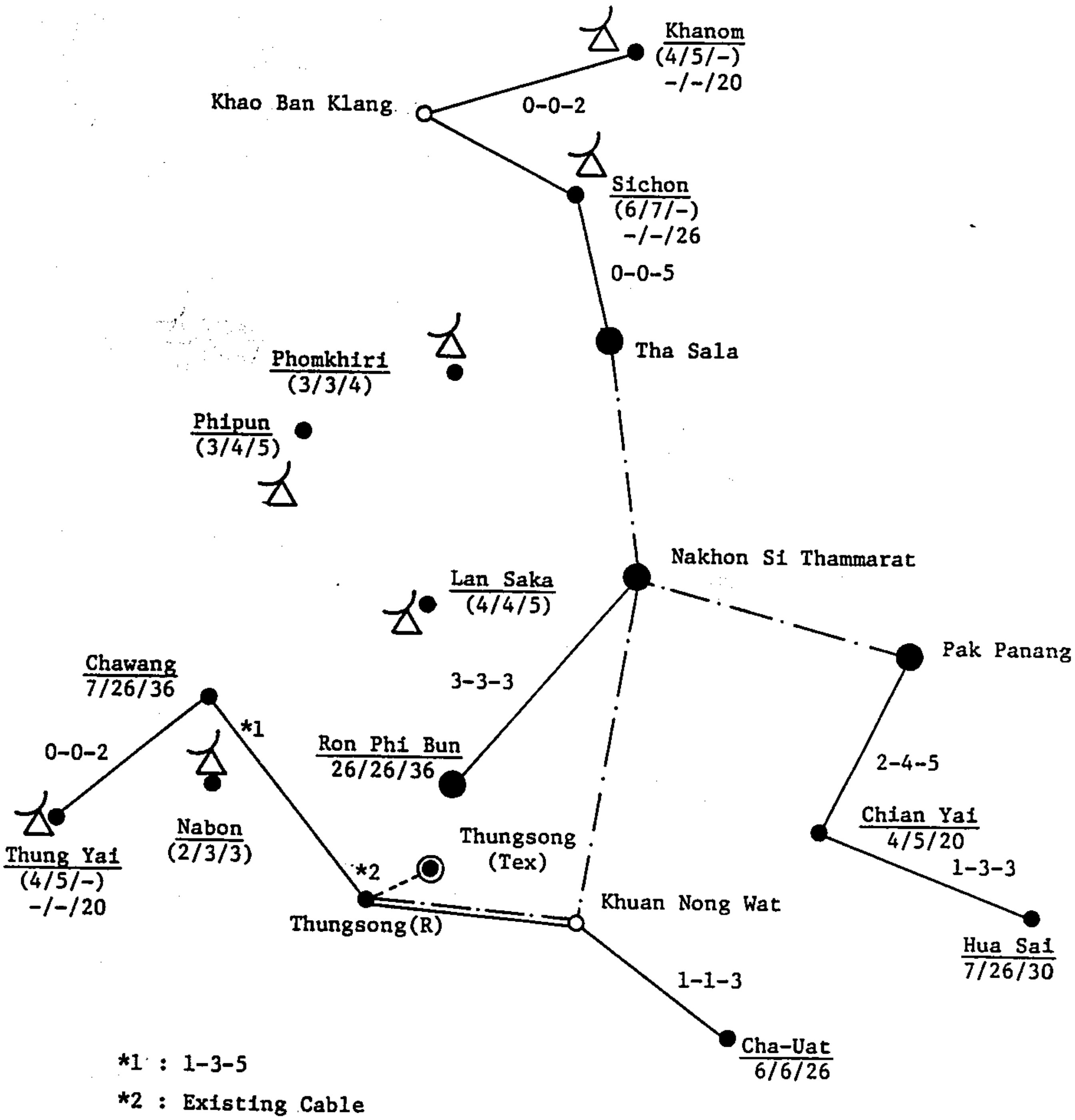
Circuit Assignment Diagram for Satellite System : Haad Yai Area(7405)



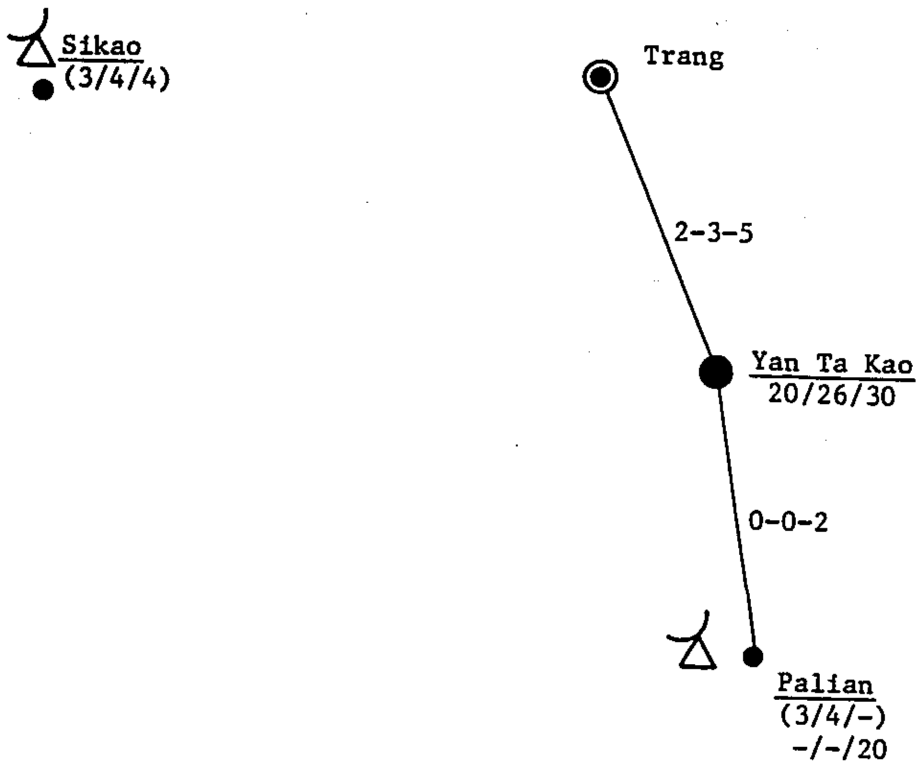
Circuit Assignment Diagram for Satellite System : Satun Area(7406)



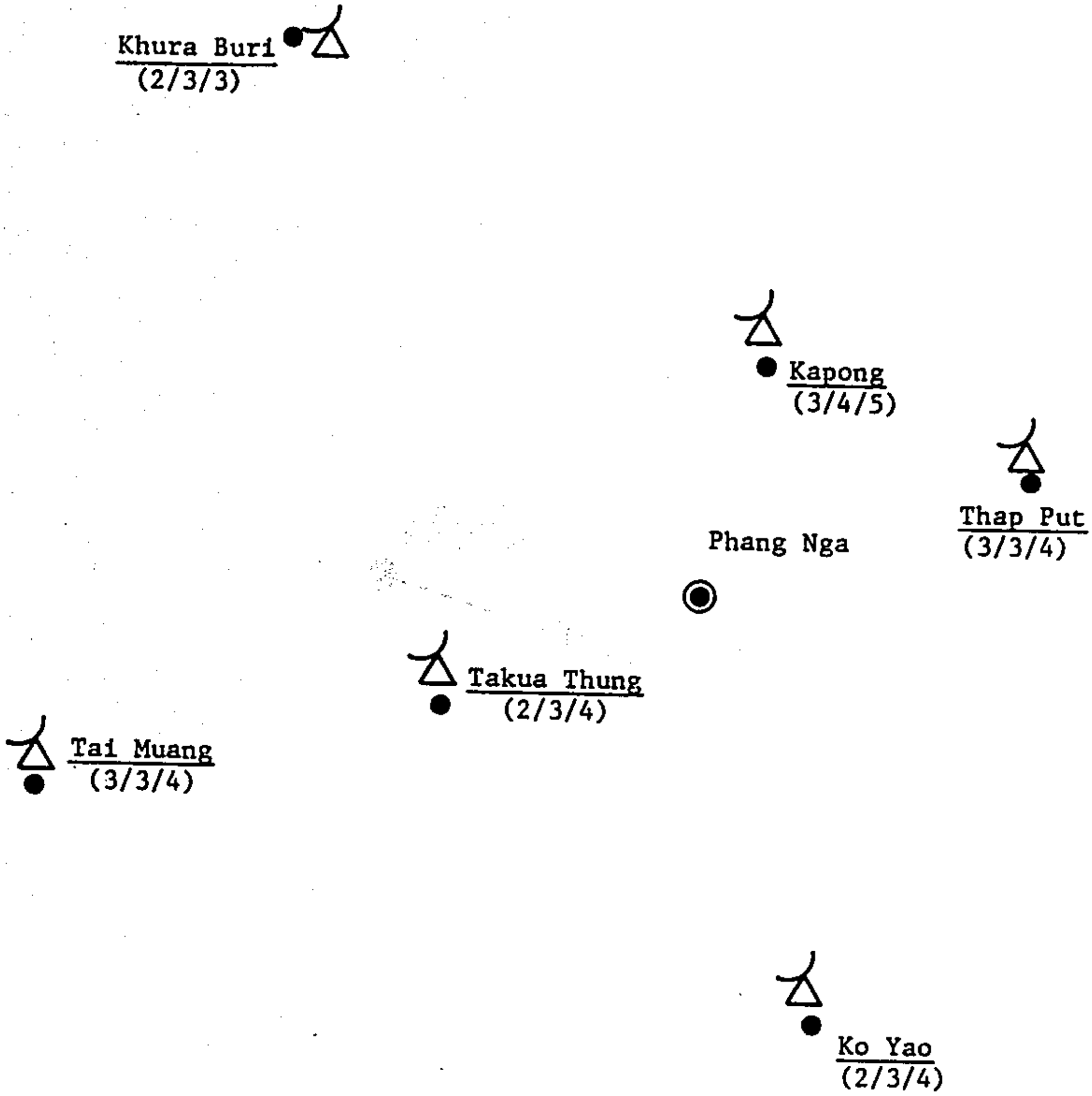
Circuit Assignment Diagram for Satellite System : Krabi Area(7501)



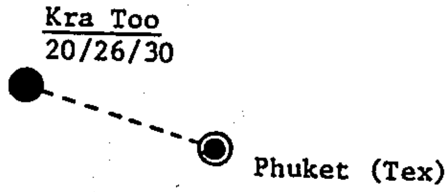
Circuit Assignment Diagram for Satellite System : Thungsong Area(7505)



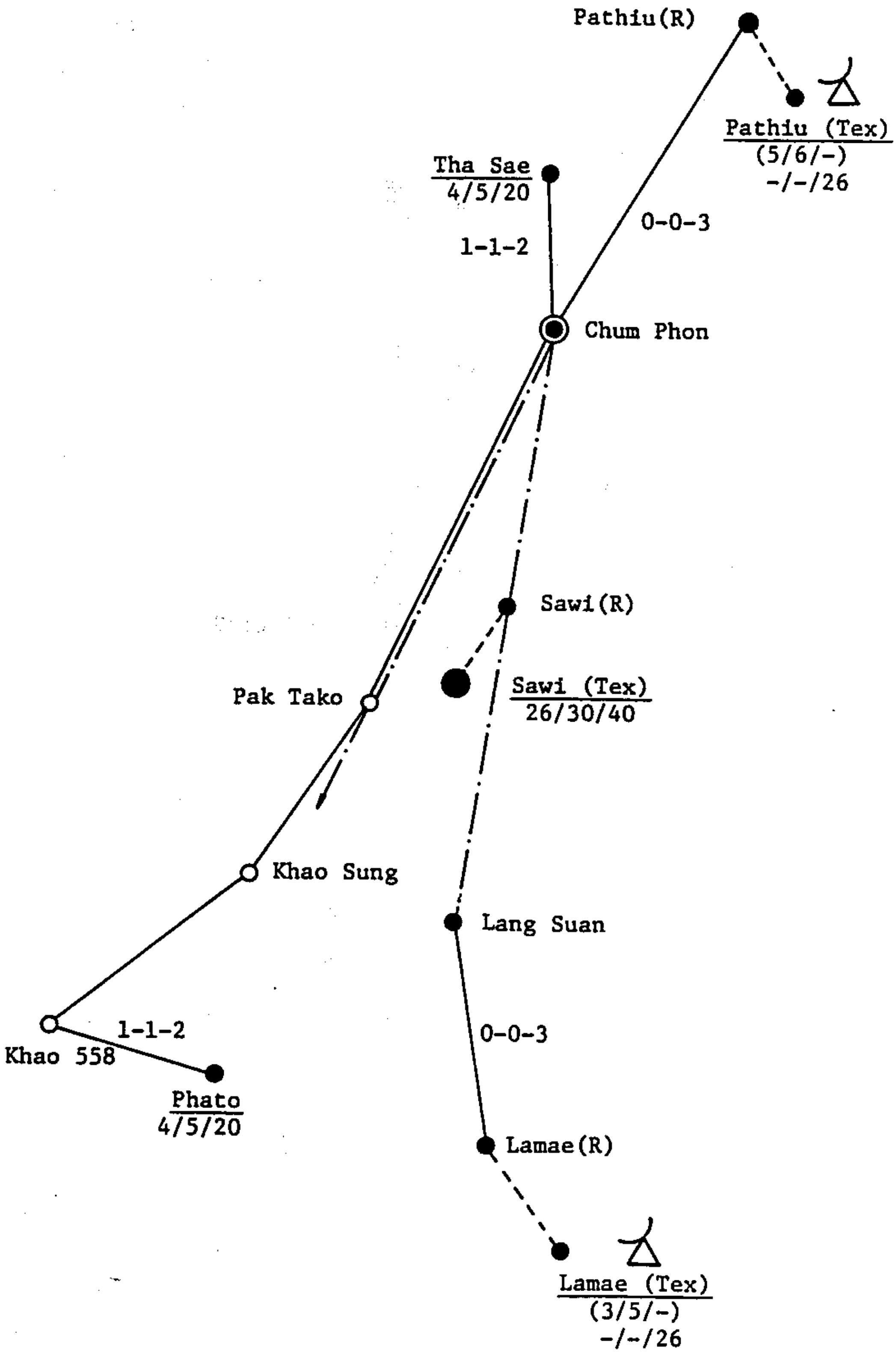
Circuit Assignment Diagram for Satellite System : Trang Area(7523)



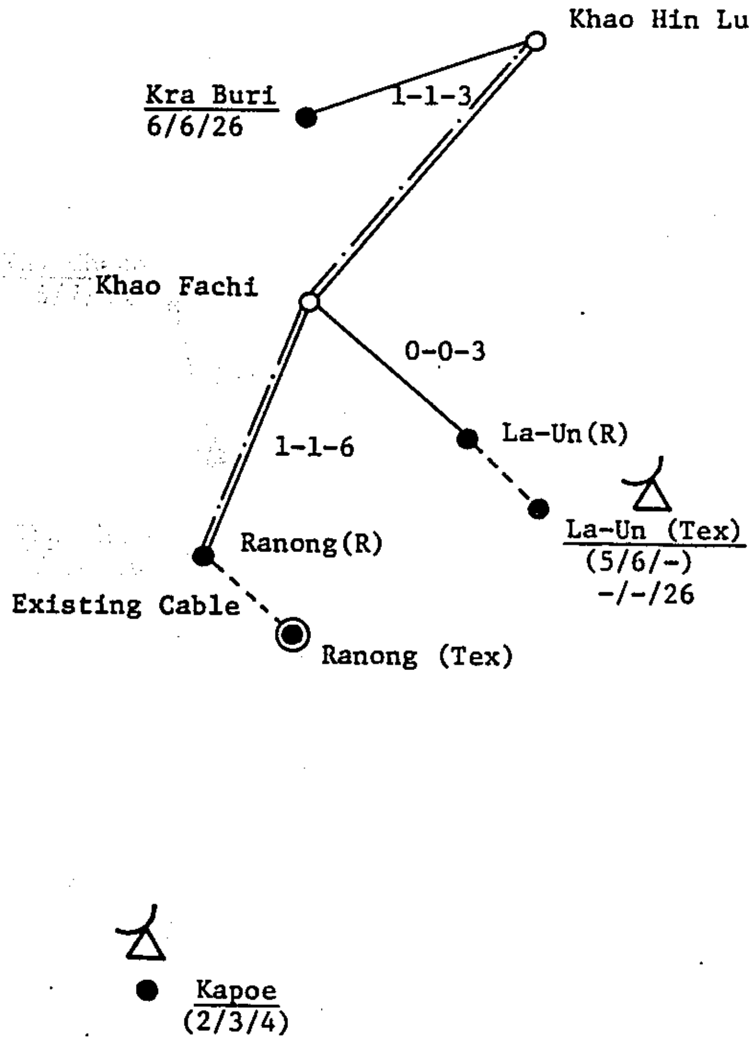
Circuit Assignment Diagram for Satellite System : Phang Nga Area(7601)



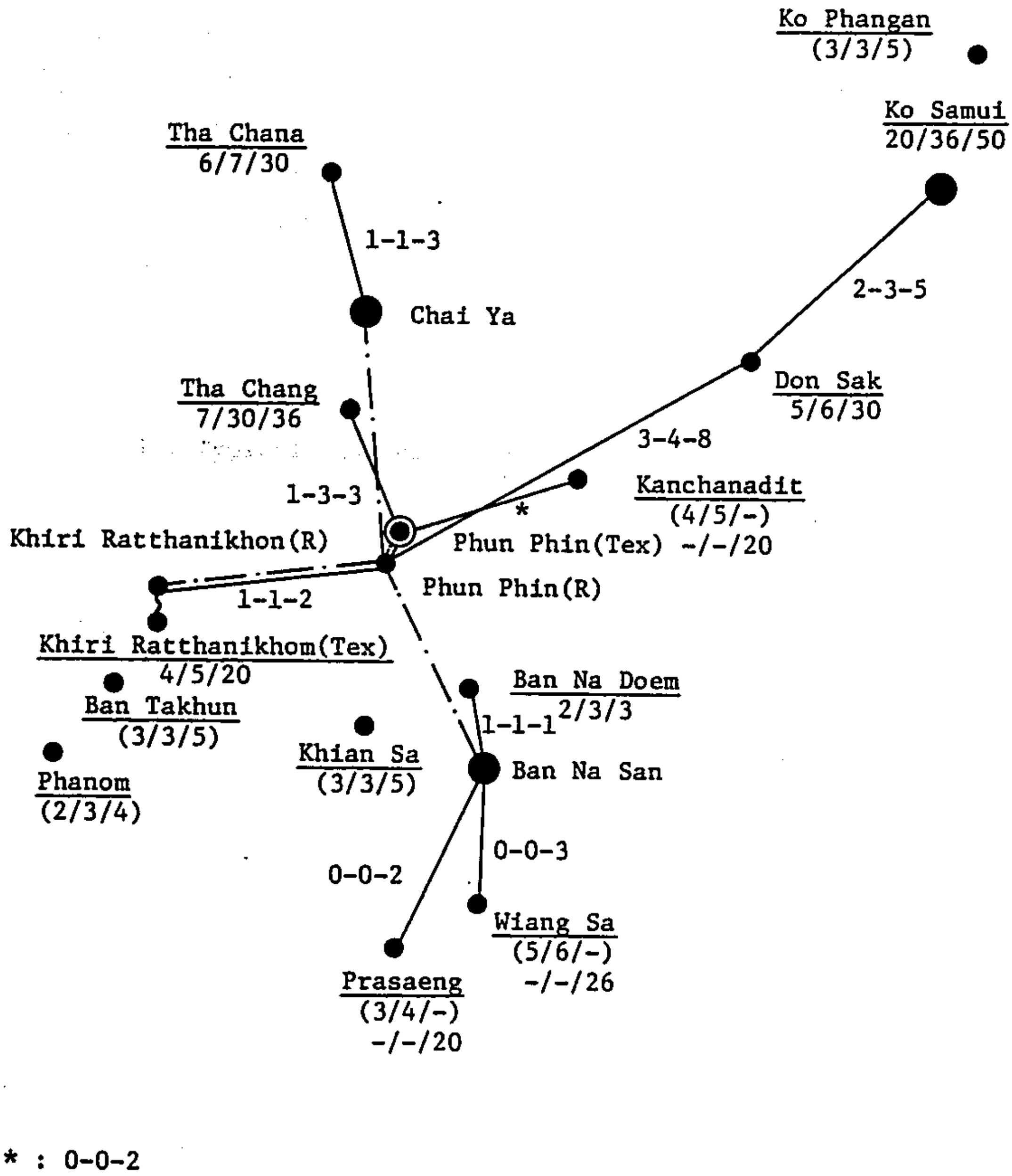
Circuit Assignment Diagram for Satellite System : Phuket Area(7609)



Circuit Assignment Diagram for Satellite System : Chum Phon Area(7701)



Circuit Assignment Diagram for Satellite System : Ranong Area(7707)



Circuit Assignment Diagram for Satellite System : Phun Phin Area(7711)

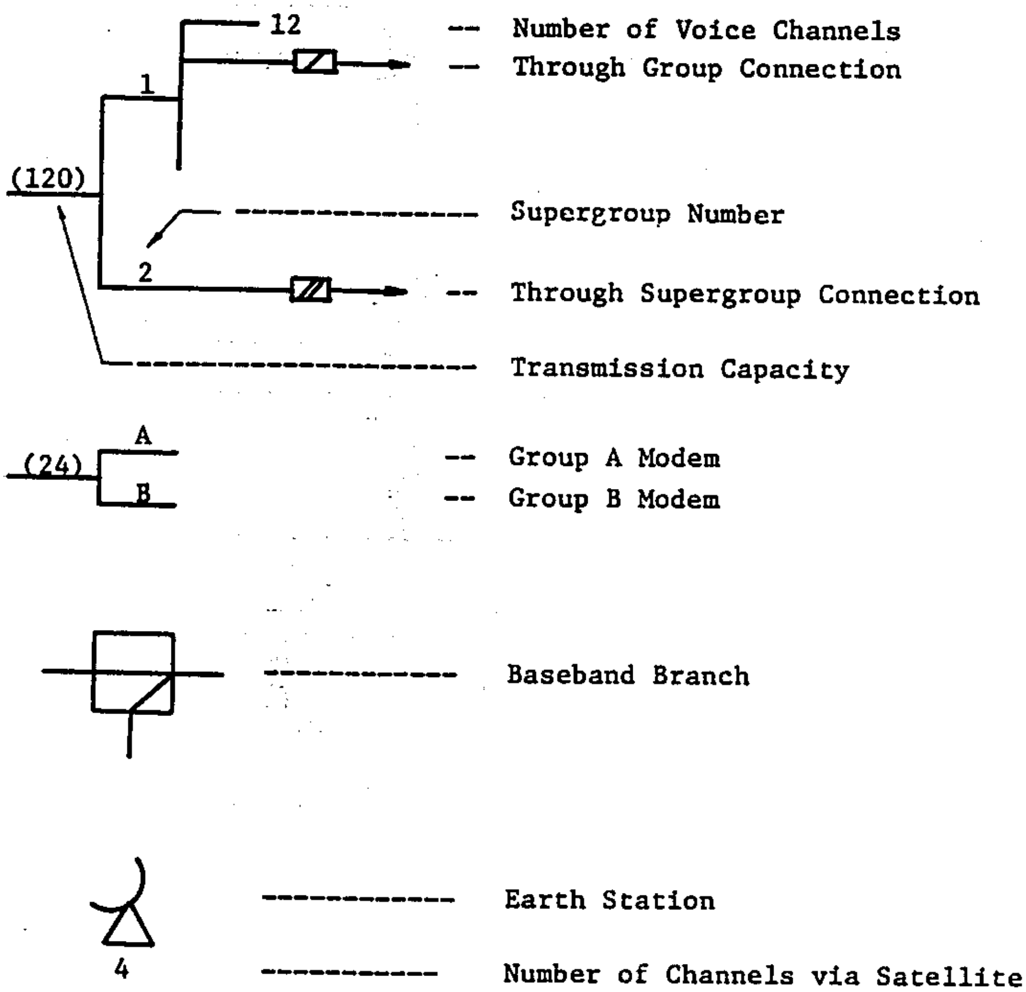
11. Typical Channel Accommodation Plan

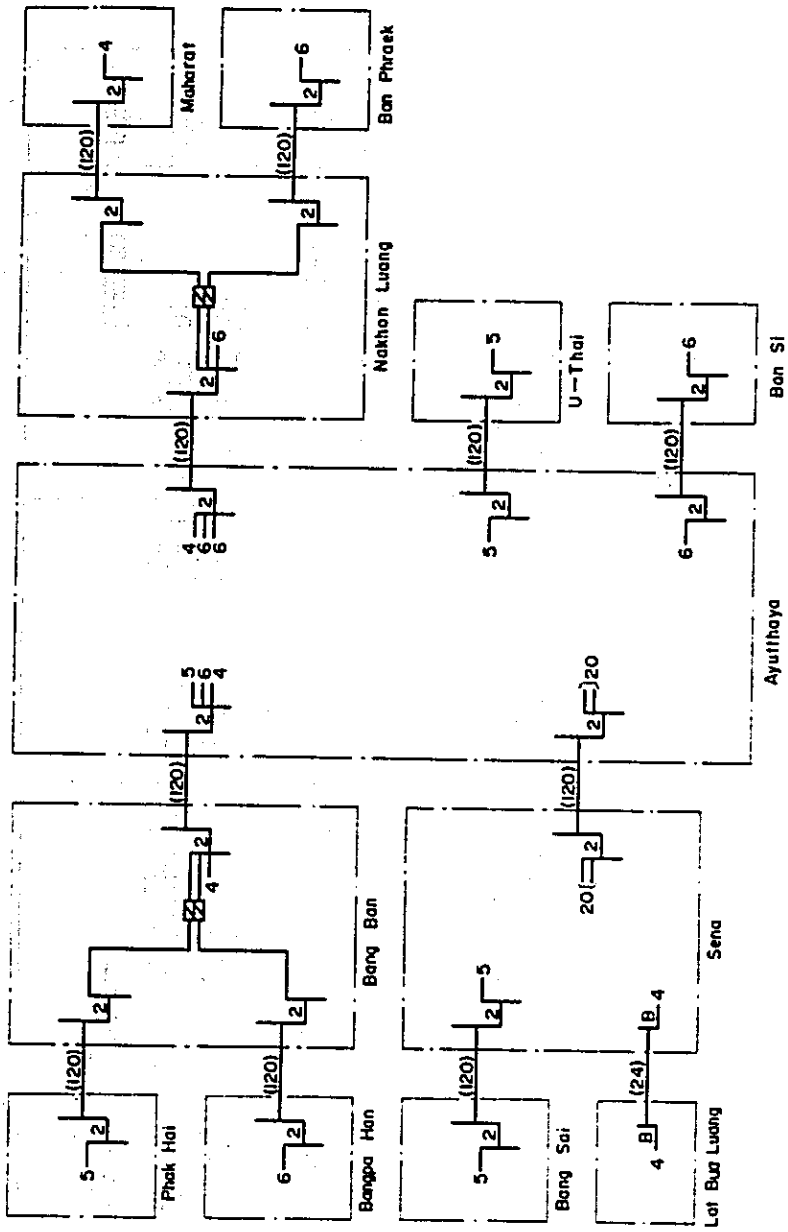
Contents for Typical Channel Accommodation Plan

Typical Channel Accommodation Plan for Terrestrial System

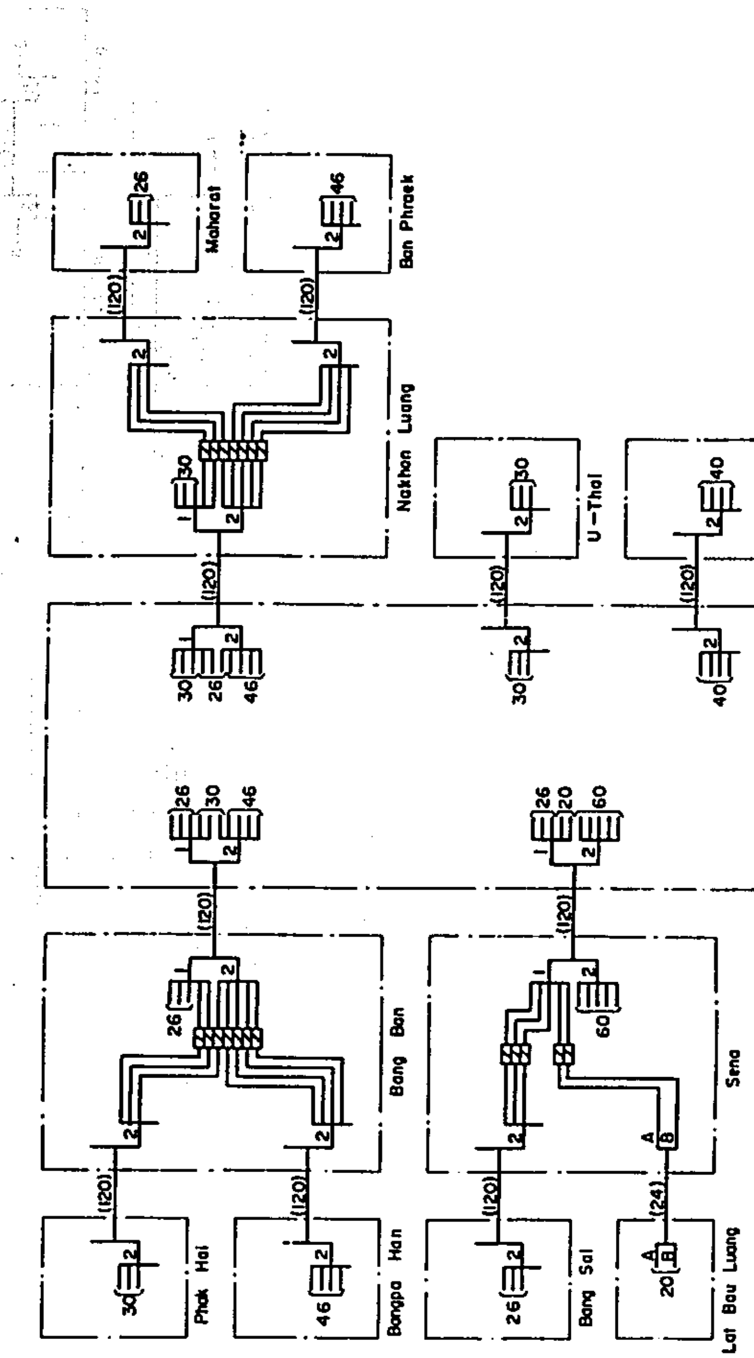
Typical Channel Accommodation Plan For Satellite System

Legend:

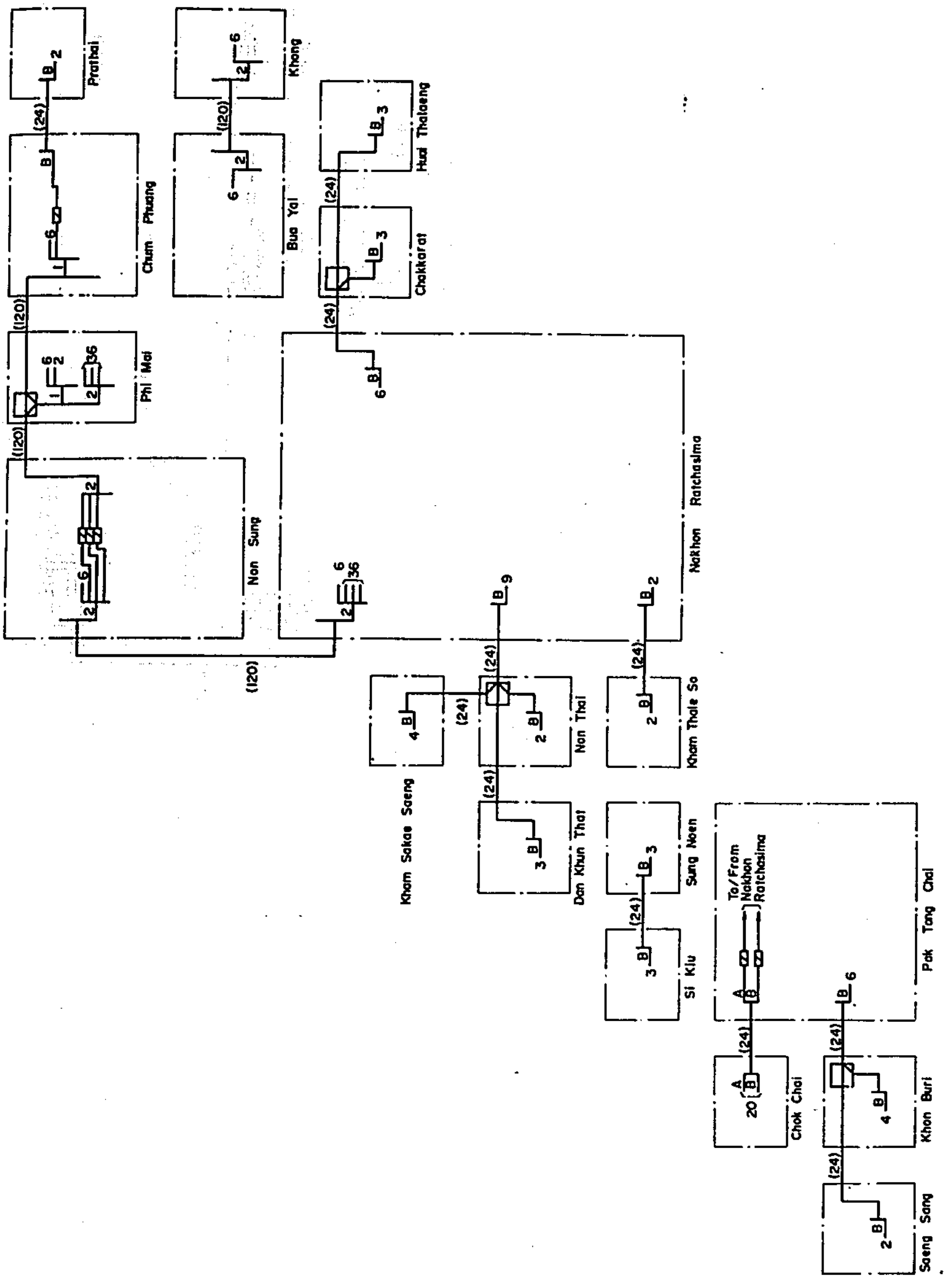

12
1
(120)
2
(24)
A
B
4
-- Number of Voice Channels
-- Through Group Connection
Supergroup Number
-- Through Supergroup Connection
Transmission Capacity
-- Group A Modem
-- Group B Modem
Baseband Branch
Earth Station
Number of Channels via Satellite



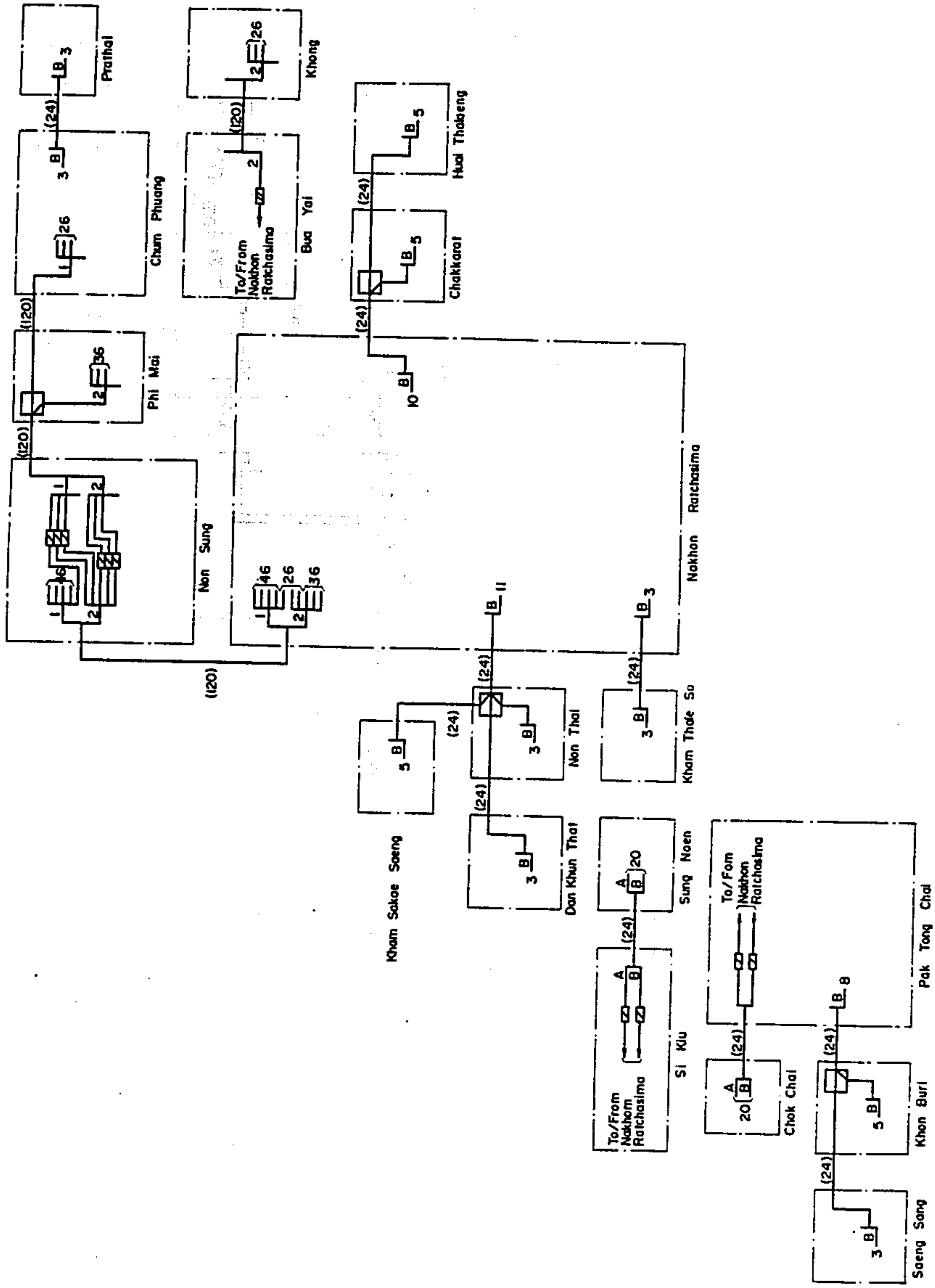
Typical Channel Accommodation Plan for Terrestrial System (Initial Stage) : Ayutthaya Area (3516)



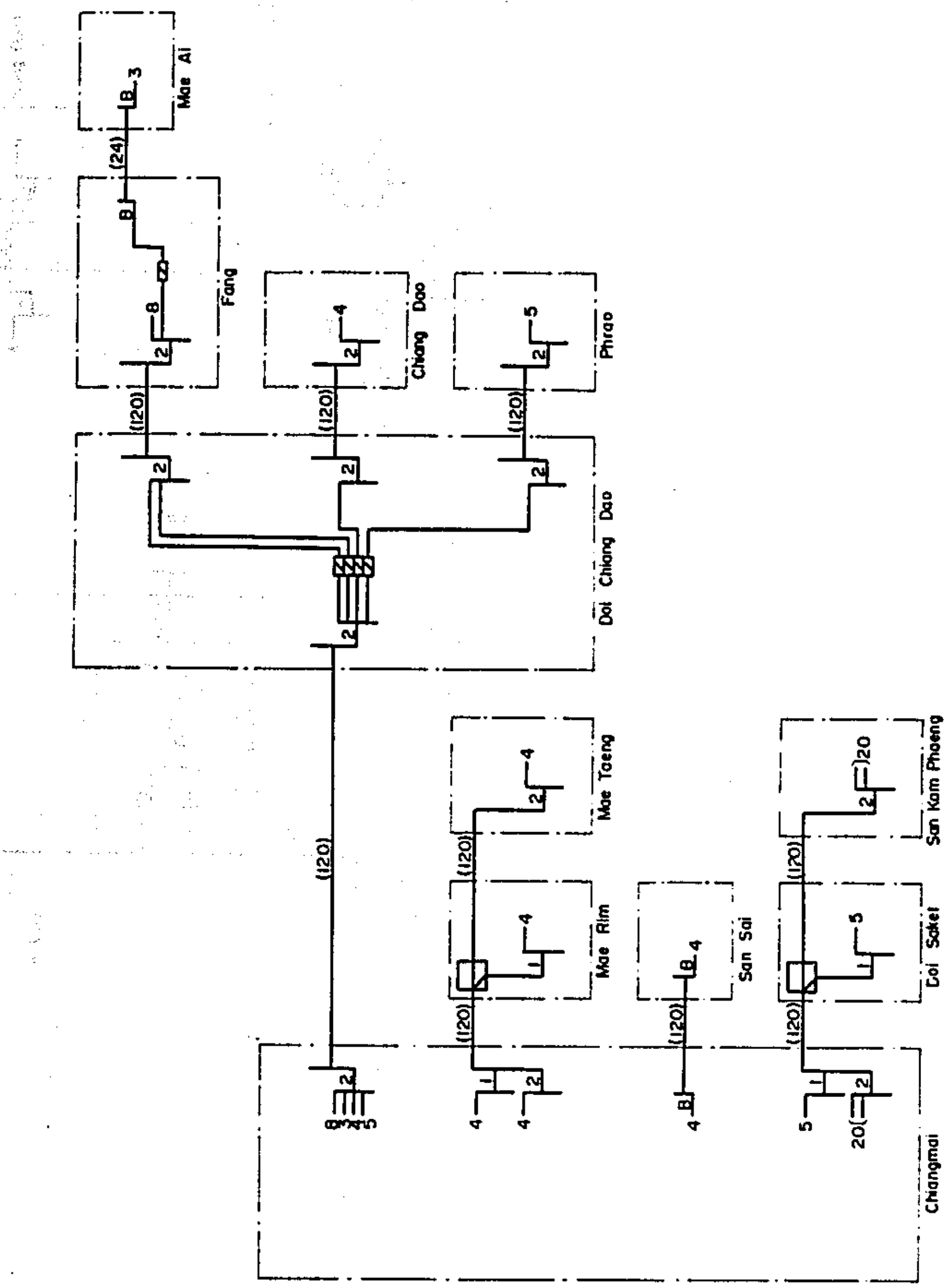
Typical Cannel Accommodation Plan for Terrestrial System (final Stage) :
Ayutthaya Area (3515)



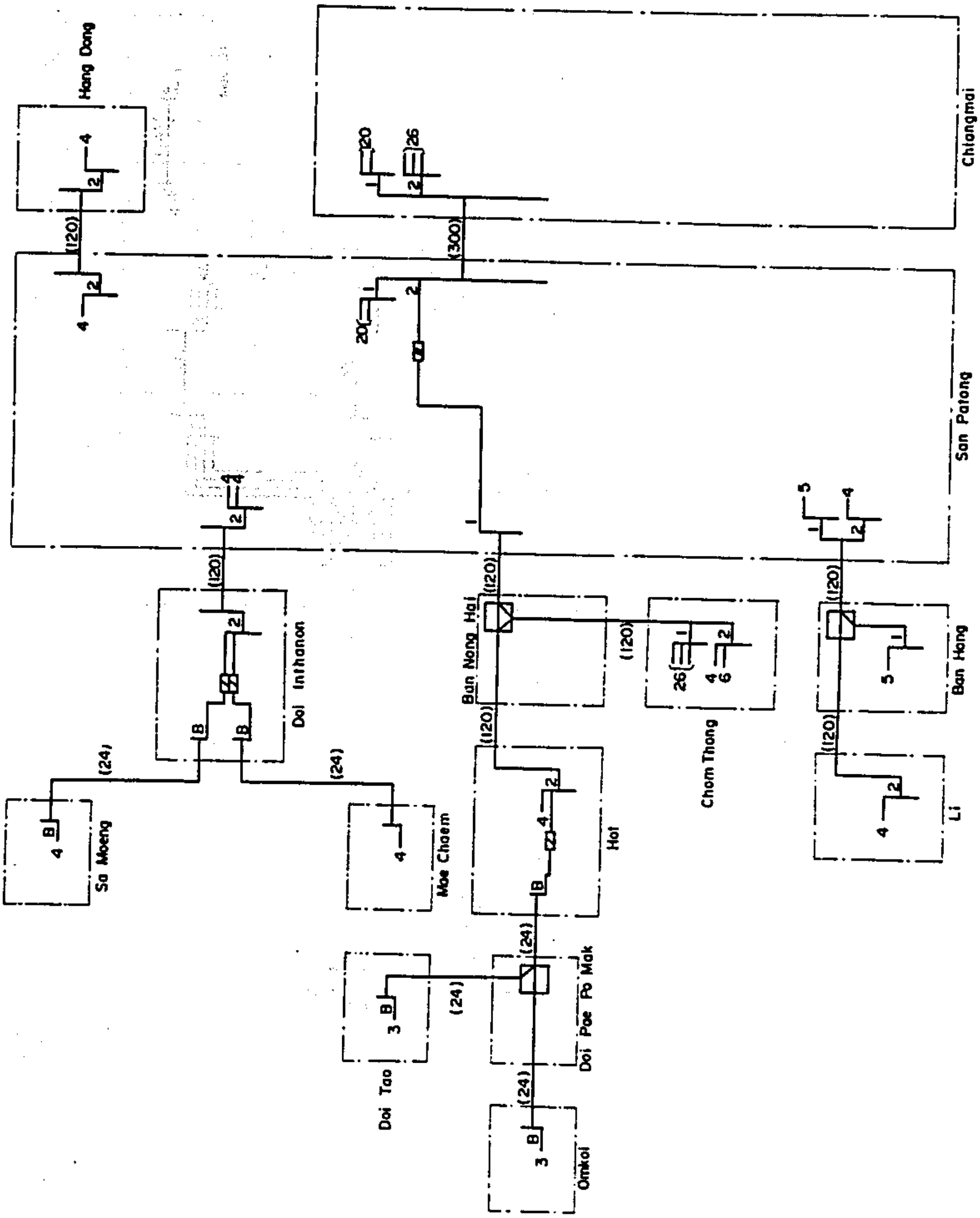
Typical Channel Accommodation Plan for Terrestrial System (Initial Stage) : Nakhon Ratchasima Area (4421)



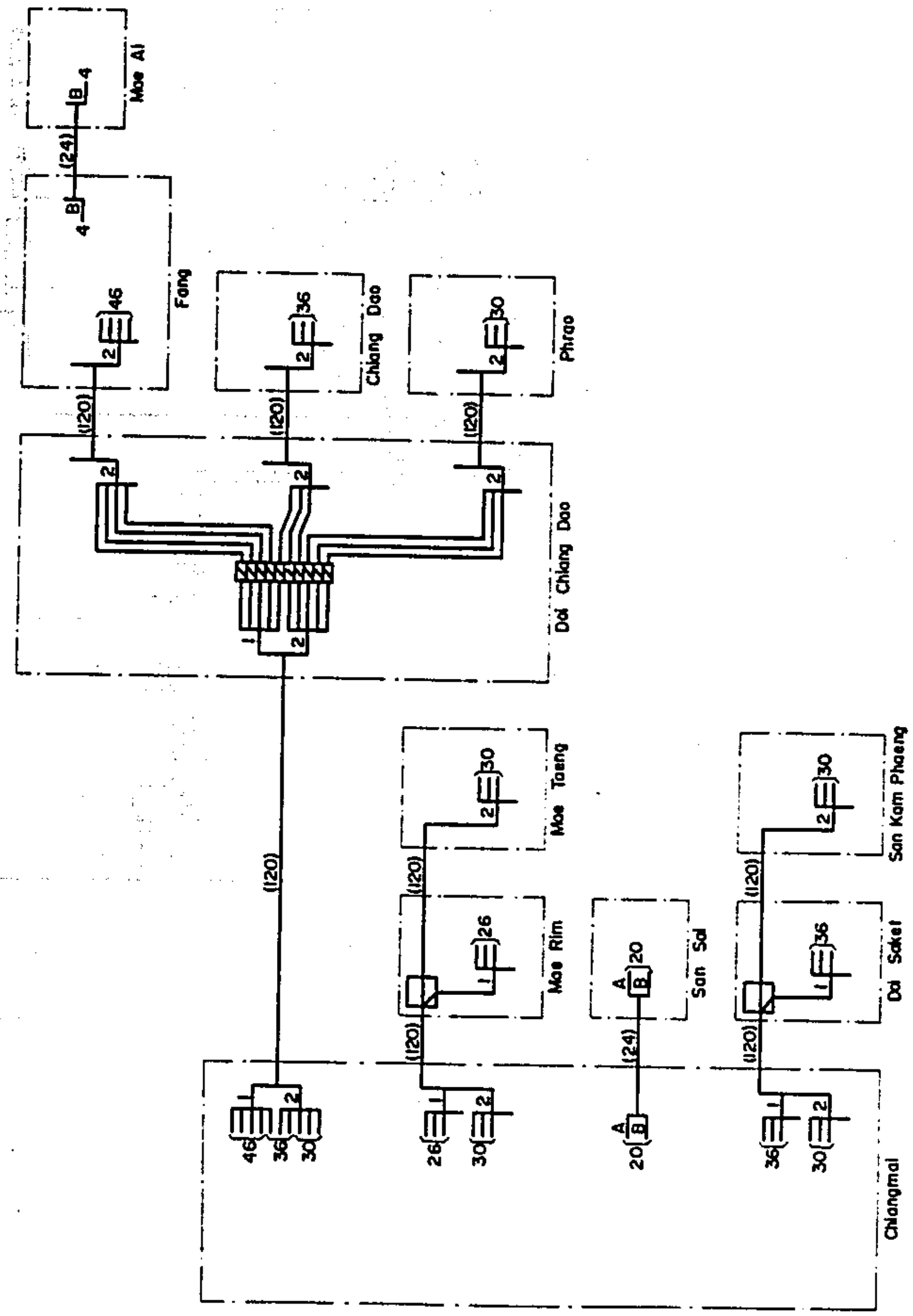
Typical Channel Accommodation Plan for Terrestrial System (Final Stage) :
Nakhon Ratchasima Area (4421)



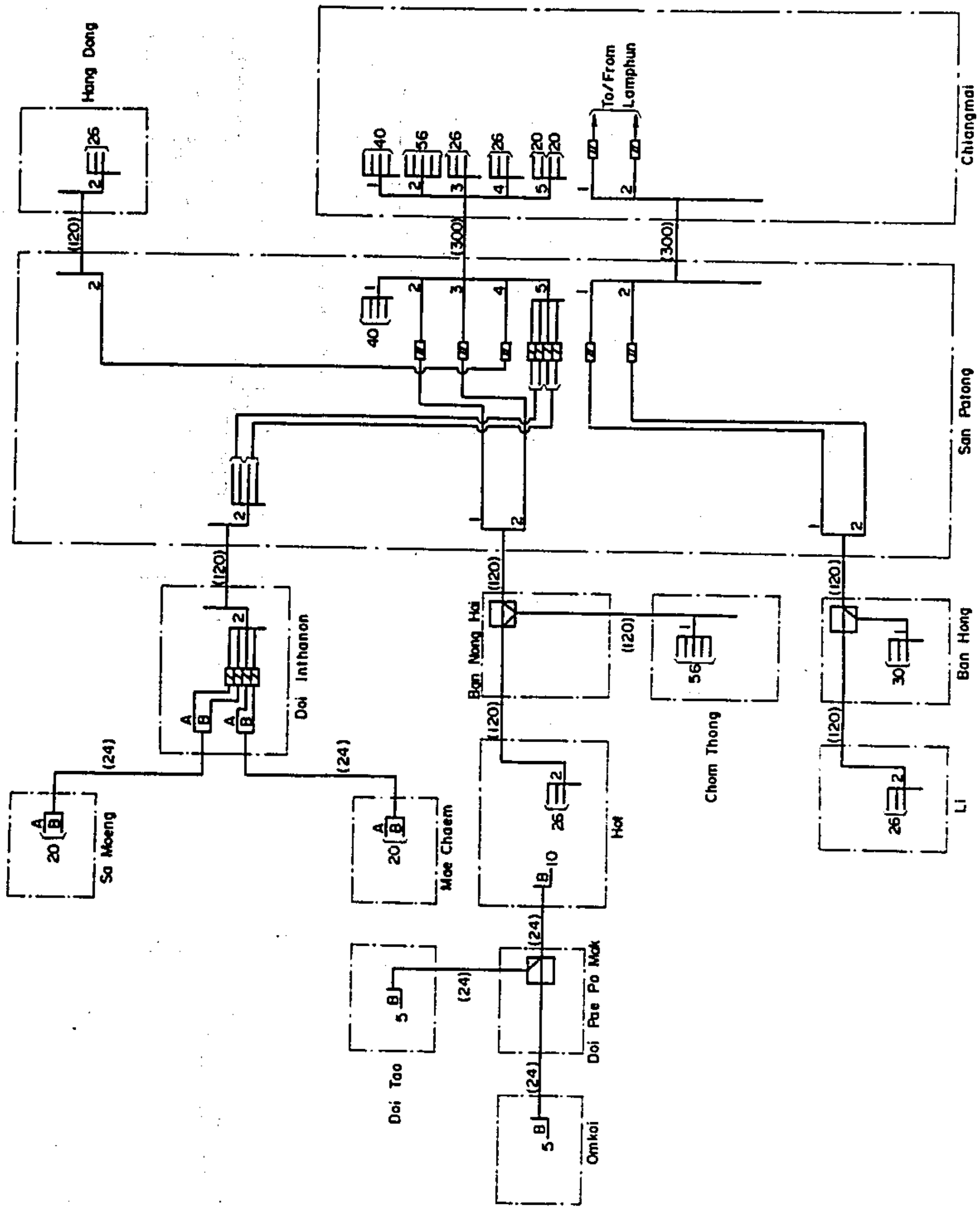
Typical Channel Accommodation Plan for Terrestrial System (Initial Stage) : Chiangmai Area (5313) 1/2



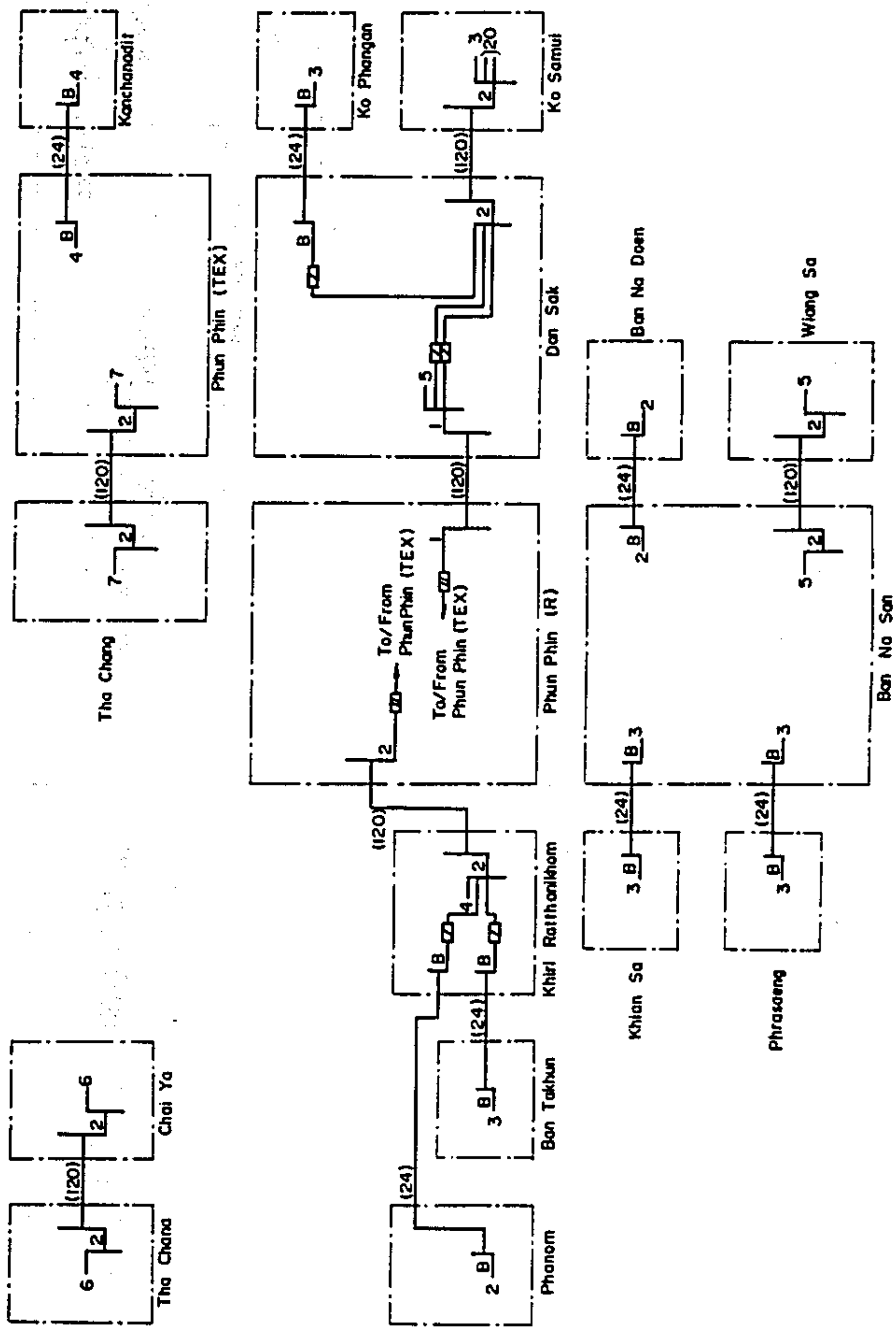
Typical Channel Accommodation Plan for Trrestrial System (Initial Stage) : Chiangmai Area (5313) 2/2



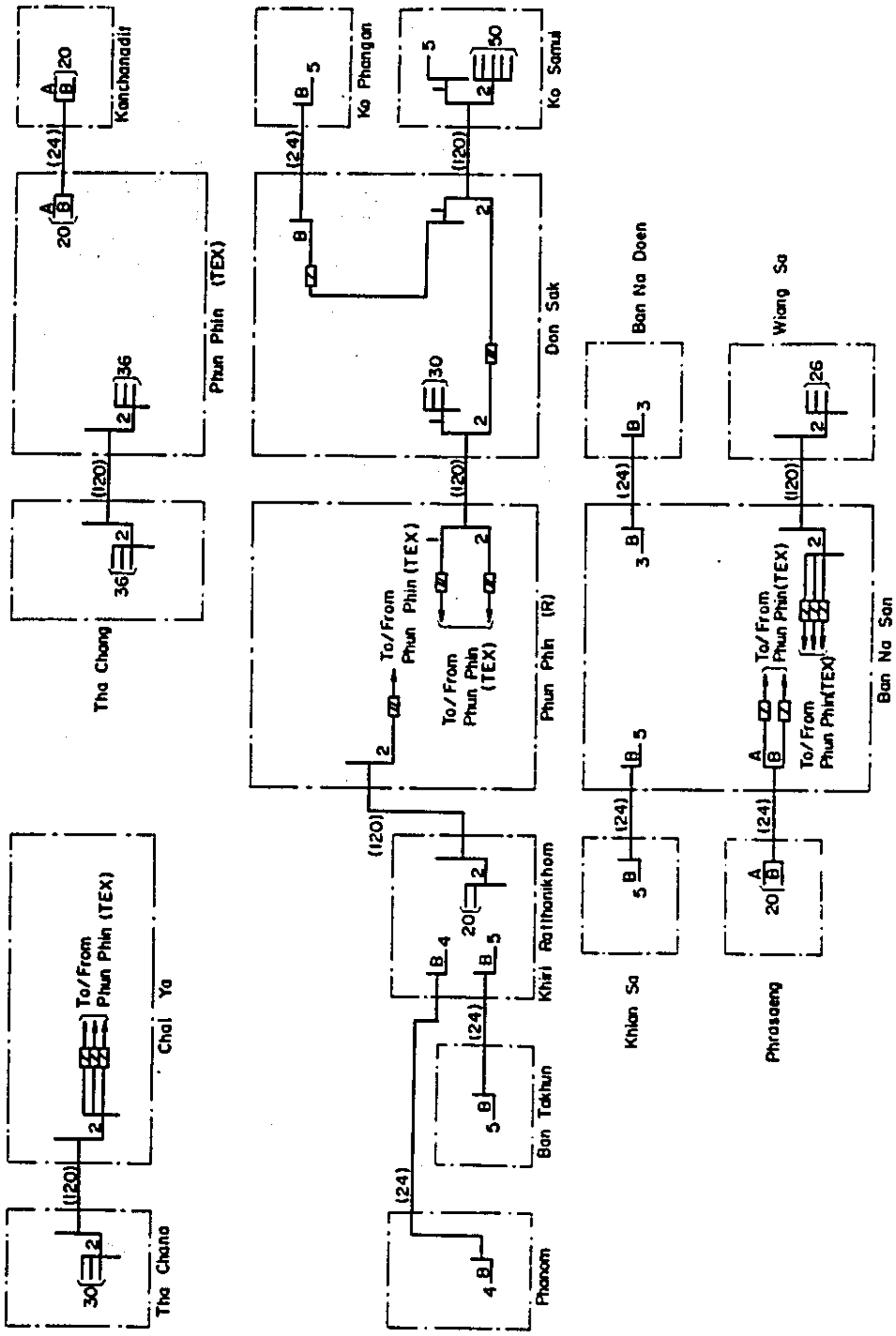
Typical Channel Accommodation Plan for Terrestrial System (Final Stage) :
Chiangmai Area (5313) 1/2



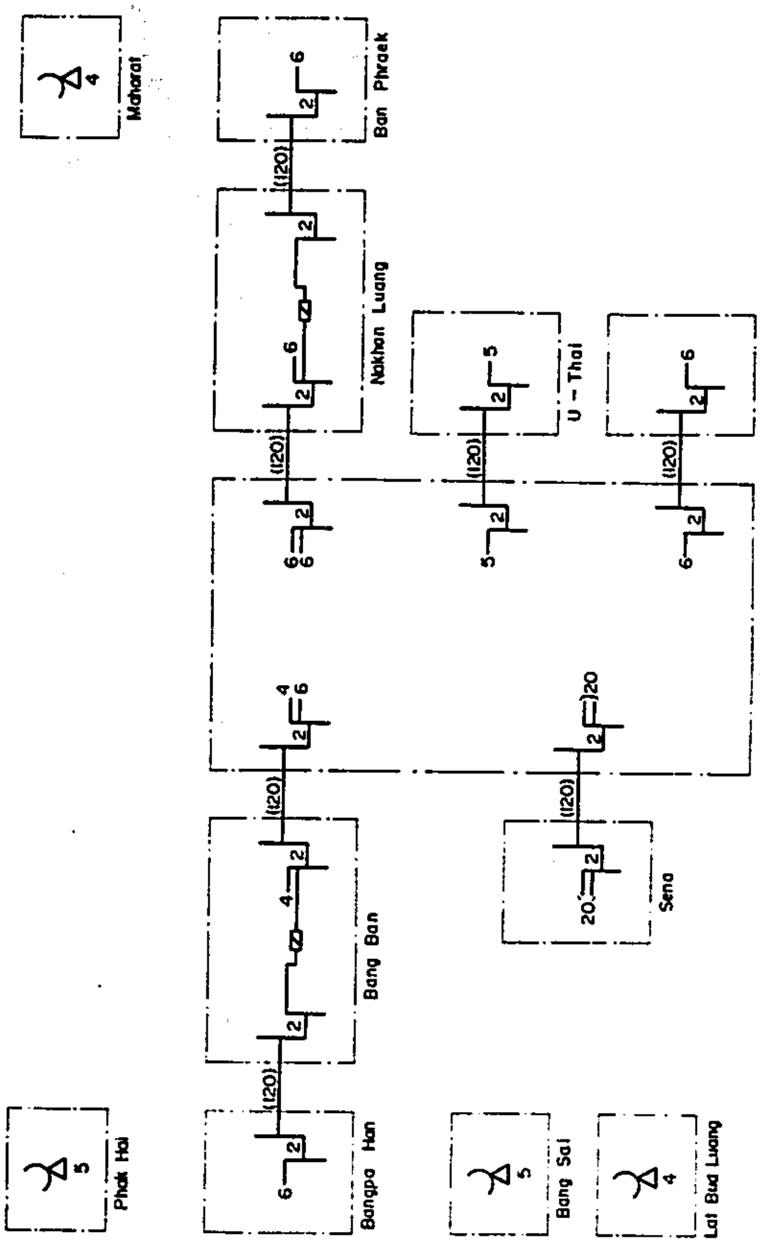
Typical Channel Accommodation Plan for Terrestrial System (Final Stage) :
Chiangmai Area (5313) 2/2



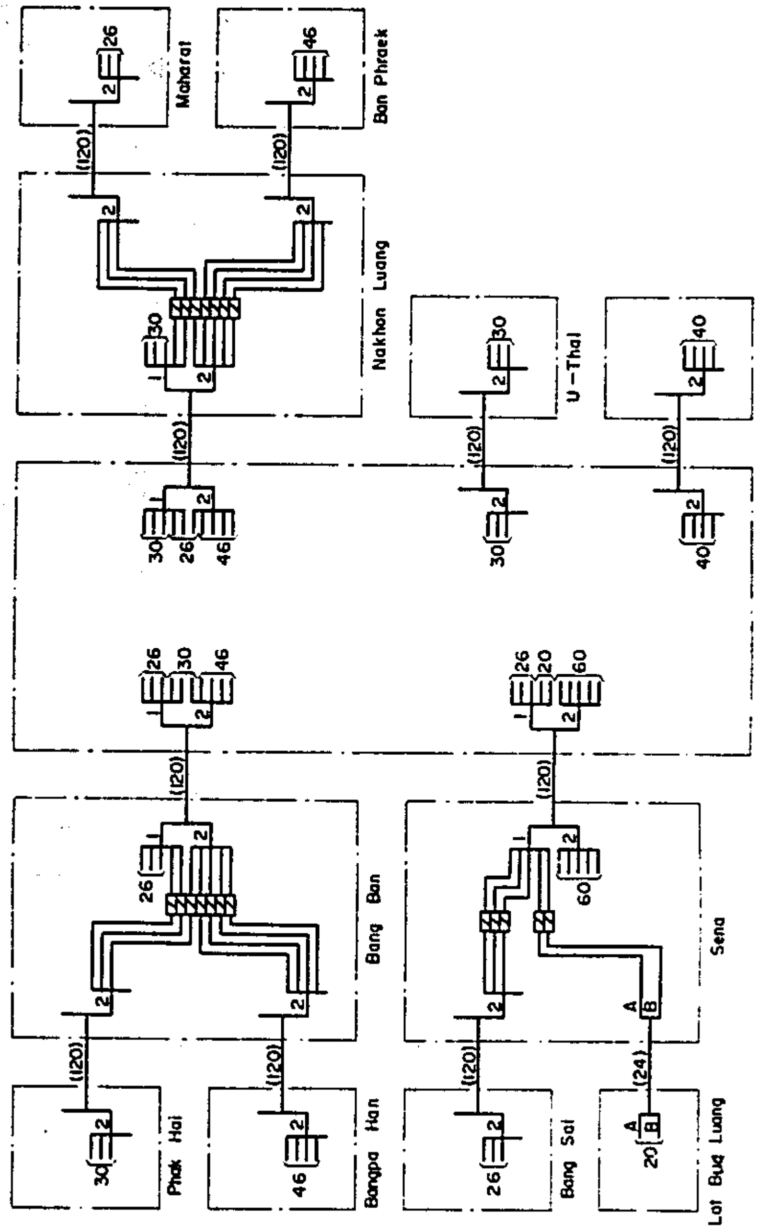
Typical Channel Accommodation Plan for Terrestrial System (Initial Stage) : Phun Phin Area (7711)



Typical Channel Accommodation Plan for Terrestrial System (Final Stage) :
Phun Phin Area (7711)

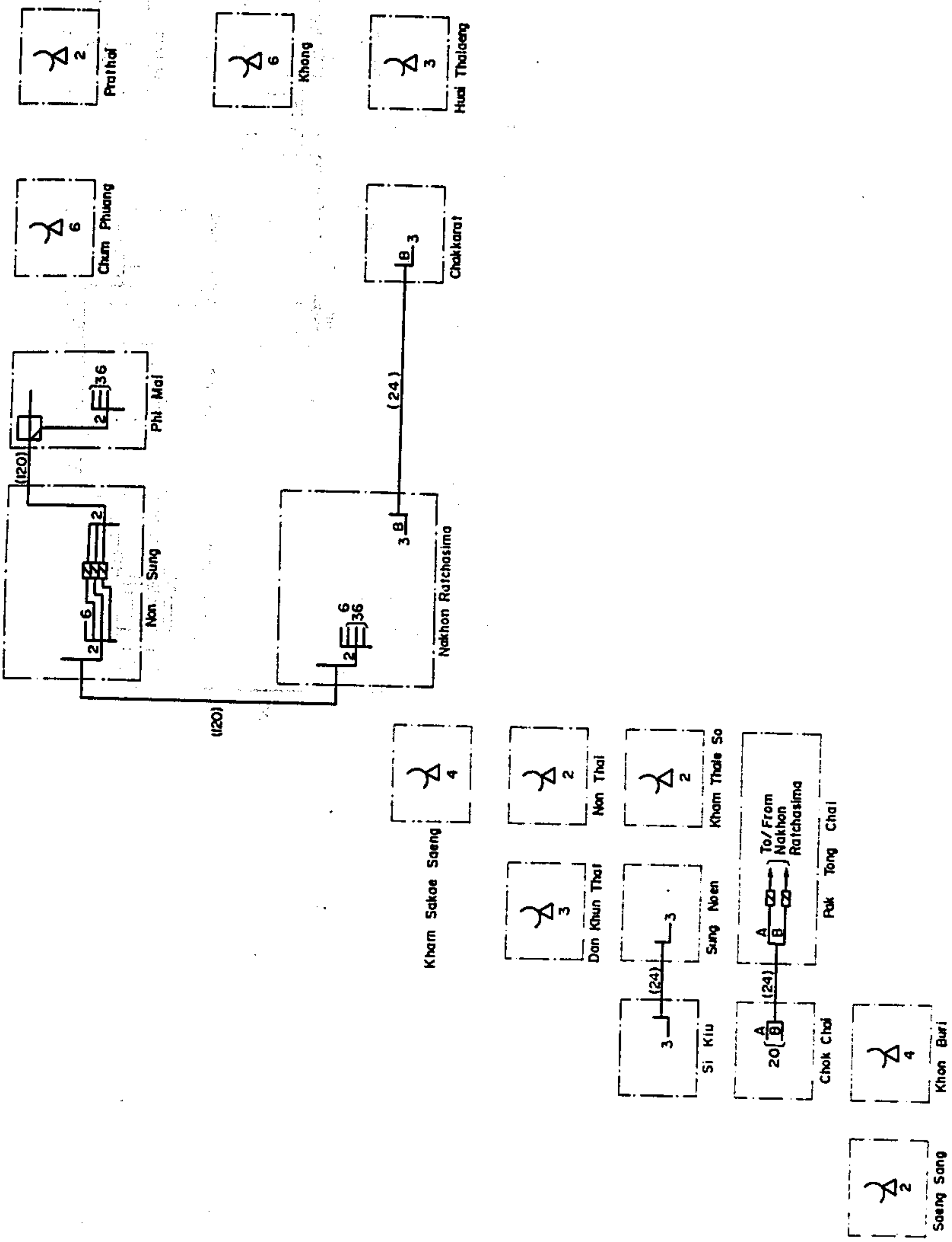


Typical Channel Accommodation Plan for Satellite System (Initial Stage) :
Ayutthaya Area (3516)

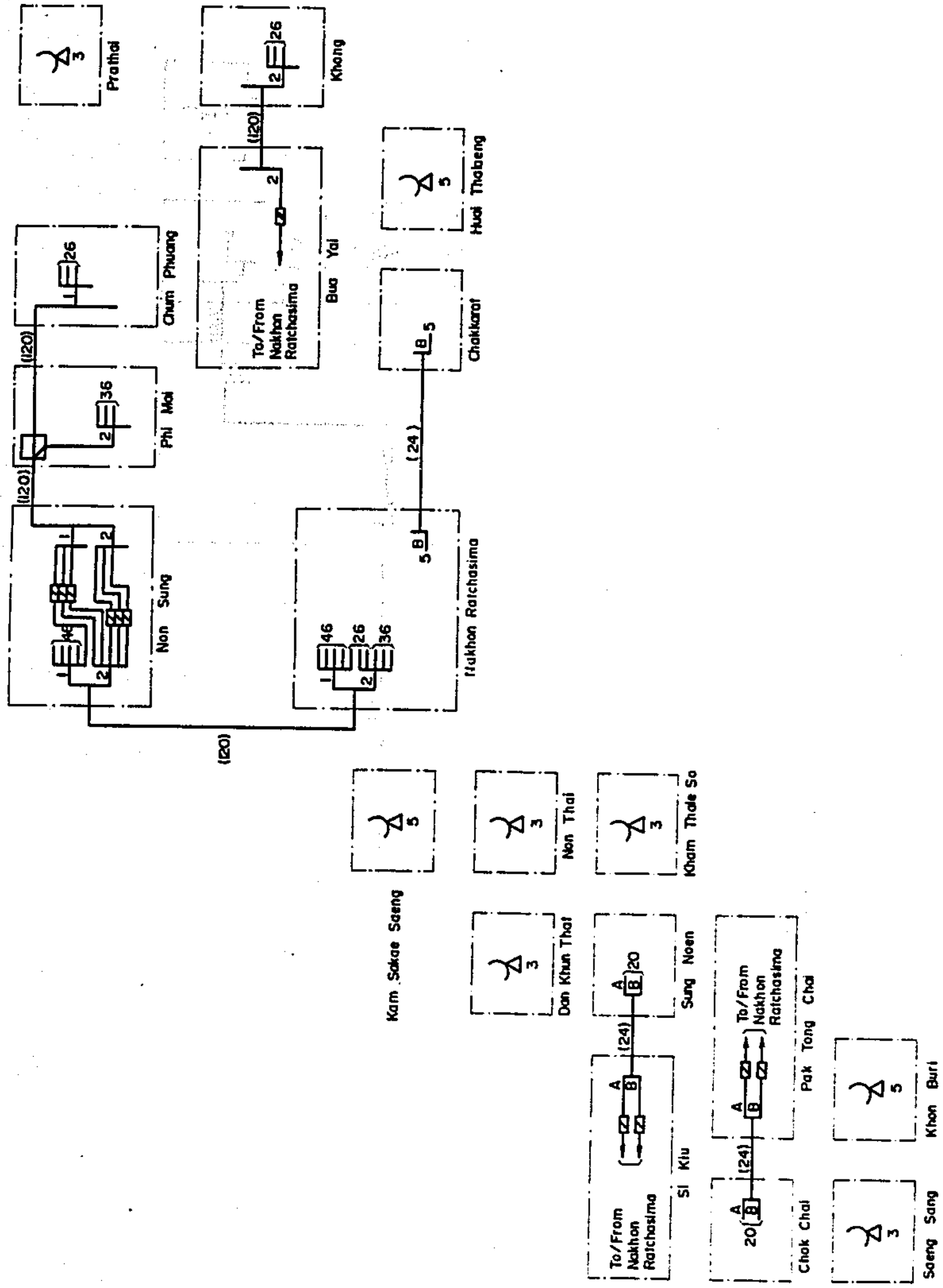


Typical Channel Accommodation Plan for Satellite System (Final Stage) :

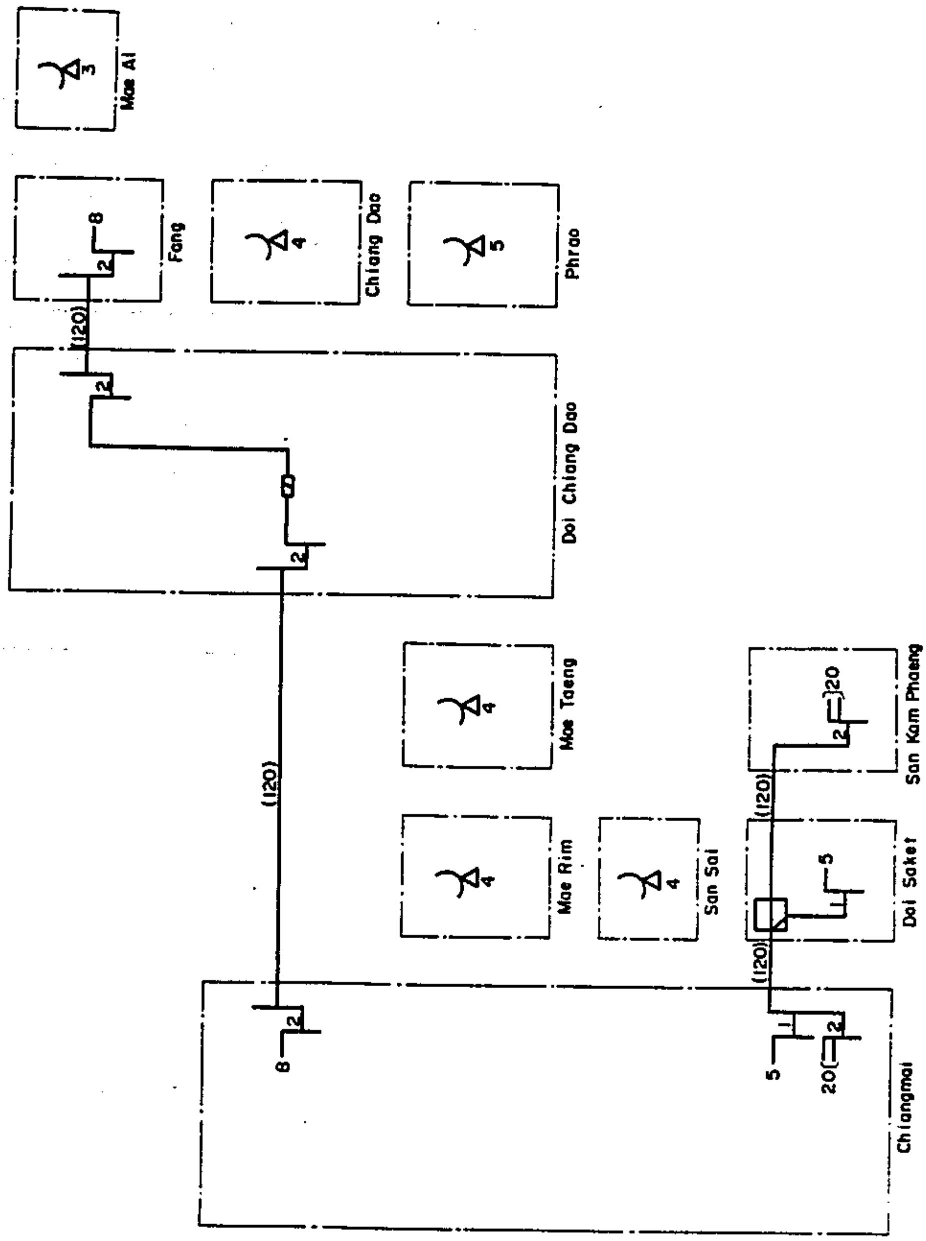
Ayutthaya Area (3516)



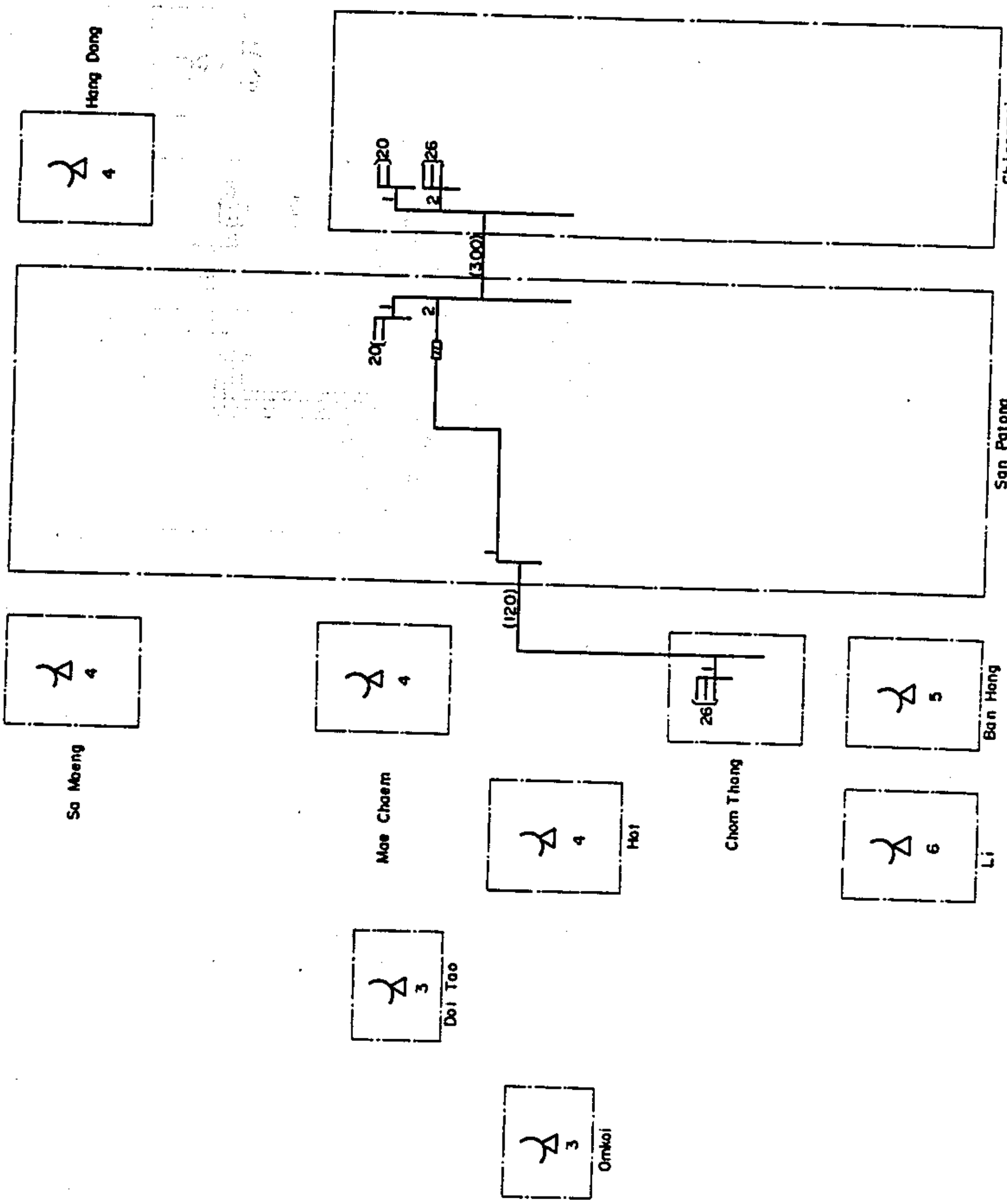
Typical Channel Accommodation Plan for Satellite System (Initial Stage) : Nakhon Ratchasima Area (4421)



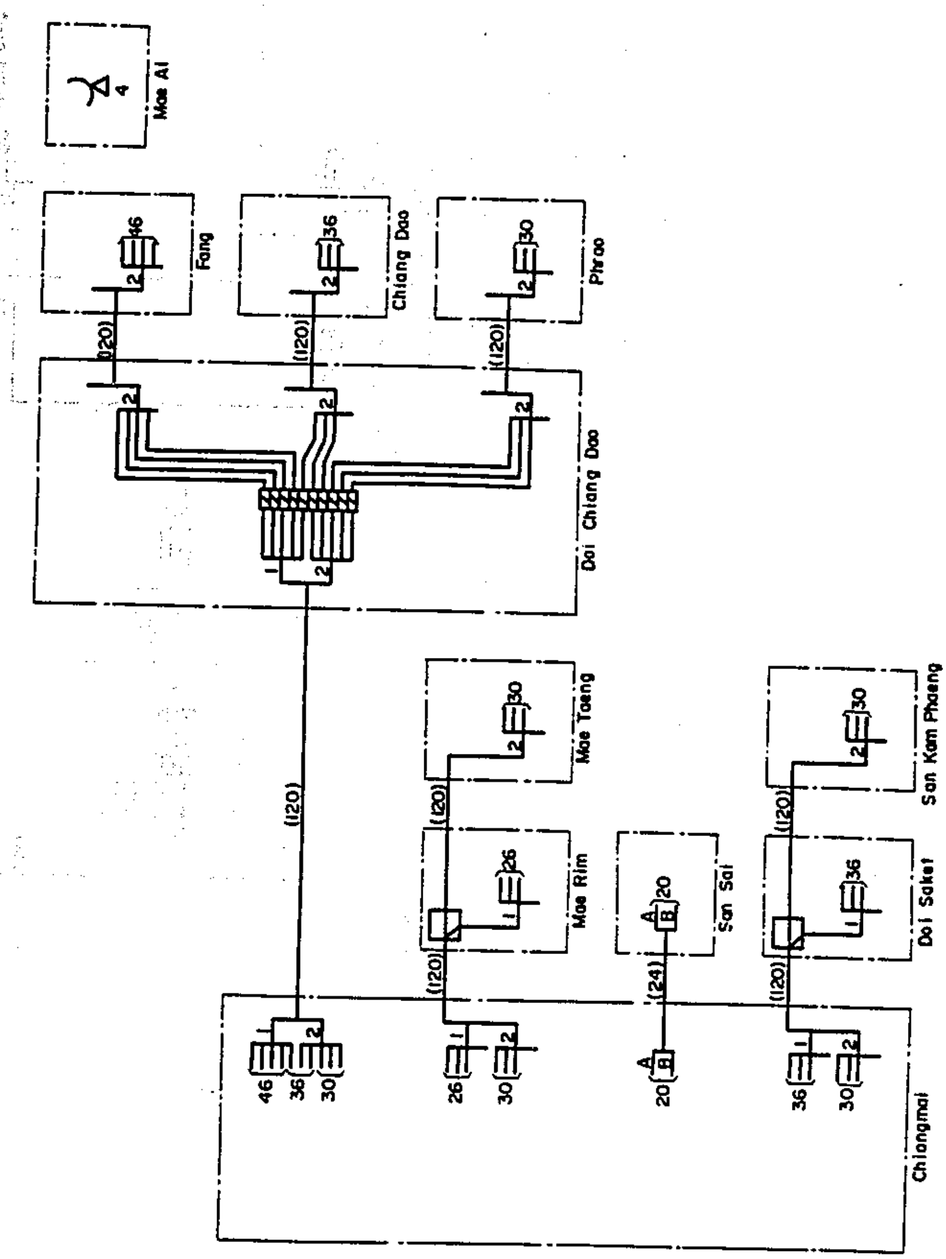
Typical Channel Accommodation Plan for Satellite System (Final Stage) :
Nakhon Ratchasima Area (4421)



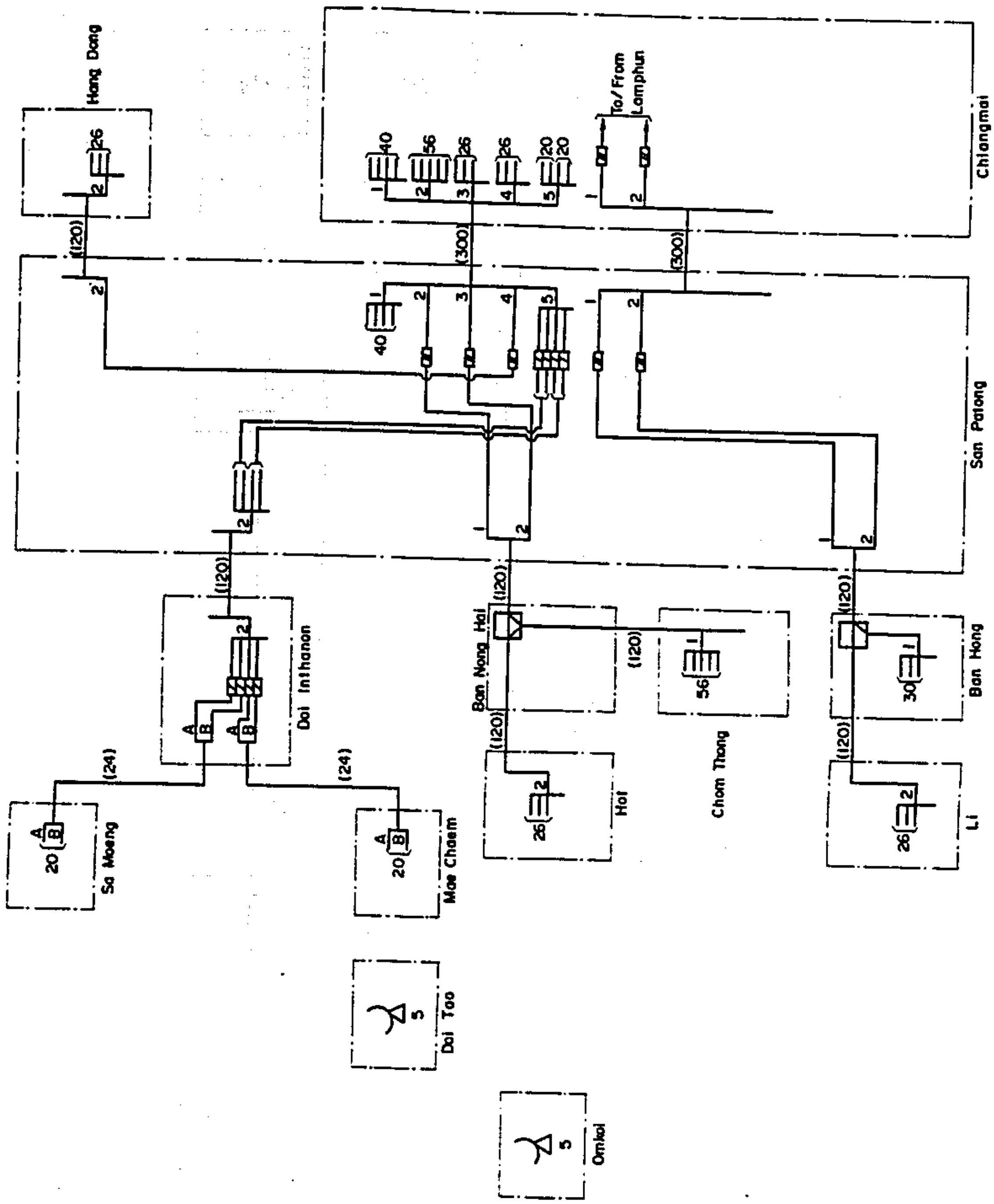
Typical Channel Accommodation Plan for Satellite System (Initial Stage) :
Chiangmai Area (5313) 1/2



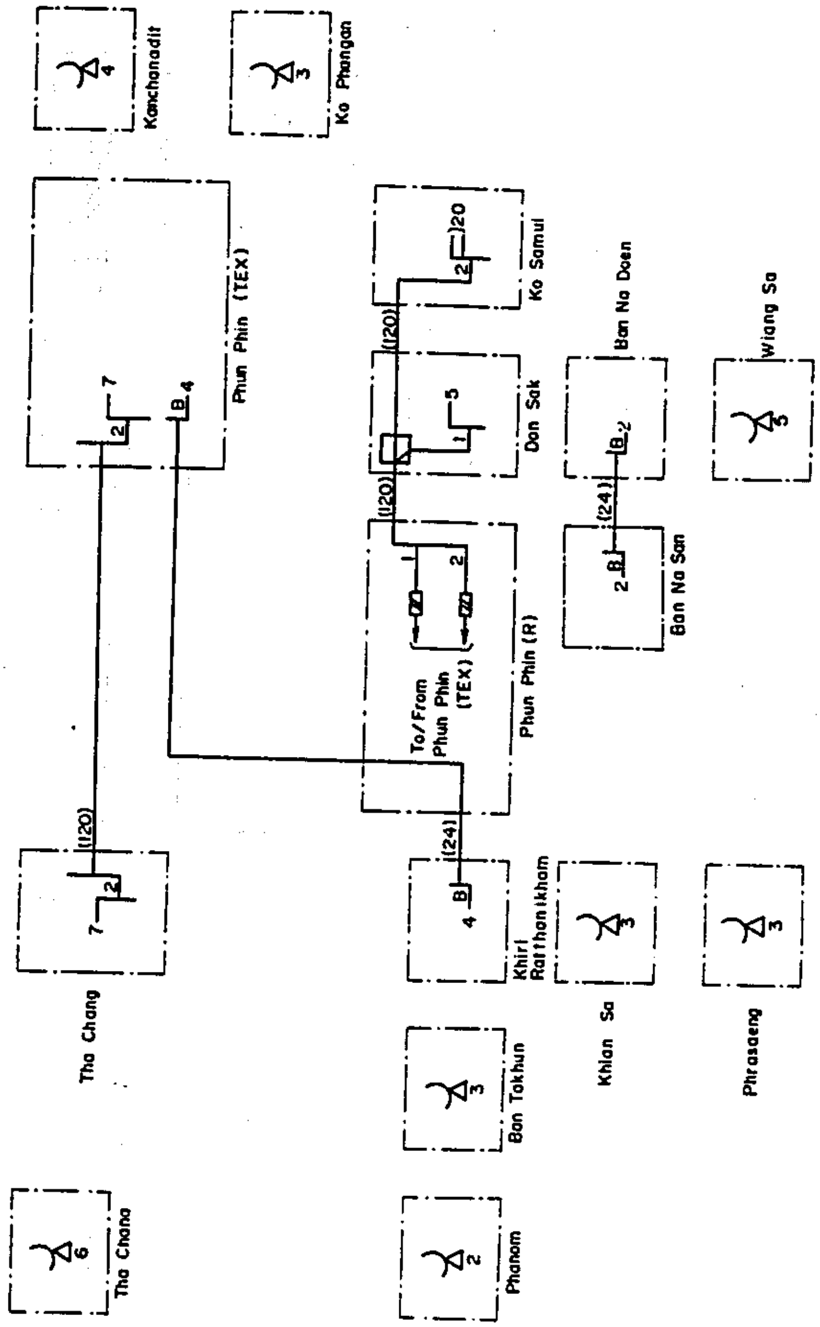
Typical Channel Accommodation Plan for Satellite System (Initial Stage) :
Chiangmai Area (5313) 2/2



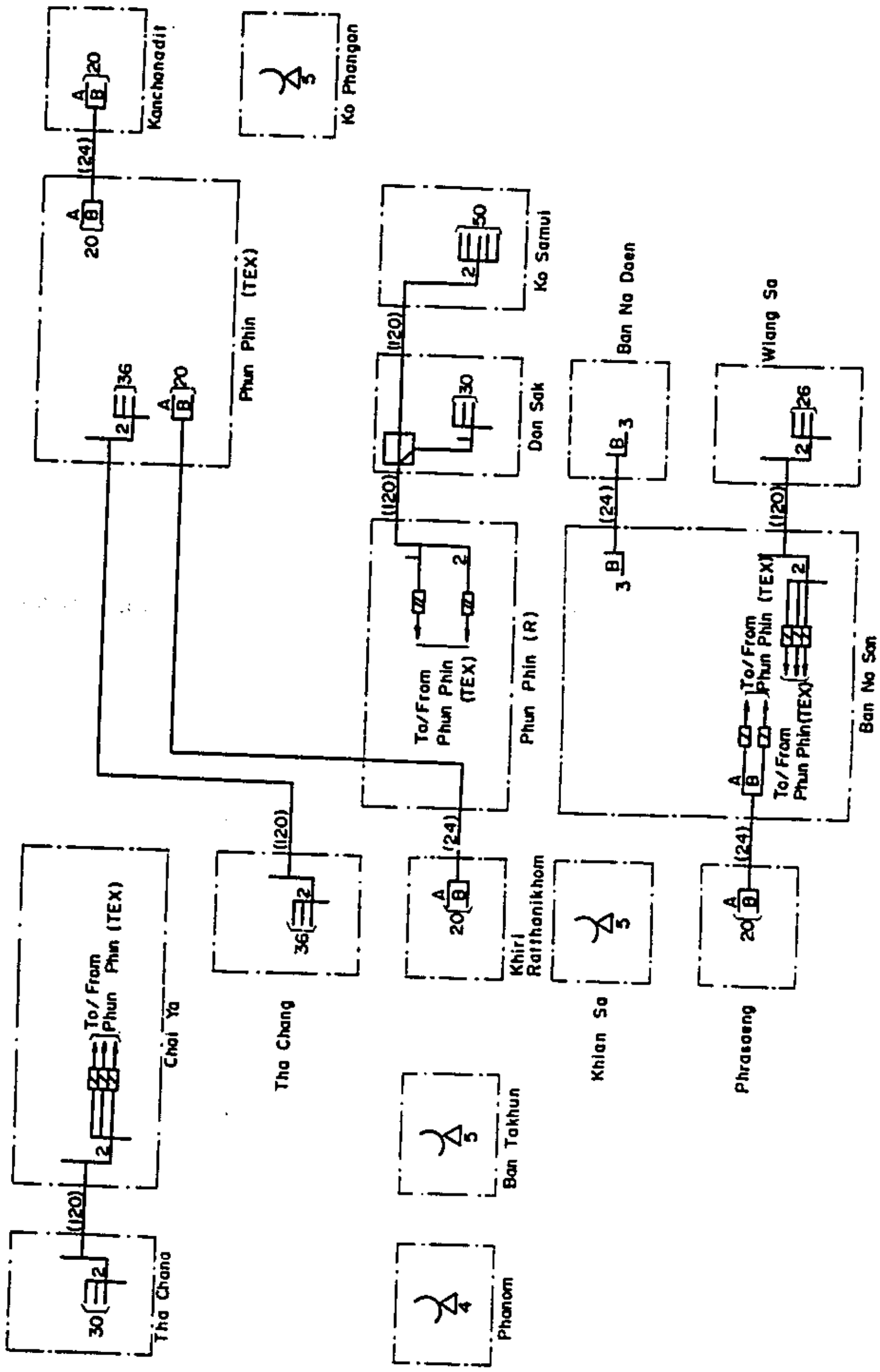
Typical Channel Accommodation Plan for Satellite System (Final Stage) :
Chiangmai Area (5313) 1/2



Typical Channel Accommodation Plan for Satellite System (Final Stage) :
Chiangmai Area (5313) 2/2



Typical Channel Accommodation Plan for Satellite System (Initial Stage) : Phun Phin Area (7711)



Typical Channel Accommodation Plan for Satellite System (Final Stage) :
Phun Phin Area (7711)

12. Coordinates and Elevation of Station Site

Coordinates and Elevation of Station Site - (1/16)

Code	Name	Longitude (D.M.S.)	Latitude (D.M.S.)	Elevation (m)
32 01 00	Petcha Buri			
01	Nong Ya Plong	99 42 03	13 09 03	65
02	Ban Lat	99 55 05	13 03 04	4
03	Khao Yoi	99 49 52	13 14 01	6
04	Ban Laem	99 59 10	13 12 08	3
05	Tha Yang*	99 39 12	12 57 40	10
06	Cha Am*	99 58 25	12 47 45	3
32 07 00	Ratcha Buri			
01	Suan Phung	99 21 04	13 31 00	115
02	Wat Phleng	99 53 21	13 27 10	2
03	Bang Phae	99 56 00	13 41 16	4
04	Pak Tho*	99 50 50	13 22 27	5
05	Chom Bung*	99 35 32	13 37 08	90
32 15 00	Prachuap Khiri Khan			
01	Bang Saphan Noi	99 21 12	11 04 54	10
02	Bang Saphan	99 31 00	11 12 44	10
03	Kui Buri	99 52 08	12 33 55	9
34 01 00	Samut Sakhon			
01	Ban Phaeo*	100 06 45	13 35 40	4
34 04 00	Samut Song Khram			
01	Bang Khonthi	99 56 37	13 28 05	4
02	Am Pha Wa*	99 57 36	13 25 22	3
34 07 00	Nakhonpathom			
01	Bang Len	100 10 35	14 01 24	2
02	Don Tum	100 05 04	13 57 34	7
03	Nakhon Chaisi*	100 11 18	13 47 57	2
04	Kam Phaeng Saen*	99 59 42	13 59 50	5
34 13 00	Kanchanaburi			
01	Lao Khwan	99 47 22	14 35 50	30
02	Sangkla Buri	98 28 16	15 07 12	160
03	Thong Pah Phum	98 38 06	14 44 21	80
04	Si Sawat	99 02 04	14 40 27	100
05	Bo Phloi	99 30 51	14 19 20	163

Code	Name	Longitude (D.M.S.)	Latitude (D.M.S.)	Elevation (m)
06	Sai Yok	99 08 26	14 07 00	50
07	Phanom Thuan	99 42 10	14 07 41	25
08	Saeng Chuto*	99 45 17	13 57 10	16
35 01 00	Angthong			
01	Chaiyo	100 28 10	14 39 44	5
02	Sawaengha	100 19 30	14 45 04	5
03	Sam Ko	100 14 52	14 36 12	5
04	Pho Thong	100 24 43	14 39 50	5
05	Wiset Chai Chan*	100 22 00	14 35 52	8
06	Pa Mok*	100 27 13	14 29 11	5
35 08 00	Suphanburi			
01	Dan Chang	99 41 41	14 49 10	48
02	Bang Pla Ma	100 09 30	14 24 00	3
03	Doem Bang Nang Buat	100 05 58	14 50 37	15
04	Don Chedi	100 01 35	14 37 54	10
05	Sam Chuk*	100 05 51	14 44 46	10
06	Si Prachan*	100 08 43	14 36 54	15
07	U-Thong*	99 53 41	14 22 31	10
35 16 00	Ayutthaya			
01	Bang Ban	100 28 21	14 24 09	3
02	Lat Bua Luang	100 19 14	14 09 34	5
03	Maharat	100 31 55	14 32 01	6
04	Nakhon Luang	100 36 33	14 27 47	4
05	Ban Phraek	100 34 41	14 38 39	3
06	Bangpa Han	100 32 53	14 27 42	4
07	Bang Sai	100 18 25	14 19 58	2
08	Phak Hai	100 22 22	14 27 22	3
09	U-Thai	100 40 27	14 21 40	2
10	Ban Si	100 30 07	14 12 38	3
11	Sena*	100 24 32	14 19 24	3
36 01 00	Singburi			
01	Bang Rachan	100 19 18	14 53 26	5
02	Ban Rachan	100 19 10	14 48 01	3
03	Tha Chang	100 23 39	14 45 32	3

Code	Name	Longitude (D.M.S.)	Latitude (D.M.S.)	Elevation (m)
04	Phrom Buri	100 27 24	14 47 26	6
05	In Buri	100 19 45	15 00 20	10
36 06 00	Lopburi			
01	Phatthananikhom	100 59 08	14 51 10	47
02	Tha Wung	100 30 55	14 48 48	12
36 13 00	Saraburi			
01	Muang Lek	101 12 08	14 39 18	200
02	Sao Hai	100 56 48	14 32 58	15
03	Nong Saeng	100 47 09	14 29 26	10
04	Don Phut	100 37 22	14 35 32	1
05	Wihan Daeng	100 59 46	14 20 20	6
06	Nong Don	100 42 57	14 41 03	10
07	Hin Kong*	100 52 12	14 20 16	5
37 01 00	Nakhon Nayok			
01	Pak Phli	101 15 46	14 09 55	5
02	Ban Na	101 04 22	14 15 32	4
03	Ongkharak	101 00 05	14 07 19	2
37 05 00	Prachin Buri			
01	Na Di	101 47 25	14 06 54	30
02	Sakaeo	102 04 26	13 48 58	37
03	Ta Phraya	102 48 52	14 00 32	68
04	Watthana Nakhon	102 16 40	13 45 58	83
05	Ban Sang	101 13 40	13 59 50	2
06	Si Mahapho	101 31 08	13 58 12	8
07	Khok Pip	101 24 24	13 53 16	20
08	Prachanta Kham	101 31 25	14 04 56	9
38 01 00	Chachoengsao			
01	Bang Nam Prieo	101 03 20	13 50 50	2
02	Ban Pho	101 05 05	13 35 50	2
03	Sanam Chai Ket	101 26 32	13 39 23	10
04	Bang Pa Khong*	101 00 00	13 30 13	2
05	Phanom Sarakham*	101 22 00	13 45 00	7
38 08 00	Rayong			
01	Pluak Daeng	101 13 14	12 58 00	50

Coordinates and Elevation of Station Site - (4/16)

Code	Name	Longitude (D.M.S.)	Latitude (D.M.S.)	Elevation (m)
02	Ban Khai	101 17 59	12 46 58	10
38 15 00	Chonburi			
01	Ko Si Chang	100 48 44	13 09 28	5
02	Phan Thong	101 06 02	13 28 09	5
03	Nong Yai	101 23 00	13 09 08	70
04	Bang Lamung	100 55 00	12 58 34	10
39 01 00	Trat			
01	Bo Rai	102 32 00	12 34 08	26
02	Khao Saming	102 25 48	12 21 14	35
03	Leam Ngop	102 24 21	12 10 34	5
04	Khlong Yai	102 53 23	11 46 35	10
39 05 00	Chantaburi			
01	Pong Nam Ron	102 15 20	12 53 59	237
02	Makham	102 12 08	12 40 16	10
03	Leam Sing	102 05 51	12 28 15	3
04	Tha Mai*	102 00 56	12 37 12	5
05	Klung*	102 13 33	12 27 03	2
42 01 00	Udon Thani			
01	Nong Wua So	102 36 20	17 16 40	220
02	Si Bun Ruang	102 16 44	16 57 55	190
03	Suwan Khuha	102 18 50	17 34 10	170
04	Non Sang	102 34 10	16 51 54	189
05	Kut Chap	102 30 57	17 25 00	200
06	Non Sa-at	102 53 42	16 58 06	210
07	Wang Sam Mo	103 26 30	17 01 30	241
08	Srang Khom	102 16 42	18 03 31	170
09	Ban Phu	102 27 54	17 41 37	184
10	Phen	102 54 37	17 01 43	168
11	Ban Dung	103 15 46	17 41 59	170
12	Si That	103 13 27	17 58 26	184
13	Na Klang	102 11 25	17 18 28	251
14	Nam Som	102 11 30	17 46 25	220
15	Nong Han	103 06 40	17 21 38	171

Code	Name	Longitude (D.M.S.)	Latitude (D.M.S.)	Elevation (m)
42 11 00	Sakhon Nakhon			
01	Kusuman	109 19 56	17 19 48	160
02	Nikhom Nam Oun	103 44 40	17 11 30	197
03	Ban Muang	103 35 00	17 50 46	150
04	Akat Amnuai	103 59 12	17 35 43	150
05	Songdao	103 27 00	17 20 10	190
06	Waritchaphum	103 38 28	17 17 48	178
07	Kut Bak	103 49 29	17 05 05	196
08	Wanon Niwat	103 45 22	17 37 44	172
09	Phannanikhom	103 51 15	17 21 16	170
10	Phung Khon*	103 43 20	17 23 06	170
42 19 00	Nong Khai			
01	Sang Khom	102 16 42	18 03 31	167
02	Phon Phisai	103 04 58	18 01 18	160
03	Bung Kan	103 39 41	18 21 46	154
04	Seka	103 57 14	17 55 34	150
05	So Phisai	103 27 34	18 00 19	180
42 26 00	Loei			
01	Na Haeo	101 04 20	17 28 17	520
02	Phu Rua	101 21 30	17 27 10	610
03	Dan Sai	101 08 52	17 16 53	360
04	Phu Kradung	101 53 23	16 52 54	264
05	Pak Chom	101 53 35	18 01 14	206
06	Tha Li	101 25 30	17 37 20	260
07	Wang Saphung*	101 45 46	17 18 51	248
42 32 00	Nakhon Phanom			
01	Pla Pak	104 31 50	17 10 42	150
02	Ban Phaeng	104 13 07	17 57 52	148
03	Renu Nakhon	104 40 49	17 02 00	140
04	Nikhom Khamsoi	104 33 00	16 22 09	190
05	Na Hwa	104 55 05	15 53 06	165
06	Kham Cha-I	104 25 17	16 34 30	175
07	Tha Uthen	104 35 00	17 34 35	147
08	Si Song Khram	104 28 33	17 37 30	162

Code	Name	Longitude (D.M.S.)	Latitude (D.M.S.)	Elevation (m)
09	Don Tan	104 55 30	16 18 56	153
10	Na Kae	104 30 19	16 56 56	145
11	That Phanom*	104 43 44	16 57 47	135
43 01 00	Mahasarakham			
01	Kantharawichai	103 18 05	16 19 28	150
02	Na Chuak	103 02 18	15 48 00	160
03	Chiang Yun	102 06 30	16 24 16	160
04	Na Dun	103 13 49	15 43 14	160
05	Wapi Pathum	103 23 02	15 50 46	138
06	Phayak Khaphum Phisai	103 11 42	15 30 46	138
07	Borabue	103 07 26	16 02 10	171
08	Kosum Phisai	103 04 14	16 14 42	149
43 09 00	Khon Kaen			
01	Mancha Khiri	102 32 10	16 07 42	160
02	Nong Song Hong	102 47 47	15 43 55	170
03	Nong Rua	102 26 02	16 29 47	190
04	Ubon Rat	102 39 33	16 44 22	185
05	Phu Wiang	102 22 46	16 39 15	210
06	Waeng Noi	102 40 00	15 56 40	215
07	Ban Fang	102 38 42	16 26 55	180
08	Si Chomphu	102 11 11	16 47 55	205
09	Kranuan	103 05 00	16 42 14	207
10	Chonna Bot	102 37 38	16 06 04	155
11	Nam Phong*	102 48 24	16 43 10	170
43 21 00	Kalasin			
01	Kuchinarai	104 03 39	16 32 04	160
02	Khao Wong	104 05 30	16 41 52	180
03	Tha Khantho	103 31 29	16 43 28	170
04	Som Det	103 45 13	16 42 12	205
05	Yang Talat	103 22 20	16 23 54	140
06	Na Mon	103 40 44	16 22 47	160
07	Rong Kham	103 45 20	16 16 25	140
08	Kham Muang	103 38 06	16 55 47	210
09	Huai Mek	103 13 34	16 35 54	180

Code	Name	Longitude (D.M.S.)	Latitude (D.M.S.)	Elevation (m)
10	Nong Krungsi	103 17 03	16 38 46	180
11	Sahat Sakhan	103 31 29	16 42 43	180
12	Kamalasai	103 34 43	16 19 56	140
43 28 00	Roiet			
01	Phon Thong	103 58 55	16 17 53	140
02	Nong Phok	104 12 23	16 18 20	162
03	Suwannaphum	103 48 12	15 36 24	140
04	Phanom Phrai	104 06 44	15 40 36	130
05	Thawatcha-buri	103 45 02	16 02 18	138
06	At Samat	103 53 02	15 50 38	135
07	Pathum Rat	103 20 28	15 37 56	150
08	Pho Chai	103 46 46	16 19 25	150
09	Muang Suang	103 43 16	15 49 23	150
10	Kaset Wisai	103 34 56	15 39 12	136
11	Chaturaphak Phiman	103 33 43	15 50 32	141
12	Selaphum	103 56 49	16 01 32	140
44 01 00	Chaiyaphum			
01	Kaset Sombun	101 57 32	16 16 36	231
02	Nong Bua Daeng	101 48 28	16 04 42	250
03	Bamnet Narong	101 41 22	15 30 00	205
04	Khon San	101 55 28	16 36 48	230
05	Khon Sawan	102 19 00	15 25 48	175
06	Ban Khwao	101 54 35	15 46 33	202
07	Ban Thaen	102 20 37	16 24 01	196
08	Kaeng Khlo	102 15 38	16 06 22	203
09	Chathurat	101 50 58	15 33 42	192
10	Phu Khiew*	102 07 46	16 22 23	214
44 12 00	Burirum			
01	Ban Kruat	103 06 17	14 25 01	198
02	Prakhon Chai	103 05 01	14 36 31	160
03	Kra Sung	103 18 14	14 55 16	150
04	Khu Muang	103 01 00	15 21 16	135
05	Satuk	103 17 42	15 17 38	132
06	Phutthaisong	103 00 22	15 32 25	141

Coordinates and Elevation of Station Site - (8/16)

Code	Name	Longitude (D.M.S.)	Latitude (D.M.S.)	Elevation (m)
07	Nongki	102 32 33	14 40 58	200
08	Lahan Sai	102 51 32	14 24 40	208
09	Huai Rat	99 31 48	07 45 42	154
10	Nang Rong*	102 47 56	14 37 46	185
11	Lam Plai Mat*	102 45 35	15 01 10	162
44 21 00	Nakhon Ratchasima			
01	Khon Buri	102 14 43	14 31 25	207
02	Prathai	102 43 27	15 31 46	150
03	Non Thai	102 04 31	15 11 55	170
04	Khong	102 19 51	15 26 27	175
05	Chum Phuang	102 44 35	15 20 46	145
06	Dan Khun That	101 46 14	15 12 30	210
07	Kham Thale So	101 57 00	14 57 34	200
08	Kham Sakae Saeng	102 10 32	15 19 40	180
09	Huai Thalaeng	102 38 33	14 59 45	190
10	Saeng Sang	102 28 43	14 24 43	223
11	Sung Noen	101 49 51	14 52 46	232
12	Chakkarat	102 25 02	15 00 39	170
13	Non Sung	102 15 15	15 10 19	175
14	Phi Mai*	102 30 12	15 12 18	175
15	Chok Chai*	102 10 09	14 44 04	190
45 01 00	Ubon Ratchathani			
01	Nam Yun	104 59 04	14 28 44	200
02	Nachaluai	105 21 42	14 34 24	186
03	Trakan Phutphon	105 01 57	15 36 28	130
04	Si Muang Mai	101 17 00	15 29 40	140
05	Kut Khao Pun	104 59 24	15 01 59	150
06	Senangnikhom	104 47 00	16 00 50	162
07	Hua Taphan	104 27 20	15 43 38	130
08	Phana	104 51 07	15 40 00	127
09	Muang Samsip	104 43 35	15 30 56	140
10	Buntharik	105 24 52	14 45 21	161
11	Chanuman	105 00 56	16 13 22	134
12	Khemmarat	105 13 24	16 02 10	147

Code	Name	Longitude (D.M.S.)	Latitude (D.M.S.)	Elevation (m)
13	Khuang Nai	104 33 28	15 23 29	123
14	Det Udom*	105 04 47	14 54 02	130
45 15 00	Yasothon			
01	Kut Chum	104 20 40	16 01 52	150
02	Kham Khuan Kaeo	104 18 38	15 39 05	123
03	Maha Chana Chai	104 14 47	15 31 45	124
04	Pa Tiu	104 23 23	15 49 55	135
05	Sai Mun	104 12 42	15 56 34	145
06	Kho Wang	104 21 04	15 22 06	125
07	Loeng Nok Tha	104 33 27	16 12 18	155
45 22 00	Sisaket			
01	Kantharaluk	104 38 58	14 38 45	150
02	Khu Khan	104 12 01	14 42 46	142
03	Khun Han	104 25 35	14 36 54	150
04	Rasi Salai	104 10 00	15 20 04	120
05	Prang Ku	104 02 37	14 51 11	135
06	Yang Chumnoi	104 23 46	15 16 08	120
07	Phai Bung	104 21 46	14 45 06	140
08	Kanthararom	104 35 02	15 06 16	127
09	Uthumphon Phisai	104 10 53	15 07 17	140
45 30 00	Surin			
01	Prasat	103 24 30	14 38 38	167
02	Sang Kha	103 51 21	14 37 50	160
03	Chumphon Buri	103 23 47	15 20 44	130
04	Chom Phra	103 36 00	15 06 08	140
05	Tha Tum	103 40 30	15 18 53	126
06	Rattana Buri	103 51 42	15 19 05	135
07	Sanom	103 46 03	15 12 19	150
08	Kabchoeng	103 36 42	14 28 22	194
09	Samrong Thap	103 56 18	15 01 17	132
10	Sikhoraphum	103 47 38	14 56 39	138
53 01 00	Mae Hong Son			
01	Khun Yuam	97 56 20	18 49 26	586
02	Pai	98 26 18	19 21 29	510

Code	Name	Longitude (D.M.S.)	Latitude (D.M.S.)	Elevation (m)
03	Mae La Noi	97 56 17	18 22 46	308
04	Mae Sariang	97 56 11	18 10 09	220
53 13 00	Chiangmai			
01	Mae Ai	99 17 17	20 01 47	485
02	Omkoi	98 21 53	17 48 00	802
03	Doi Tao	98 40 58	17 57 22	276
04	Fang	99 13 10	19 55 24	475
05	San Sai	99 02 44	18 50 39	303
06	Doi Saket	99 07 51	18 52 07	312
07	Phrao	99 12 17	19 21 52	440
08	Mae Taeng	98 56 45	19 07 10	336
09	Chiang Dao	98 58 16	19 22 59	389
10	Sa Moeng	98 44 10	18 50 34	530
11	Mae Rim	98 56 51	18 54 47	330
12	Hot	98 36 56	18 11 28	276
13	Hang Dong	98 55 41	18 41 35	324
14	Mae Chaem	98 22 02	18 30 02	467
15	San Kam Phaeng*	99 07 02	18 44 44	297
16	San Patong*	98 54 02	18 37 04	313
17	Chom Thong*	98 40 46	18 24 57	293
53 22 00	Lamphun			
01	Ban Hong	98 49 18	18 18 28	320
02	Li	98 56 35	17 48 34	450
03	Mae Tha	99 08 16	18 27 34	400
04	U-Mong	99 03 05	18 40 35	297
54 01 00	Chiangrai			
01	Wiang Chai	99 55 36	19 53 00	400
02	Padaet	99 59 39	19 30 10	393
03	Chiang Muan	100 18 24	13 53 10	264
04	Wiang Pa Pao	99 30 36	19 20 45	540
05	Mae Suai	99 33 00	19 39 32	452
06	Pong	100 16 40	19 08 32	288
07	Chiang Saen	100 05 24	20 16 29	366
08	Phan	99 44 30	19 32 10	408

Code	Name	Longitude (D.M.S.)	Latitude (D.M.S.)	Elevation (m)
09	Chun	100 08 12	19 20 06	400
10	Mae Chai	99 48 57	19 20 38	400
11	Dok Kham Tai	99 59 40	19 09 40	386
12	Mae Chan	99 51 28	20 08 46	417
13	Thoeng	100 12 20	19 40 30	360
14	Chiang Kham	100 18 37	19 31 10	392
15	Chiang Khong	100 24 44	20 15 13	364
16	Mae Sai*	99 53 02	20 25 44	427
54 16 00	Nan			
01	Mae Charim	101 00 31	18 42 20	267
02	Na Noi	100 43 06	18 19 55	270
03	Ban Luang	100 26 15	18 50 10	380
04	Tha Wang Pha	100 48 53	19 07 15	227
05	Chiang Klang	100 51 55	19 17 32	247
06	Pua	100 55 28	19 10 23	281
07	Thung Chang	100 53 06	19 24 06	330
08	Sa	100 45 03	18 35 00	192
54 22 00	Lampang			
01	Sop Prap	99 20 26	17 52 46	200
02	Ngao	99 59 00	18 45 20	275
03	Hang Chat	99 21 03	18 19 34	270
04	Thoen	99 13 04	17 36 40	160
05	Mae Mo	99 43 28	18 15 56	300
06	Mae Tha	99 30 57	18 07 57	257
07	Mae Phrik	99 07 00	17 26 48	160
08	Chae Hom	99 34 08	18 42 06	290
09	Wang Nua	99 37 20	19 08 42	400
10	Soem Ngam	99 12 10	18 03 00	230
11	Ko Kha*	99 14 26	18 11 43	229
54 32 00	Phrae			
01	Long	99 50 10	18 04 30	140
02	Song	100 11 27	18 28 10	197
03	Wang Chin	99 36 22	17 53 56	100
04	Rong Kwang	101 31 24	18 19 55	205

Coordinates and Elevation of Station Site - (12/16)

Code	Name	Longitude (D.M.S.)	Latitude (D.M.S.)	Elevation (m)
05	Sung Men*	100 06 53	18 02 50	155
55 01 00	Tak			
01	Tha Song Yang	97 54 57	17 34 02	130
02	Mae Ramat	98 31 28	16 59 56	200
03	Sam Ngao	99 02 17	17 14 35	160
04	Ban Tak	99 04 54	17 04 00	160
05	Umphang	98 51 03	16 00 34	530
55 08 00	Sukhothai			
01	Ban Don Lan Hoi	99 34 25	17 00 26	80
02	Si Nakhon	99 59 54	17 25 00	60
03	Si Satchanalai	99 45 53	17 30 00	70
04	Thung Saliam	99 34 04	17 20 41	70
05	Si Sam Rong	99 51 48	17 10 08	53
06	Kong Krailat	99 58 29	16 56 58	44
07	Khirimat	99 48 14	16 50 00	46
55 22 00	Phitsanulok			
01	Chat Trakan	100 36 08	17 16 28	185
02	Bang Krathum	100 18 00	16 45 12	35
03	Wat Bot	100 18 42	16 59 34	45
04	Phom Phiram	100 12 22	17 01 52	53
05	Nakhon Thai	100 50 04	17 05 39	184
06	Bang Ra Kam*	100 07 47	16 45 40	43
55 23 00	Khamphaeng Phet			
01	Sai Ngam	99 53 38	16 27 50	45
02	Khanu Woralaksa Buri	99 51 37	16 03 38	43
03	Khlong Khlung	99 43 15	16 12 58	55
04	Phran Kratai	99 35 34	16 39 04	67
55 27 00	Uttaradit			
01	Tha Pla	100 31 28	17 46 46	140
02	Tron	100 06 56	17 28 55	50
03	Nam Pat	100 42 07	17 43 52	160
04	Fak Tha	100 52 54	17 59 19	220
05	Phi Chai*	100 05 24	17 17 08	60

Coordinates and Elevation of Station Site - (13/16)

Code	Name	Longitude (D.M.S.)	Latitude (D.M.S.)	Elevation (m)
56 01 00	U-Thai Thani			
01	Sawang Arom	99 51 47	15 34 57	40
02	Nong Khayang	99 55 55	15 21 45	30
03	Lan Sak	99 36 54	15 26 26	20
04	Thap Than	99 53 47	15 27 26	30
05	Ban Rai	99 38 04	15 05 28	170
06	Nong Chang*	99 50 50	15 22 57	47
56 07 00	Chai Nat			
01	Mano Rom	100 05 09	15 18 34	8
02	Sanphaya	100 14 52	15 08 04	14
03	Sankha Buri	100 09 45	15 02 50	160
04	Wat Sing	100 02 06	15 50 49	19
05	Hun Ka*	100 03 51	14 55 58	13
56 14 00	Nakhon Sawan			
01	Banphot Phisai	99 59 05	15 55 58	33
02	Kao Lieo	100 04 48	15 50 47	28
03	Nong Bua	100 35 12	15 51 52	35
04	Tak Fa	100 28 30	15 21 54	100
05	Krok Phra	100 04 31	15 33 21	25
06	Lat Yao	99 47 31	15 44 53	53
07	Tha Tako	100 29 06	15 38 20	25
08	Phaisali	100 39 22	15 35 44	40
09	Pha Yuhakhiri*	100 08 14	15 27 31	23
56 23 00	Phichit			
01	Wang Sai Phun	100 32 56	16 24 20	45
02	Pho Prathap Chang	100 16 48	16 18 28	27
03	Sam Ngam	100 12 28	16 30 20	30
04	Pho Thale	100 15 54	16 05 29	30
56 28 00	Phetchabun			
01	Lom Kao	101 13 53	16 52 58	160
02	Wichian Buri	101 06 23	15 39 21	60
03	Si Thep	101 04 25	15 25 53	65
04	Chon Daen	100 51 26	16 11 05	94
05	Nong Phai	101 04 03	15 59 31	103

Code	Name	Longitude (D.M.S.)	Latitude (D.M.S.)	Elevation (m)
06	Sap Samo That*	101 00 38	15 47 43	76
73 01 00	Yala			
01	Than To	101 12 05	06 08 28	200
02	Bannang Star	101 15 20	06 14 05	41
03	Ya Ha	101 08 01	06 28 41	29
04	Ra Man	101 25 36	06 28 44	20
73 13 00	Pattani			
01	Mai Khaen	101 40 21	06 37 50	5
02	Panare	101 29 50	06 51 34	1
03	Nong Chik	101 10 50	06 50 30	8
04	Ma Yo	101 24 48	06 43 24	17
05	Ya Rang	101 17 46	06 45 27	8
06	Yaring	101 22 18	06 51 37	2
73 14 00	Narathiwat			
01	Sisakhon	101 30 44	06 12 28	34
02	Yi Ngo	101 42 40	06 24 18	10
03	Rangae	101 44 03	06 17 40	15
04	Waeng	101 53 18	05 55 28	28
05	Tak Bai	102 03 00	06 15 03	5
06	Ba Cho	101 39 24	06 30 52	15
74 01 00	Phatthalung			
01	Khong Ra	99 56 02	07 28 16	50
02	Pak Phayun	100 19 40	07 21 02	10
03	Khuan Khanun	100 00 32	07 44 02	10
04	Tra Mot	100 04 09	07 17 25	50
05	Ranot	100 14 10	07 46 28	2
06	Sathing Phra	100 26 32	07 28 15	5
07	Khao Chaison	100 08 06	07 27 30	30
74 05 00	Haad Yai			
01	Rattaphum	100 15 10	07 11 03	25
02	Thepha	100 58 03	06 49 32	5
03	Sabayoi	100 57 02	06 36 59	14
04	Na Thawi	100 41 49	06 43 56	22
05	Chana	100 44 50	06 54 47	2

Coordinates and Elevation of Station Site - (15/16)

Code	Name	Longitude (D.M.S.)	Latitude (D.M.S.)	Elevation (m)
74 06 00	Satun			
01	Thung Wa	99 45 09	07 06 20	2
02	Khuan Ka Long	100 00 40	06 51 39	30
03	Khuan Don	100 05 07	06 47 24	35
04	Chalung	100 38 52	06 59 02	5
05	Thung Nui	100 07 47	06 52 26	40
06	Langu	99 47 32	06 52 49	10
75 01 00	Krabi			
01	Khlong Thom	99 09 02	07 55 55	3
02	Khao Phanom	99 03 08	08 15 40	60
03	Ko Lanta	99 05 40	07 31 50	10
04	Plai Phaya	98 57 20	08 35 54	10
05	Ao Luk	98 43 20	08 22 32	4
75 05 00	Thungsong			
01	Sichon	99 54 18	09 00 17	10
02	Hua Sai	100 18 30	08 02 30	1
03	Chian Yai	100 08 50	08 10 04	12
04	Thung Yai	99 22 04	08 18 11	70
05	Khanom	99 51 55	09 12 03	5
06	Phomkhiri	99 49 36	08 31 35	50
07	Nabon	99 35 43	08 15 47	46
08	Cha-Uat	100 00 09	07 57 37	6
09	Chawang	99 30 25	08 25 27	22
10	Lan Saka	99 48 30	08 22 10	33
11	Phipun	99 37 04	08 33 32	24
12	Ron Phi Bun*	99 51 32	08 10 42	24
75 23 00	Trang			
01	Palian	99 41 08	07 10 44	15
02	Sikao	99 21 06	07 34 03	8
03	Yan Ta Kao*	99 40 50	07 22 24	10
76 01 00	Phang Nga			
01	Thap Put	98 38 36	08 30 46	10
02	Ko Yao	98 35 38	08 06 42	10
03	Kapong	98 24 49	08 41 44	10

Coordinates and Elevation of Station Site - (16/16)

Code	Name	Longitude (D.M.S.)	Latitude (D.M.S.)	Elevation (m)
04	Khura Buri	98 25 06	09 11 20	10
05	Tai Muang	98 15 14	08 23 41	3
06	Takua Thung	98 27 21	08 23 21	7
76 09 00	Phuket			
01	Kra Too*	98 20 34	07 54 37	15
77 01 00	Chum Phon			
01	Pathiu	99 19 16	10 42 28	10
02	Tha Sae	99 10 43	10 39 50	35
03	Phato	98 47 53	08 47 07	60
04	Lamae	98 06 36	09 46 02	10
05	Sawi*	99 05 17	10 15 14	3
77 07 00	Ranong			
01	Kra Buri	98 46 59	10 24 20	20
02	La-Un	98 45 54	10 06 55	20
03	Kapoe	98 35 57	09 35 26	18
77 11 00	Phun Phin			
01	Khian Sa	99 12 10	08 50 29	30
02	Prasaeng	99 15 03	08 33 55	40
03	Phanom	98 49 21	08 49 03	30
04	Tha Chang	99 11 40	09 16 04	5
05	Tha Chana	99 09 58	09 33 52	15
06	Don Sak	99 41 44	09 18 43	2
07	Khiri Ratthanikhom	98 56 50	09 01 59	21
08	Ban Na Doem	99 19 04	08 53 10	10
09	Ko Phangan	99 59 53	09 43 01	7
10	Ban Takhun	98 53 41	08 54 55	5
11	Wiang Sa	99 20 57	08 37 45	30
12	Kanchanadit	99 28 22	09 09 54	25
13	Ko Samui*	99 56 22	09 32 01	3

13. Propagation Path Data

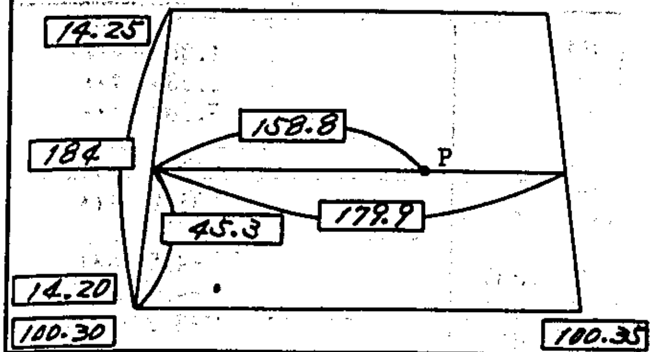
Contents of Propagation Path Data

PROPAGATION PATH DATA

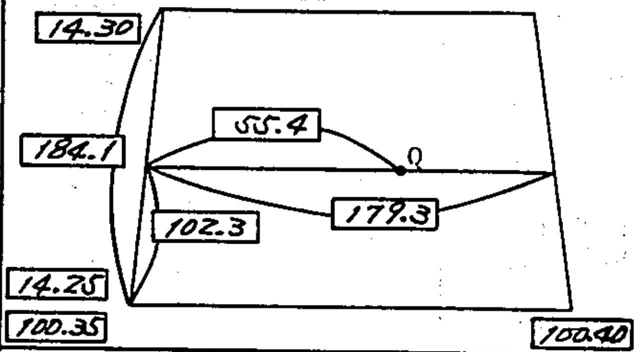
Path No. 3516-1

Site P	Site Q
Ayutthaya	Nakhon Luang

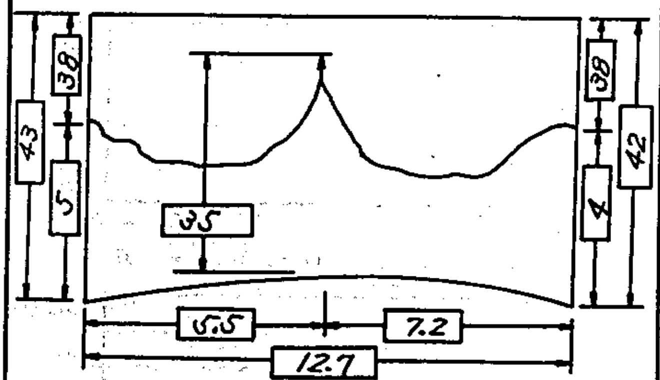
Map No: 5137 IV



Map No. 5137 IV



Site P		Site Q	
Long-1 (D.MS)	100.3000 ***	Long-1 (D.MS)	100.3500 ***
Long-2 (D.MS)	100.3500 ***	Long-2 (D.MS)	100.4000 ***
Lati-1 (D.MS)	14.2000 ***	Lati-1 (D.MS)	14.2500 ***
Lati-2 (D.MS)	14.2500 ***	Lati-2 (D.MS)	14.3000 ***
X 1-2 (mm)	179.9 ***	X 1-2 (mm)	179.3 ***
X 1-0 (mm)	158.8 ***	X 1-0 (mm)	55.4 ***
Y 1-2 (mm)	184.0 ***	Y 1-2 (mm)	184.1 ***
Y 1-0 (mm)	45.3 ***	Y 1-0 (mm)	102.3 ***
Long. (D.MS)	100.3425 ***	Long. (D.MS)	100.3633 ***
Lati. (D.MS)	14.2114 ***	Lati. (D.MS)	14.2747 ***
G.Elevation	5 (m)	G.Elevation	4 (m)
Profile No.	5-3516-1	Type of Path	L/S (~~no~~ reflection)



Path Distance & Azimuth

Long-P (D.MS)	100.3425 ***
Lati-P (D.MS)	14.2114 ***
Long-Q (D.MS)	100.3633 ***
Lati-Q (D.MS)	14.2747 ***
d (km)	12.7 ***
α P→Q (D.MS)	17.3556 ***
α Q→P (D.MS)	197.3627 ***

Antenna Height & Diffraction Loss

d (km)	12.7 ***
d1 (km)	5.5 ***
hm (m)	35.0 ***
hg1 (m)	5.0 ***
hg2 (m)	4.0 ***
ha1 (m)	37.0 ***
ha1 (m)	38.0 ***
ha2 (m)	38.0 ***
(k = 4/3)	
hp (m)	40.2 ***
Rs (m)	32.2 ***
Cs (m)	5.2 ***
U	0.16 ***
M	8. ***
	Ld50 = 10 dB
(k = 1)	
U	0.14 ***
M	9. ***
	Ld99.9 = 12 dB

PROPAGATION PATH DATA

Path No.	3516-1
Site P	Ayutthaya
Site Q	Nakhon Luang

Reflection Area(011A-1/3)

f (MHz)	900.00	***
K	1.333	***
hg1 (m)	5.0	***
hg2 (m)	4.0	***
d (km)	12.7	***
ha1′ (m)	38.0	***
ha2′ (m)	38.0	***
hr′ (m)	5.0	***
hr (m)		
d1 (m)	6.4	***
d2 (m)	6.3	***
ψ (D.MS)	0.1857	***
T1 (km)	5.9	***
Dv	0.94	***
ρ_e	0.7	***
Φr (deg)	180.0	***
Lr min(dB)	-4.6	***
Lr max(dB)	10.5	***

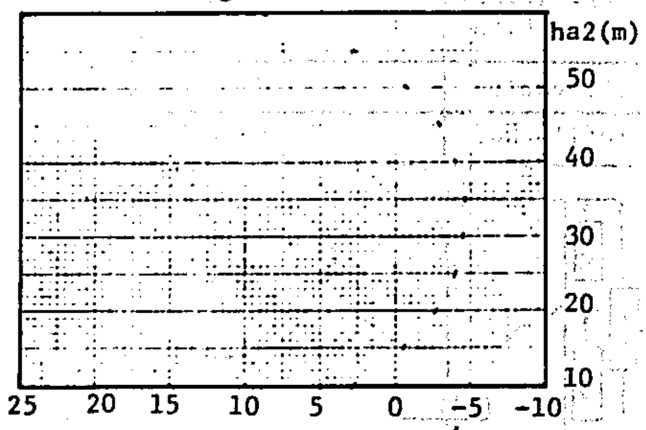
Variation of Reflection Loss(011A-3/3)

$K^{99.9}$	1.000	***
K^{50}	1.333	***
$K^{0.1}$	3.000	***
ha1′ (m)	38.0	***
ha2′ (m)	38.0	***
$Lr^{99.9}$ (dB)	-4.5	***
Lr^{50} (dB)	-4.3	***
$Lr^{0.1}$ (dB)	-3.9	***
ha1′ (m)		
ha1′ (m)		
$Lr^{99.9}$ (dB)		
Lr^{50} (dB)		
$Lr^{0.1}$ (dB)		
ha1 determined	38 (m)	
ha2 determined	38 (m)	

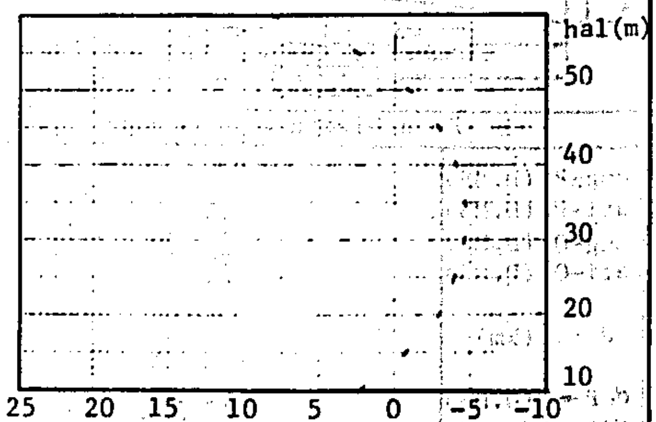
Reflection Loss(011A-2/3)

ha1′ (m)	38.0	***
Lr60m(dB)	8.6	***
55	2.8	***
50	-0.7	***
45	-2.8	***
40	-4.0	***
35	-4.6	***
30	-4.5	***
25	-3.9	***
20	-2.6	***
15	-0.5	***
10	2.7	***
ha2′ (m)	38.0	***
Lr60m(dB)	7.9	***
55	2.5	***
50	-0.9	***
45	-2.9	***
40	-4.0	***
35	-4.6	***
30	-4.5	***
25	-3.9	***
20	-2.7	***
15	-0.8	***
10	2.2	***

Height Pattern



Lr Pattern at Q (dB, ha1′ = 38 m)



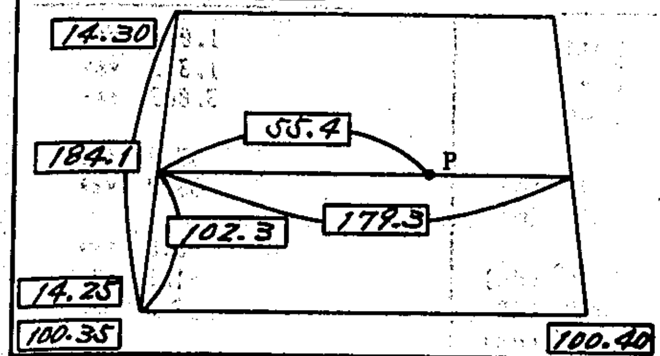
Lr Pattern at P (dB, ha2′ = 38 m)

PROPAGATION PATH DATA

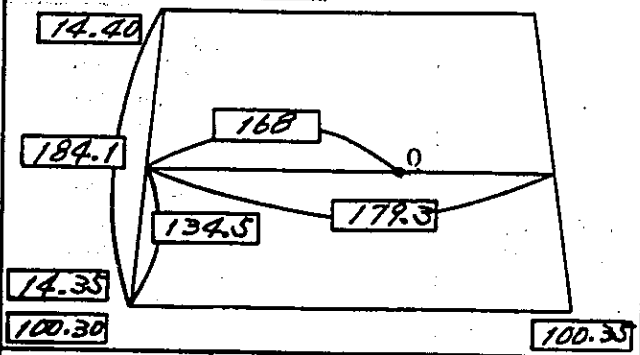
Path No. 3516-2

Site P	Site Q
Nakhon Luang	Ban Phraek

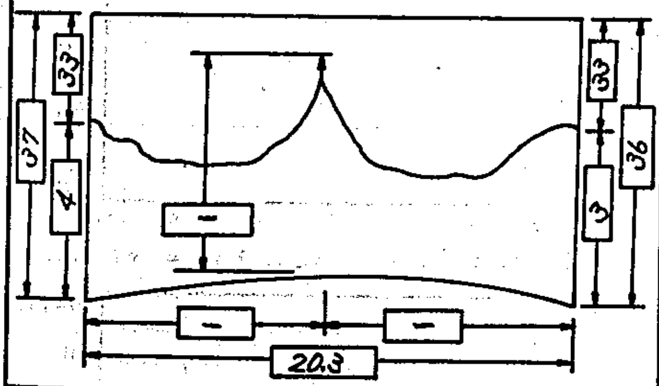
Map No. 5137 IV



Map No. 5138 III



	Site P		Site Q
Long-1(D.MS)	100.3500 ***	Long-1(D.MS)	100.3062 ***
Long-2(D.MS)	100.4000 ***	Long-2(D.MS)	100.3500 ***
Lati-1(D.MS)	14.2500 ***	Lati-1(D.MS)	14.3500 ***
Lati-2(D.MS)	14.3000 ***	Lati-2(D.MS)	14.4000 ***
X 1-2(mm)	179.3 ***	X 1-2(mm)	179.3 ***
X 1-0(mm)	55.4 ***	X 1-0(mm)	168.0 ***
Y 1-2(mm)	184.1 ***	Y 1-2(mm)	184.1 ***
Y 1-0(mm)	102.3 ***	Y 1-0(mm)	134.5 ***
Long. (D.MS)	100.3633 ***	Long. (D.MS)	100.3441 ***
Lati. (D.MS)	14.2747 ***	Lati. (D.MS)	14.3839 ***
G.Elevation	4 (m)	G.Elevation	3 (m)
Profile No.	5-3516-2	Type of Path	L/S (~~no~~ reflection)



Path Distance & Azimuth

Long-P (D.MS)	100.3633 ***
Lati-P (D.MS)	14.2747 ***
Long-Q (D.MS)	100.3441 ***
Lati-Q (D.MS)	14.3839 ***
d (km)	20.3 ***
α P→Q(D.MS)	350.3243 ***
α Q→P(D.MS)	170.3215 ***

Antenna Height & Diffraction Loss

No Obstacles

d (km)	
d1 (km)	
hm (m)	
hg1 (m)	
hg2 (m)	
ha1 (m)	
ha1 (m)	
ha2 (m)	
(k = 4/3)	
hp (m)	
Rs (m)	
Cs (m)	
U	
M	
(k = 1)	
U	
M	

PROPAGATION PATH DATA

Path No. 3516-2

Site P	Site Q
Nakhon Luang	Ban Phraek

Reflection Area (011A-1/3)

f (MHz)	900.00	***
K	1.333	***
hg1 (m)	4.0	***
hg2 (m)	3.0	***
d (km)	20.3	***
ha1′ (m)	33.0	***
ha2′ (m)	33.0	***
hr′ (m)	2.0	***
hr (m)		
d1 (m)	10.2	***
d2 (m)	10.2	***
ψ (D.MS)	0.0948	***
T1 (km)	14.4	***
Dv	0.84	***
ρ_e	0.8	***
Φr (deg)	180.0	***
Lr min(dB)	-5.1	***
Lr max(dB)	14.0	***

Variation of Reflection Loss (011A-3/3)

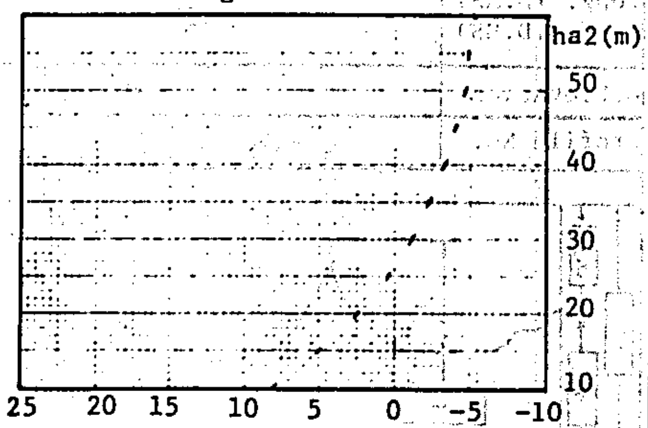
$K^{99.9}$	1.000	***
K^{50}	1.333	***
$K^{0.1}$	3.000	***
ha1′ (m)	33.0	***
ha2′ (m)	33.0	***
$Lr^{99.9}$ (dB)	-0.8	***
Lr^{50} (dB)	-1.8	***
$Lr^{0.1}$ (dB)	-3.3	***
ha1′ (m)		
ha1′ (m)		
$Lr^{99.9}$ (dB)		
Lr^{50} (dB)		
$Lr^{0.1}$ (dB)		

ha1 determined	33 (m)
ha2 determined	33 (m)

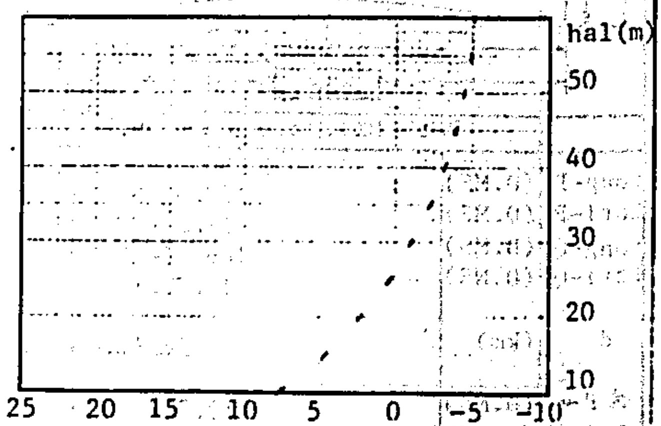
Reflection Loss (011A-2/3)

ha1′ (m)	33.0	***
Lr60m(dB)	-5.1	***
55	-4.9	***
50	-4.6	***
45	-4.0	***
40	-3.3	***
35	-2.3	***
30	-1.1	***
25	0.5	***
20	2.5	***
15	5.0	***
10	8.1	***
ha2′ (m)	33.0	***
Lr60m(dB)	-5.1	***
55	-4.9	***
50	-4.5	***
45	-4.0	***
40	-3.3	***
35	-2.3	***
30	-1.1	***
25	0.4	***
20	2.3	***
15	4.7	***
10	7.7	***

Height Pattern



Lr Pattern at Q (dB, ha1′ = 33 m)



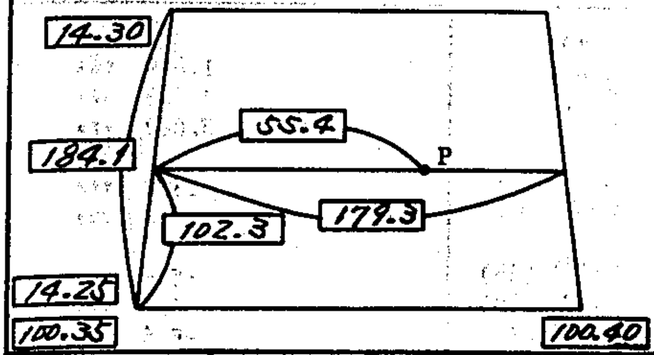
Lr Pattern at P (dB, ha2′ = 33 m)

PROPAGATION PATH DATA

Path No. 3516-3

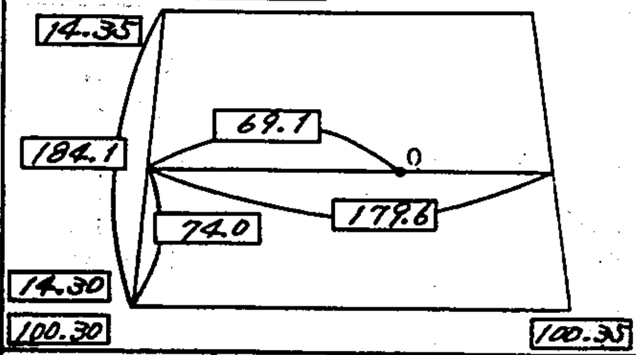
Site P	Site Q
Nakhon Luang	Maharat

Site P — Map No. 5137 IV

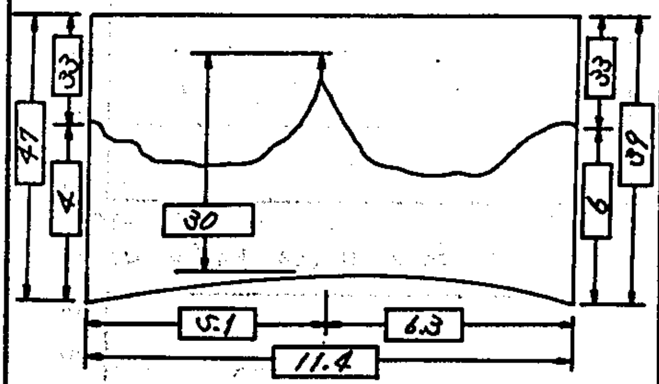


Long-1(D.MS)	100.3500 ***
Long-2(D.MS)	100.4000 ***
Lati-1(D.MS)	14.2500 ***
Lati-2(D.MS)	14.3000 ***
X 1-2(mm)	179.3 ***
X 1-0(mm)	55.4 ***
Y 1-2(mm)	184.1 ***
Y 1-0(mm)	102.3 ***
Long. (D.MS)	100.3633 ***
Lati. (D.MS)	14.2747 ***
G.Elevation	4 (m)
Profile No.	5-3516-3

Site Q — Map No. 5138 III



Long-1(D.MS)	100.3000 ***
Long-2(D.MS)	100.3500 ***
Lati-1(D.MS)	14.3000 ***
Lati-2(D.MS)	14.3500 ***
X 1-2(mm)	179.6 ***
X 1-0(mm)	69.1 ***
Y 1-2(mm)	184.1 ***
Y 1-0(mm)	74.0 ***
Long. (D.MS)	100.3155 ***
Lati. (D.MS)	14.3201 ***
G.Elevation	6 (m)
Type of Path	L/S (~~no~~ reflection)



Path Distance & Azimuth

Long-P (D.MS)	100.3633 ***
Lati-P (D.MS)	14.2747 ***
Long-Q (D.MS)	100.3155 ***
Lati-Q (D.MS)	14.3201 ***
d (km)	11.4 ***
α P→Q(D.MS)	313.1359 ***
α Q→P(D.MS)	133.1250 ***

Antenna Height & Diffraction Loss

d (km)	11.4 ***
d1 (km)	5.1 ***
hm (m)	30.0 ***
hg1 (m)	4.0 ***
hg2 (m)	6.0 ***
ha1 (m)	33.0 ***
ha1 (m)	33.0 ***
ha2 (m)	33.0 ***
(k = 4/3)	
hp (m)	35.8 ***
Rs (m)	30.7 ***
Cs (m)	6.0 ***
U	0.20 ***
M	9. ***
(k = 1)	$Ld^{50} = 4$ dB
U	0.18 ***
M	9. ***
	$Ld^{99.9} = 5$ dB

PROPAGATION PATH DATA

Path No. 3516-3

Site P	Nakhon Luang	—	Site Q	Maharat

Reflection Area(011A-1/3)

f (MHz)	900.00	***
K	1.333	***
hg1 (m)	4.0	***
hg2 (m)	6.0	***
d (km)	11.4	***
ha1′ (m)	33.0	***
ha2′ (m)	33.0	***
hr′ (m)	5.0	***
hr (m)		
d1 (m)	5.5	***
d2 (m)	5.9	***
ψ (D.MS)	0.1848	***
T1 (km)	5.6	***
Dv	0.94	***
ρ_c	0.9	***
Φr (deg)	186.0	***
Lr min(dB)	-5.6	***
Lr max(dB)	20.0	***

Variation of Reflection Loss(011A-3/3)

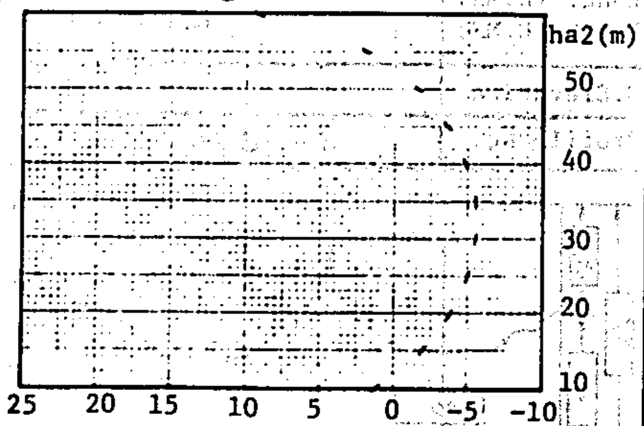
$K^{99.9}$	1.000	***
K^{50}	1.333	***
$K^{0.1}$	3.000	***
ha1′ (m)	33.0	***
ha2′ (m)	33.0	***
$Lr^{99.9}$ (dB)	-5.6	***
Lr^{50} (dB)	-5.6	***
$Lr^{0.1}$ (dB)	-5.5	***
ha1′ (m)		
ha1′ (m)		
$Lr^{99.9}$ (dB)		
Lr^{50} (dB)		
$Lr^{0.1}$ (dB)		

ha1 determined	33 (m)
ha2 determined	33 (m)

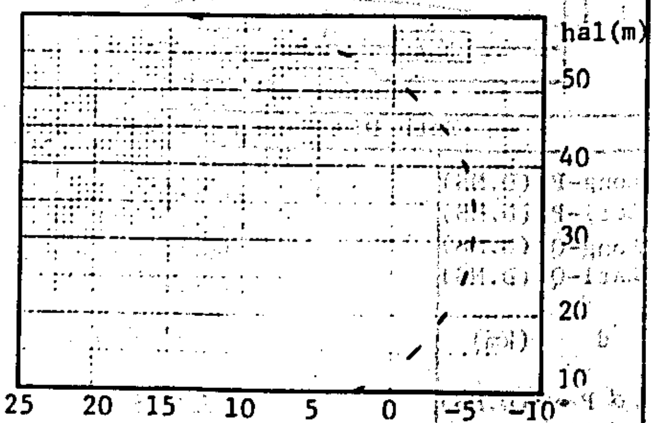
Reflection Loss(011A-2/3)

ha1′ (m)	33.0	***
Lr60m(dB)	9.3	***
55	1.9	***
50	-1.6	***
45	-3.7	***
40	-4.9	***
35	-5.5	***
30	-5.5	***
25	-5.0	***
20	-3.8	***
15	-1.9	***
10	1.1	***
ha2′ (m)	33.0	***
Lr60m(dB)	13.9	***
55	3.3	***
50	-1.1	***
45	-3.5	***
40	-4.9	***
35	-5.5	***
30	-5.5	***
25	-4.9	***
20	-3.6	***
15	-1.4	***
10	2.2	***

Height Pattern



Lr Pattern at Q (dB, ha1′ = 33 m)



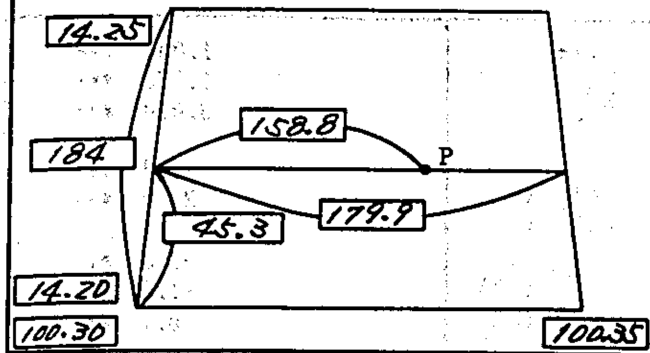
Lr Pattern at P (dB, ha2′ = 33 m)

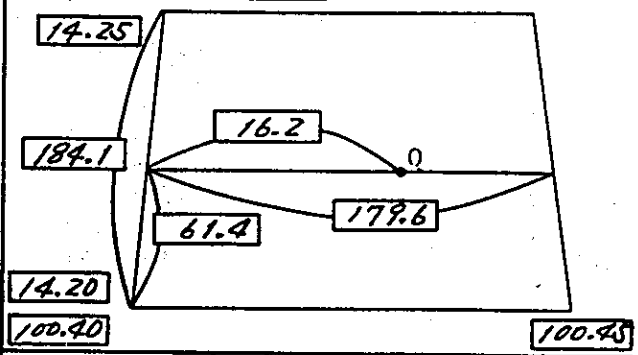
PROPAGATION PATH DATA

Path No. 3516-4

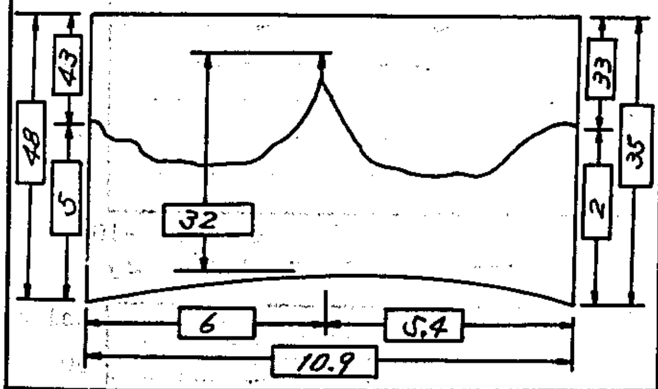
Site P: Ayutthaya — Site Q: U-Thai

Site P		Site Q	
Map No.	5137 IV	Map No.	5137 IV





Site P		Site Q	
Long-1(D.MS)	100.3000 ***	Long-1(D.MS)	100.4000 ***
Long-2(D.MS)	100.3500 ***	Long-2(D.MS)	100.4500 ***
Lati-1(D.MS)	14.2000 ***	Lati-1(D.MS)	14.2000 ***
Lati-2(D.MS)	14.2500 ***	Lati-2(D.MS)	14.2500 ***
X 1-2(mm)	179.9 ***	X 1-2(mm)	179.6 ***
X 1-0(mm)	158.8 ***	X 1-0(mm)	16.2 ***
Y 1-2(mm)	184.0 ***	Y 1-2(mm)	184.1 ***
Y 1-0(mm)	45.3 ***	Y 1-0(mm)	61.4 ***
Long. (D.MS)	100.3425 ***	Long. (D.MS)	100.4027 ***
Lati. (D.MS)	14.2114 ***	Lati. (D.MS)	14.2140 ***
G.Elevation	5 (m)	G.Elevation	2 (m)
Profile No.	5-3516-4	Type of Path	L/S (~~no~~ reflection)



Path Distance & Azimuth

Long-P (D.MS)	100.3425 ***
Lati-P (D.MS)	14.2114 ***
Long-Q (D.MS)	100.4027 ***
Lati-Q (D.MS)	14.2140 ***
d (km)	10.9 ***
α P→Q (D.MS)	95.4443 ***
α Q→P (D.MS)	265.4613 ***

Antenna Height & Diffraction Loss

d	(km)	10.9 ***
dl	(km)	6.0 ***
hm	(m)	32.0 ***
hg1	(m)	5.0 ***
hg2	(m)	2.0 ***
ha1	(m)	38.2 ***
ha1	(m)	43.0 ***
ha2	(m)	33.0 ***
(k = 4/3)		
hp	(m)	79.1 ***
Rs	(m)	30.0 ***
Cs	(m)	7.1 ***
U		0.24 ***
M		9. ***
Ld		12 dB
(k = 1)		
U		0.22 ***
M		10. ***
Ld 99.9		13 dB

PROPAGATION PATH DATA

Path No. 3516-4

Site P Ayutthaya —— Site Q U-Thai

Reflection Area(011A-1/3)

f (MHz)	900.00	***
K	1.333	***
hg1 (m)	5.0	***
hg2 (m)	2.0	***
d (km)	10.9	***
ha1′ (m)	43.0	***
ha2′ (m)	33.0	***
hr′ (m)	4.0	***
hr (m)	2.0	***
d1 (m)	6.3	***
d2 (m)	4.6	***
ψ (D.MS)	0.2349	***
T1 (km)	4.3	***
Dv	0.96	***
ρ_c	0.6	***
Φr (deg)	180.0	***
Lr min(dB)	-4.1	***
Lr max(dB)	8.0	***

Variation of Reflection Loss(011A-3/3)

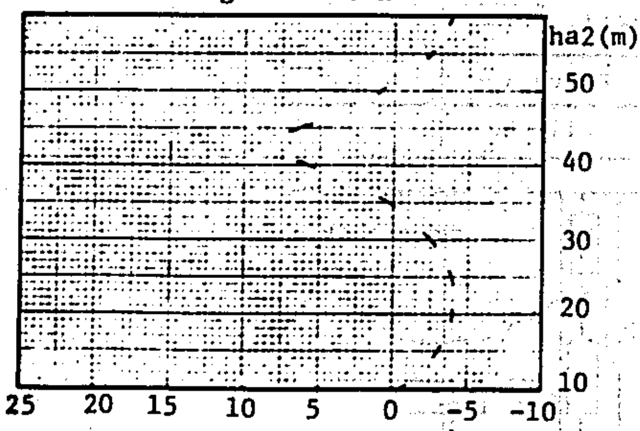
$K^{99.9}$	1.000	***
K^{50}	1.333	***
$K^{0.1}$	3.000	***
ha1′ (m)	43.0	***
ha2′ (m)	33.0	***
$Lr^{99.9}$ (dB)	-1.6	***
Lr^{50} (dB)	-1.6	***
$Lr^{0.1}$ (dB)	0.1	***
ha1′ (m)		
ha1′ (m)		
$Lr^{99.9}$ (dB)		
Lr^{50} (dB)		
$Lr^{0.1}$ (dB)		

ha1 determined	43 (m)
ha2 determined	33 (m)

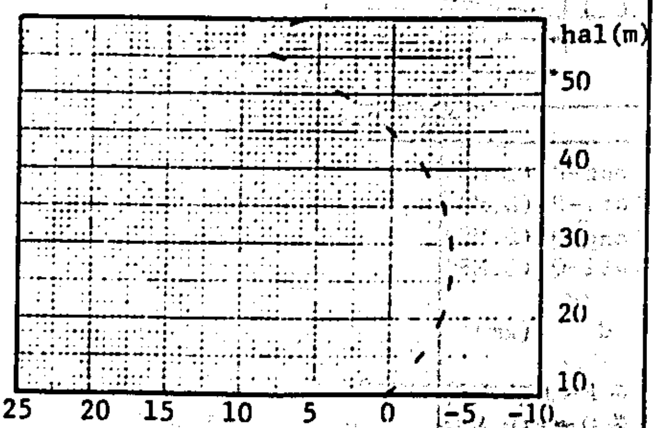
Reflection Loss(011A-2/3)

ha1′ (m)	43.0	***
Lr60m(dB)	-3.8	***
55	-2.3	***
50	0.9	***
45	6.4	***
40	5.7	***
35	0.4	***
30	-2.5	***
25	-3.9	***
20	-4.0	***
15	-3.0	***
10	-0.6	***
ha2′ (m)	33.0	***
Lr60m(dB)	6.0	***
55	7.5	***
50	3.4	***
45	-9.486549342-03	***
40	-2.2	***
35	-3.5	***
30	-4.0	***
25	-4.0	***
20	-3.4	***
15	-2.1	***
10	4.285166942-03	***

Height Pattern



Lr Pattern at Q (dB, ha1′= 43 m)



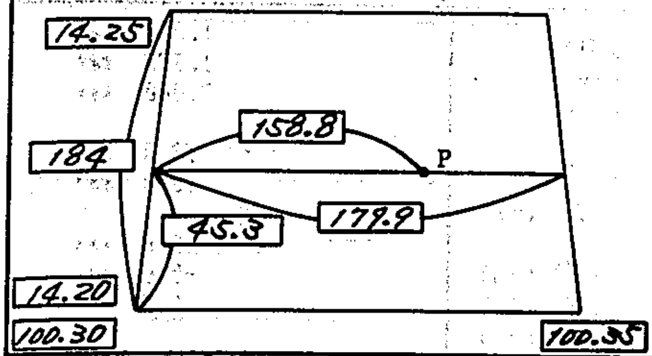
Lr Pattern at P (dB, ha2′ = 33 m)

PROPAGATION PATH DATA

Path No. 3516-5

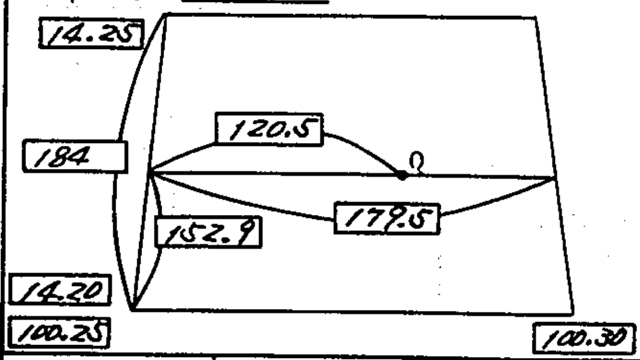
Site P	Site Q
Ayutthaya	Bang Ban

Map No. 5137 IV

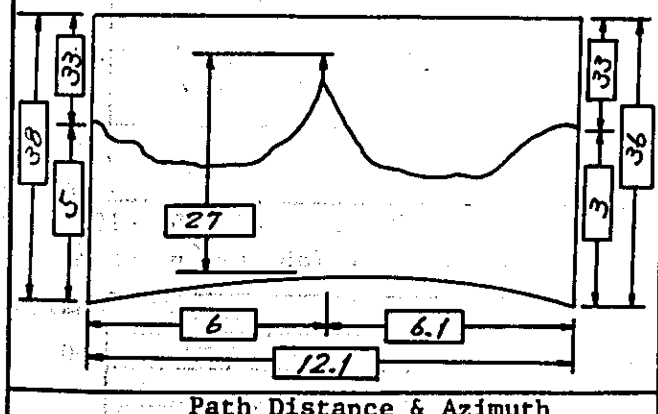


Long-1(D.MS)	100.3000	***
Long-2(D.MS)	100.3500	***
Lati-1(D.MS)	14.2000	***
Lati-2(D.MS)	14.2500	***
X 1-2(mm)	179.9	***
X 1-0(mm)	158.8	***
Y 1-2(mm)	184.0	***
Y 1-0(mm)	45.3	***
Long. (D.MS)	100.3425	***
Lati. (D.MS)	14.2114	***
G.Elevation	5 (m)	
Profile No.	5-3516-5	

Map No. 5037 I



Long-1(D.MS)	100.2500	***
Long-2(D.MS)	100.3000	***
Lati-1(D.MS)	14.2000	***
Lati-2(D.MS)	14.2500	***
X 1-2(mm)	179.5	***
X 1-0(mm)	120.5	***
Y 1-2(mm)	184.0	***
Y 1-0(mm)	152.9	***
Long. (D.MS)	100.2821	***
Lati. (D.MS)	14.2409	***
G.Elevation	3 (m)	
Type of Path	L/S (~~no~~ reflection)	



Path Distance & Azimuth

Long-P (D.MS)	100.3425	***
Lati-P (D.MS)	14.2114	***
Long-Q (D.MS)	100.2821	***
Lati-Q (D.MS)	14.2409	***
d (km)	12.1	***
α P→Q (D.MS)	296.2127	***
α Q→P (D.MS)	116.1957	***

Antenna Height & Diffraction Loss

d (km)		12.1	***
d1 (km)		6.0	***
hm (m)		27.0	***
hg1 (m)		5.0	***
hg2 (m)		3.0	***
ha1 (m)		35.0	***
ha1 (m)		33.0	***
ha2 (m)		33.0	***
(k = 4/3)			
hp (m)		34.9	***
Rs (m)		31.3	***
Cs (m)		7.9	*
U		0.25	**
M		11.	***
(k = 1)	Ld^{50}	9	dB
U		0.22	***
M		12.	***
	$Ld^{99.9}$	10	dB

PROPAGATION PATH DATA

Path No. 3516-5

Site P Ayutthaya —— Site Q Bang Ban

Reflection Area(011A-1/3)

f (MHz)	900.00	***
K	1.333	***
hg1 (m)	5.0	***
hg2 (m)	3.0	*
d (km)	12.1	***
ha1′ (m)	33.0	**
ha2′ (m)	33.0	*
hr′ (m)	3.0	***
hr (m)		
d1 (m)	6.2	***
d2 (m)	5.9	***
ψ (D.MS)	0.1801	***
T1 (km)	6.1	***
Dv	0.94	***
ρ_c	0.3	***
Φr (deg)	180.0	***
Lr min(dB)	-5.6	***
Lr max(dB)	26.0	***

Variation of Reflection Loss(011A-3/3)

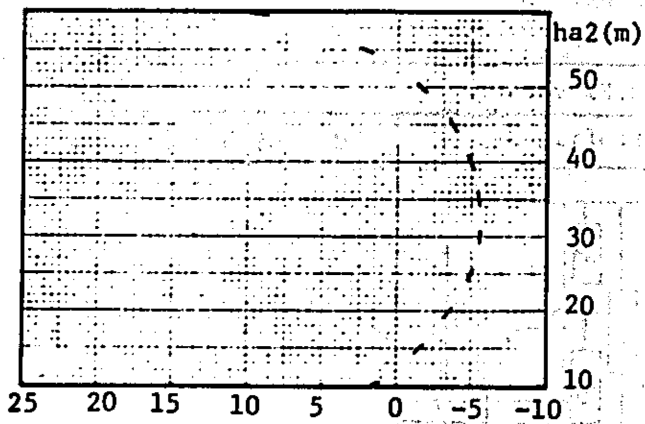
$K^{99.9}$	1.000	***
K^{50}	1.333	***
$K^{0.1}$	3.000	***
ha1′ (m)	33.0	***
ha2′ (m)	33.0	***
$Lr^{99.9}$ (dB)	-5.6	***
Lr^{50} (dB)	-5.6	***
$Lr^{0.1}$ (dB)	-5.5	***
ha1′ (m)		
ha1′ (m)		
$Lr^{99.9}$ (dB)		
Lr^{50} (dB)		
$Lr^{0.1}$ (dB)		

ha1 determined	33 (m)
ha2 determined	33 (m)

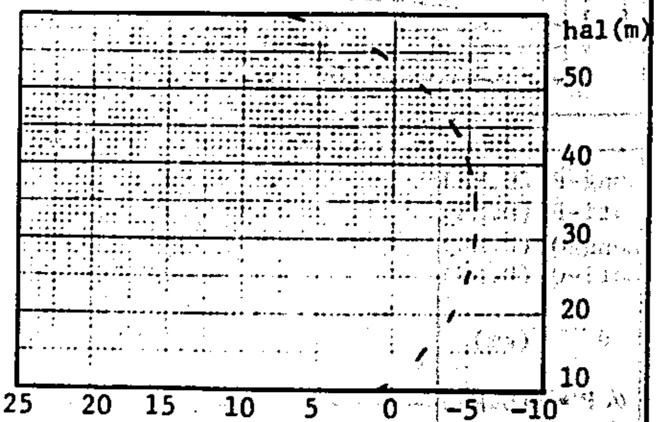
Reflection Loss(011A-2/3)

ha1′ (m)	33.0	***
Lr60m(dB)	9.9	***
55	2.1	***
50	-1.6	***
45	-3.8	***
40	-5.0	***
35	-5.5	***
30	-5.5	***
25	-4.9	***
20	-3.6	***
15	-1.6	***
10	1.7	***
ha2′ (m)	33.0	***
Lr60m(dB)	6.8	***
55	1.0	***
50	-2.1	***
45	-4.0	***
40	-5.0	***
35	-5.5	***
30	-5.5	***
25	-5.0	***
20	-3.9	***
15	-2.1	***
10	0.7	***

Height Pattern



Lr Pattern at Q (dB, ha1′ = 33 m)

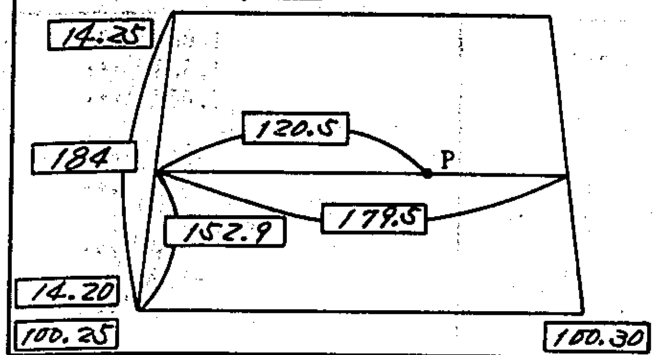


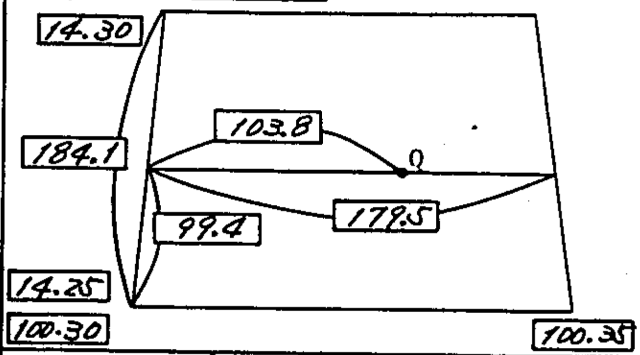
Lr Pattern at P (dB, ha2′ = 33 m)

PROPAGATION PATH DATA

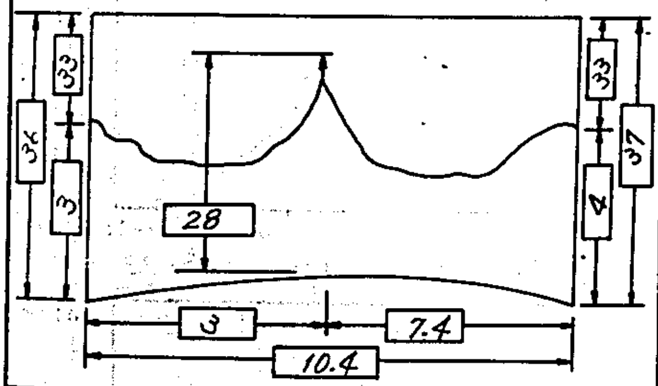
PROPAGATION PATH DATA	Path No. 3516-6
Site P: Bang Ban	Site Q: Bangpa Han

Site P		Site Q	
Map No. 5037 I		Map No. 5137 IV	





Site P		Site Q	
Long-1 (D.MS)	100.2500 ***	Long-1 (D.MS)	100.3000 ***
Long-2 (D.MS)	100.3000 ***	Long-2 (D.MS)	100.3500 ***
Lati-1 (D.MS)	14.2000 ***	Lati-1 (D.MS)	14.2500 ***
Lati-2 (D.MS)	14.2500 ***	Lati-2 (D.MS)	14.3000 ***
X 1-2 (mm)	179.5 ***	X 1-2 (mm)	179.5 ***
X 1-0 (mm)	120.5 ***	X 1-0 (mm)	103.8 ***
Y 1-2 (mm)	184.0 ***	Y 1-2 (mm)	184.1 ***
Y 1-0 (mm)	152.9 ***	Y 1-0 (mm)	99.4 ***
Long. (D.MS)	100.2821 ***	Long. (D.MS)	100.3253 ***
Lati. (D.MS)	14.2409 ***	Lati. (D.MS)	14.2742 ***
G.Elevation	3 (m)	G.Elevation	4 (m)
Profile No.	5-3516-6	Type of Path	L/S (~~no~~ reflection)



Path Distance & Azimuth	
Long-P (D.MS)	100.2821 ***
Lati-P (D.MS)	14.2409 ***
Long-Q (D.MS)	100.3253 ***
Lati-Q (D.MS)	14.2742 ***
d (km)	10.4 ***
α P→Q (D.MS)	51.1531 ***
α Q→P (D.MS)	231.1639 ***

Antenna Height & Diffraction Loss	
d (km)	10.4 ***
d1 (km)	3.2 ***
hm (m)	28.2 ***
hg1 (m)	3.0 ***
hg2 (m)	4.0 **
ha1 (m)	33.0 ***
ha1 (m)	33.0 ***
ha2 (m)	37.0 ***
(k = 4/3)	
hp (m)	35.2 ***
Rs (m)	26.7 ***
Cs (m)	7.3 ***
U	0.25 ***
M	5. ***
Ld[50]	2 15
(k = 1)	
U	2.25 ***
M	10. ***
Ld[99.9]	[illegible]

PROPAGATION PATH DATA

Path No. 3516-6

Site P	Bang Ban	Site Q	Bangpa Han

Reflection Area(011A-1/3)

f (MHz)	900.00	***
K	1.333	***
hg1 (m)	3.0	***
hg2 (m)	4.0	***
d (km)	10.4	***
ha1′ (m)	33.0	***
ha2′ (m)	33.0	***
hr′ (m)	3.0	***
hr (m)		
d1 (m)	5.1	***
d2 (m)	5.3	***
ψ (D.MS)	0.2108	***
T1 (km)	4.9	***
Dv	0.95	***
ρc	0.9	***
Φr (deg)	180.0	***
Lr min(dB)	-5.[illegible]	***
Lr max(dB)	20.6	***

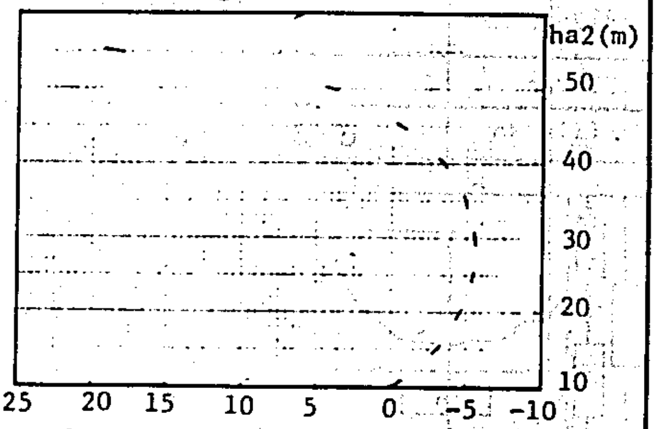
Variation of Reflection Loss(011A-3/3)

$K^{99.9}$	1.000	***
K^{50}	1.333	***
$K^{0.1}$	3.000	***
ha1′ (m)	33.0	***
ha2′ (m)	33.0	***
$Lr^{99.9}$ (dB)	-5.4	***
Lr^{50} (dB)	-5.2	***
$Lr^{0.1}$ (dB)	-4.9	***
ha1′ (m)		
ha1′ (m)		
$Lr^{99.9}$ (dB)		
Lr^{50} (dB)		
$Lr^{0.1}$ (dB)		
ha1 determined	33 (m)	
ha2 determined	33 (m)	

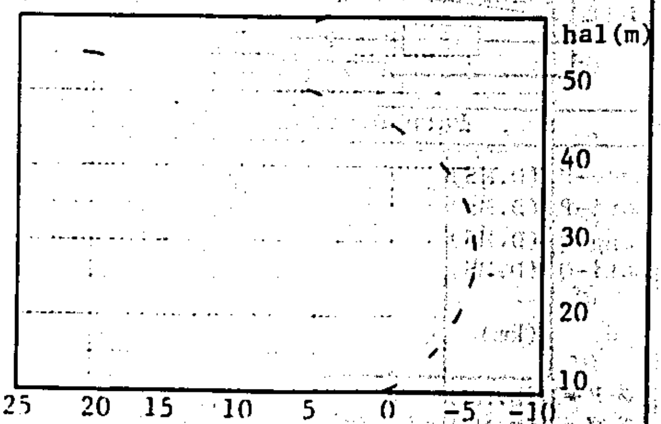
Reflection Loss(011A-2/3)

ha1′ (m)	33.0	***
Lr60m(dB)	5.9	***
55	18.9	***
50	4.4	***
45	-0.7	***
40	-3.4	***
35	-4.9	***
30	-5.5	***
25	-5.4	***
20	-4.6	***
15	-3.6	***
10	-0.2	***
ha2′ (m)	33.0	***
Lr60m(dB)	4.6	***
55	19.9	***
50	5.2	***
45	-0.5	***
40	-3.4	***
35	-4.9	***
30	-5.5	***
25	-5.4	***
20	-4.5	***
15	-2.9	***
10	0.3	***

Height Pattern



Lr Pattern at Q (dB, ha1′ = 33 m)



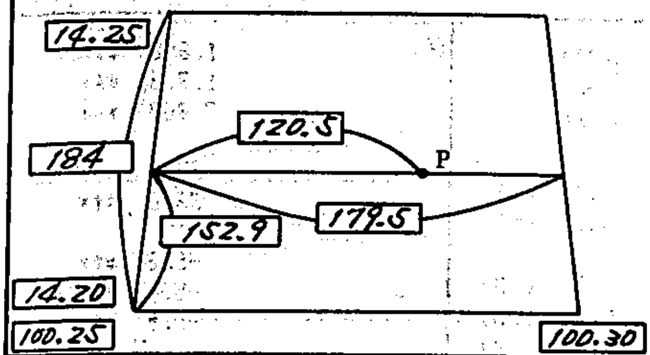
Lr Pattern at P (dB, ha2′ = 33 m)

PROPAGATION PATH DATA

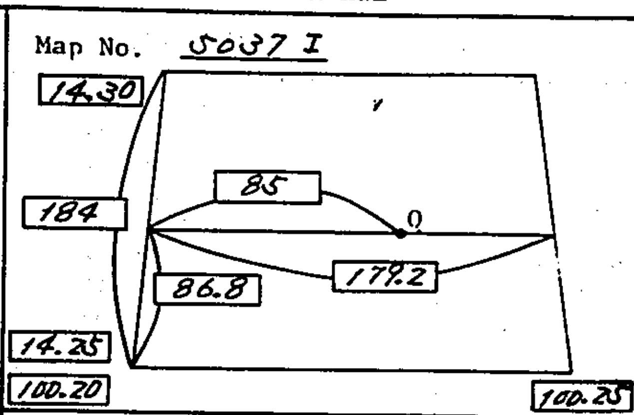
Path No. 3516-7

Site P		Site Q
Bang Ban		Phak Hai

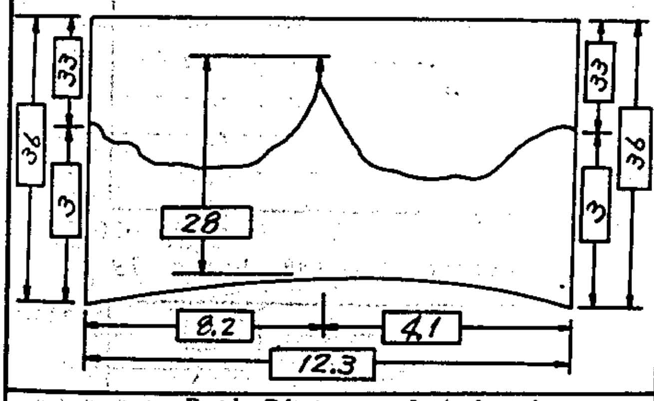
Map No. 5037 I



Map No. 5037 I



Site P		Site Q	
Long-1 (D.MS)	100.2500 ***	Long-1 (D.MS)	100.2000 ***
Long-2 (D.MS)	100.3000 ***	Long-2 (D.MS)	100.2500 ***
Lati-1 (D.MS)	14.2000 ***	Lati-1 (D.MS)	14.2500 ***
Lati-2 (D.MS)	14.2500 ***	Lati-2 (D.MS)	14.3000 ***
X 1-2 (mm)	179.5 ***	X 1-2 (mm)	179.2 ***
X 1-0 (mm)	120.5 ***	X 1-0 (mm)	85.0 ***
Y 1-2 (mm)	184.0 ***	Y 1-2 (mm)	184.0 ***
Y 1-0 (mm)	152.9 ***	Y 1-0 (mm)	86.8 ***
Long. (D.MS)	100.2821 ***	Long. (D.MS)	100.2222 ***
Lati. (D.MS)	14.2409 ***	Lati. (D.MS)	14.2722 ***
G.Elevation	3 (m)	G.Elevation	3 (m)
Profile No.	5-3516-7	Type of Path	L/S (~~no~~ reflection)



Path Distance & Azimuth

Long-P (D.MS)	100.2821 ***
Lati-P (D.MS)	14.2409 ***
Long-Q (D.MS)	100.2222 ***
Lati-Q (D.MS)	14.2722 ***
d (km)	12.3 ***
α P→Q (D.MS)	298.4729 ***
α Q→P (D.MS)	118.4560 ***

Antenna Height & Diffraction Loss

d (km)	12.3 **
dl (km)	8.2 ***
hm (m)	28.0 ***
hg1 (m)	3.0 ***
hg2 (m)	3.0 ***
ha1 (m)	38.0 ***
ha1 (m)	[illegible] ***
ha2 (m)	33.0 ***
(k = 4/3)	
hp (m)	34.0 **
Rs (m)	30.1 ***
Cs (m)	5.0 ***
U	0.30 ***
M	9. ***
	Ld^{50} = 6 dB
(k = 1)	
U	0.18 **
M	9. ***
	$Ld^{99.9}$ = 8 dB

PROPAGATION PATH DATA

Path No. 3516-7

Site P	Bang Ban	Site Q	Phak Hai

Reflection Area(011A-1/3)

f (MHz)	900.00	***
K	1.333	***
hg1 (m)	3.0	***
hg2 (m)	3.0	***
d (km)	12.3	***
ha1′ (m)	33.0	***
ha2′ (m)	33.0	***
hr′ (m)	4.0	***
hr (m)		
d1 (m)	6.2	***
d2 (m)	6.2	***
ψ (D.MS)	0.1639	***
T1 (km)	6.6	***
Dv	0.93	***
ρc	0.5	***
Φr (deg)	180.0	***
Lr min(dB)	-5.6	***
Lr max(dB)	20.0	***

Variation of Reflection Loss(011A-3/3)

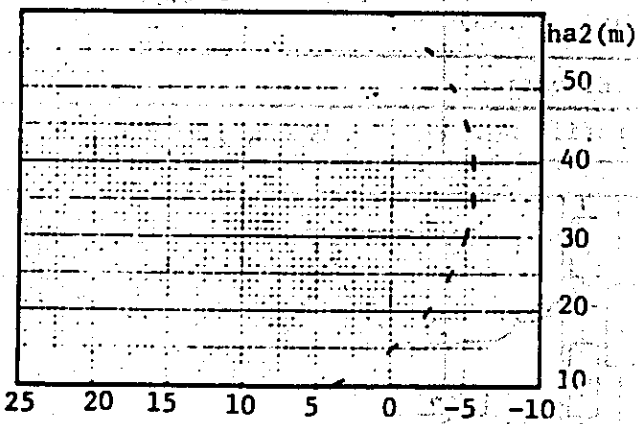
$K^{99.9}$	1.000	***
K^{50}	1.333	***
$K^{0.1}$	7.000	***
ha1′ (m)	33.0	***
ha2′ (m)	33.0	***
$Lr^{99.9}$ (dB)	-5.2	***
Lr^{50} (dB)	-5.4	***
$Lr^{0.1}$ (dB)	-5.5	***
ha1′ (m)		
ha1′ (m)		
$Lr^{99.9}$ (dB)		
Lr^{50} (dB)		
$Lr^{0.1}$ (dB)		

ha1 determined	33 (m)
ha2 determined	33 (m)

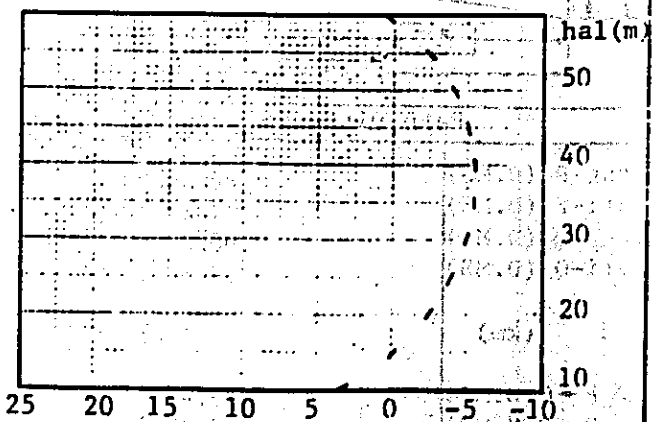
Reflection Loss(011A-2/3)

ha1′ (m)	33.0	***
Lr60m(dB)	0.4	***
55	-2.4	***
50	-4.1	***
45	-5.1	***
40	-5.5	***
35	-5.5	***
30	-5.0	***
25	-4.1	***
20	-2.5	***
15	-0.1	***
10	3.6	***
ha2′ (m)	33.0	***
Lr60m(dB)	0.4	***
55	-2.4	***
50	-4.1	***
45	-5.1	***
40	-5.5	***
35	-5.5	***
30	-5.0	***
25	-4.1	***
20	-2.5	***
15	-0.1	***
10	3.6	***

Height Pattern



Lr Pattern at Q (dB, ha1′ = 33 m)



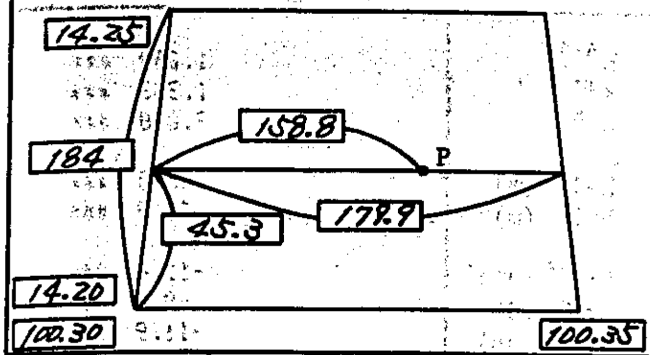
Lr Pattern at P (dB, ha2′ = 33 m)

PROPAGATION PATH DATA

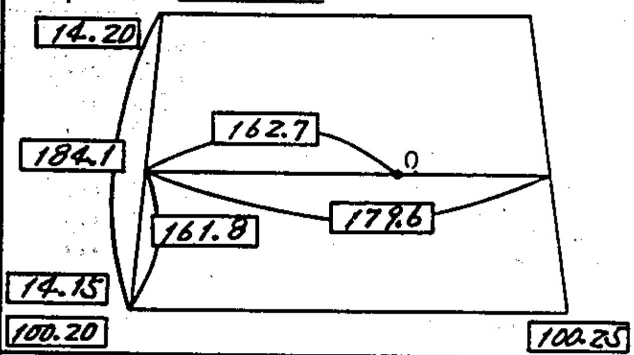
Path No. 3516-8

Site P	Ayutthaya	Site Q	Sena

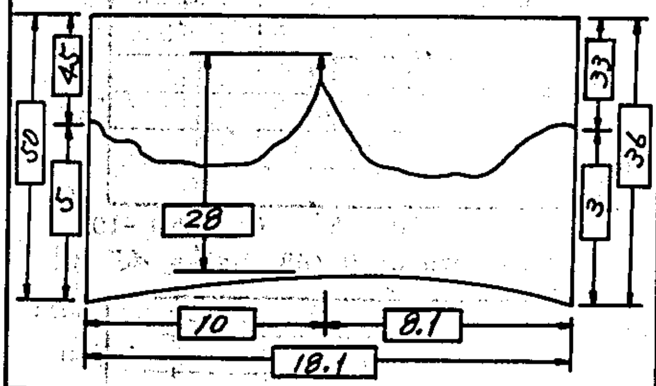
Map No. 5137 IV



Map No. 5037 I



	Site P			Site Q	
Long-1 (D.MS)	100.3000	***	Long-1 (D.MS)	100.2000	***
Long-2 (D.MS)	100.3500	***	Long-2 (D.MS)	100.2500	***
Lati-1 (D.MS)	14.2000	***	Lati-1 (D.MS)	14.1500	***
Lati-2 (D.MS)	14.2500	***	Lati-2 (D.MS)	14.2000	***
X 1-2 (mm)	179.9	***	X 1-2 (mm)	179.6	***
X 1-0 (mm)	158.8	***	X 1-0 (mm)	162.7	***
Y 1-2 (mm)	184.0	***	Y 1-2 (mm)	184.1	***
Y 1-0 (mm)	45.3	***	Y 1-0 (mm)	161.8	***
Long. (D.MS)	100.3425	***	Long. (D.MS)	100.2432	***
Lati. (D.MS)	14.2114	***	Lati. (D.MS)	14.1924	***
G.Elevation	5 (m)		G.Elevation	3 (m)	
Profile No.	5-3516-8		Type of Path	L/S (~~no~~ reflection)	



Path Distance & Azimuth

Long-P (D.MS)	100.3425	***
Lati-P (D.MS)	14.2114	***
Long-Q (D.MS)	100.2432	***
Lati-Q (D.MS)	14.1924	***
d (km)	18.1	***
α P→Q (D.MS)	259.1348	***
α Q→P (D.MS)	79.1122	***

Antenna Height & Diffraction Loss

d (km)	18..	***
d1 (km)	14.0	***
hm (m)	28.0	***
hg1 (m)	5 [illegible]	***
hg2 (m)	[illegible]	***
ha1 (m)	50.0	***
ha1 (m)	45.0	***
ha2 (m)	33.0	***
(k = 4/3)		
hp (m)	35.8	***
Rs (m)	32.5	***
Cs (m)	7.8	***
U	0.24	***
M	15.	***
	Ld^{50} = 8	dB
(k = 1)		
U	0.21	***
M	16.	***
	$Ld^{99.9}$ = 10	dB

PROPAGATION PATH DATA

Path No. 3516-8

Site P		Site Q	
Ayutthaya	—	Sena	

Reflection Area(011A-1/3)

f (MHz)	900.00	***
K	1.333	***
hg1 (m)	5.0	***
hg2 (m)	3.0	***
d (km)	18.1	***
ha1′ (m)	45.6	***
ha2′ (m)	33.0	***
hr′ (m)	3.0	***
hr (m)		
d1 (m)	10.5	***
d2 (m)	7.6	***
ψ (D.MS)	0.1313	***
T1 (km)	9.3	***
Dv	0.89	***
ρ_e	0.9	***
Φr (deg)	180.0	***
Lr min(dB)	-5.6	***
Lr max(dB)	20.0	***

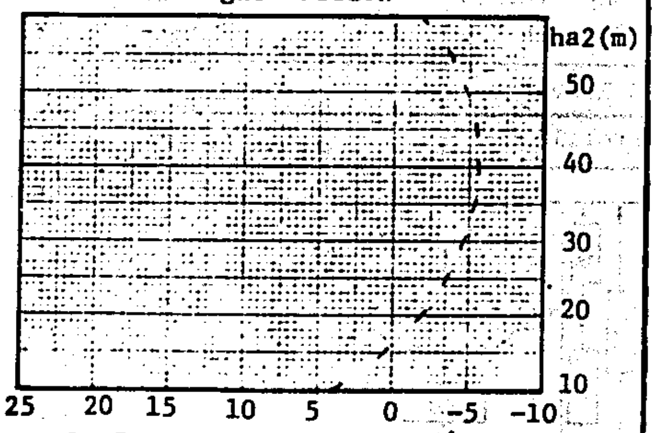
Variation of Reflection Loss(011A-3/3)

$K^{99.9}$	1.000	***
K^{50}	1.333	***
$K^{0.1}$	3.000	***
ha1′ (m)	45.0	***
ha2′ (m)	33.0	***
$Lr^{99.9}$ (dB)	-11.4	***
Lr^{50} (dB)	-9.9	***
$Lr^{0.1}$ (dB)	-11.9	***
ha1′ (m)		
ha1′ (m)		
$Lr^{99.9}$ (dB)		
Lr^{50} (dB)		
$Lr^{0.1}$ (dB)		
ha1 determined	45 (m)	
ha2 determined	33 (m)	

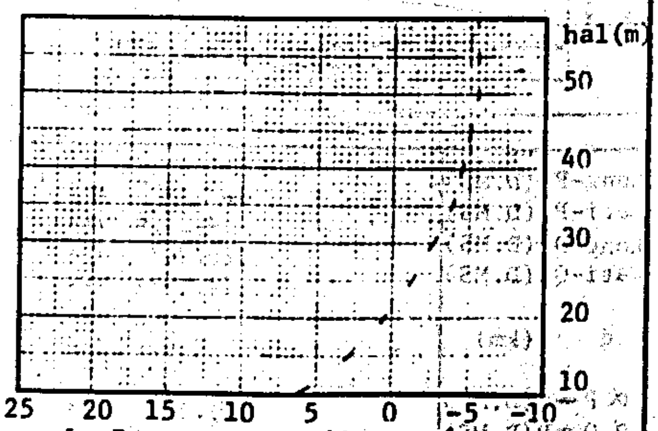
Reflection Loss(011A-2/3)

ha1′ (m)	45.0	***
Lr60m(dB)	-1.9	***
55	-3.7	***
50	-4.8	***
45	-5.4	***
40	-5.6	***
35	-5.3	***
30	-4.7	***
25	-3.6	***
20	-1.9	***
15	0.5	***
10	4.0	***
ha2′ (m)	33.0	***
Lr60m(dB)	-5.5	***
55	-5.6	***
50	-5.5	***
45	-5.1	***
40	-4.6	***
35	-3.8	***
30	-2.7	***
25	-1.3	***
20	0.6	***
15	3.0	***
10	6.3	***

Height Pattern



Lr Pattern at Q (dB, ha1′ = 45 m)



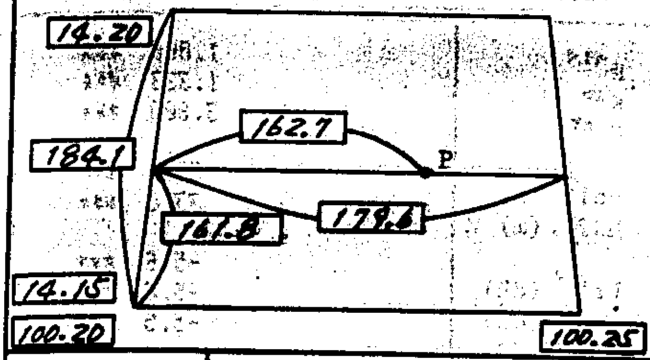
Lr Pattern at P (dB, ha2′ = 33 m)

PROPAGATION PATH DATA

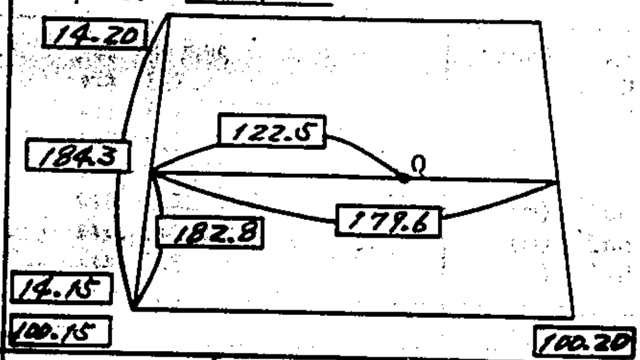
Path No.	3516-9

Site P	Sena	Site Q	Bang Sai

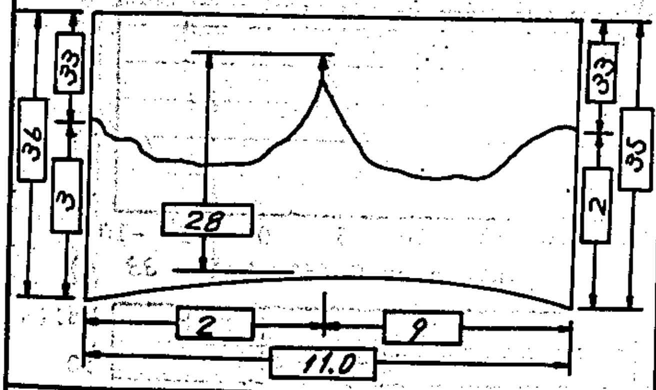
Map No. 5037 I



Map No. 5037 I



Site P			Site Q		
Long-1 (D.MS)	100.2000	***	Long-1 (D.MS)	100.1500	***
Long-2 (D.MS)	100.2500	***	Long-2 (D.MS)	100.2000	***
Lati-1 (D.MS)	14.1500	***	Lati-1 (D.MS)	14.1500	***
Lati-2 (D.MS)	14.2000	***	Lati-2 (D.MS)	14.2000	***
X 1-2 (mm)	179.6	***	X 1-2 (mm)	179.6	***
X 1-0 (mm)	162.7	***	X 1-0 (mm)	122.5	***
Y 1-2 (mm)	184.1	***	Y 1-2 (mm)	184.3	***
Y 1-0 (mm)	161.8	***	Y 1-0 (mm)	182.8	***
Long. (D.MS)	100.2432	***	Long. (D.MS)	100.1825	***
Lati. (D.MS)	14.1924	***	Lati. (D.MS)	14.1958	***
G.Elevation	3 (m)		G.Elevation	2 (m)	
Profile No.	5-3516-9		Type of Path	L/S (no reflection)	



Path Distance & Azimuth

Long-P (D.MS)	100.2432	***
Lati-P (D.MS)	14.1924	***
Long-Q (D.MS)	100.1625	***
Lati-Q (D.MS)	14.1958	***
d (km)	11.0	***
α P→Q (D.MS)	275.2518	***
α Q→P (D.MS)	95.2348	***

Antenna Height & Diffraction Loss

d	(km)	11.0	***
dl	(km)	2.0	***
hm	(m)	28.0	***
hg1	(m)	3.0	***
hg2	(m)	2.0	***
hal	(m)	38.0	**
ha1	(m)	33.0	**
ha2	(m)	33.0	***
(k = 4/3)			
hp	(m)	34.8	**
Rs	(m)	23.4	***
Cs	(m)	6.8	***
U		0.29	***
M		8.	***
	Ld^{50} =	6	dB
(k = 1)			
U		0.27	***
M		9.	***
	$Ld^{99.9}$ =	8	dB

PROPAGATION PATH DATA

Path No. 3516-9

Site P	Sena	Site Q	Bang Sai

Reflection Area(011A-1/3)

f (MHz)	900.00	***
K	1.333	***
hg1 (m)	3.0	***
hg2 (m)	2.0	***
d (km)	11.0	***
ha1′ (m)	33.0	***
ha2′ (m)	33.0	***
hr′ (m)	3.0	***
hr (m)		
d1 (m)	5.6	***
d2 (m)	5.4	***
ψ (D.MS)	0.1911	***
T1 (km)	5.4	***
Dv	0.95	***
ρ_c	0.9	***
Φ_r (deg)	180.0	***
Lr min(dB)	-5.6	***
Lr max(dB)	20.0	***

Variation of Reflection Loss(011A-3/3)

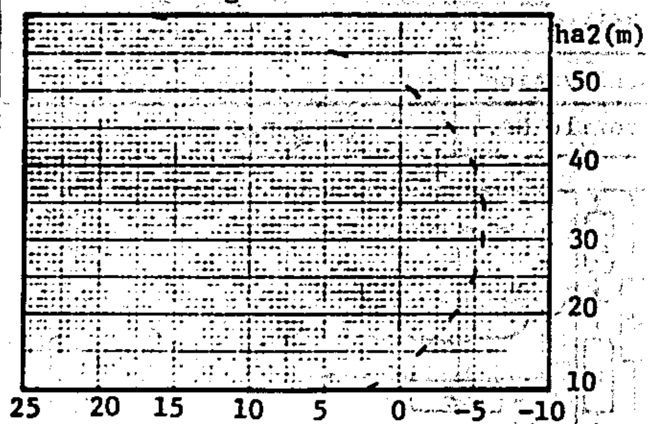
$K^{99.9}$	1.000	***
K^{50}	1.333	***
$K^{0.1}$	3.000	***
ha1′ (m)	33.0	***
ha2′ (m)	33.0	***
$Lr^{99.9}$ (dB)	-5.6	***
Lr^{50} (dB)	-5.6	***
$Lr^{0.1}$ (dB)	-5.5	***
ha1′ (m)		
ha1′ (m)		
$Lr^{99.9}$ (dB)		
Lr^{50} (dB)		
$Lr^{0.1}$ (dB)		

ha1 determined	33 (m)
ha2 determined	33 (m)

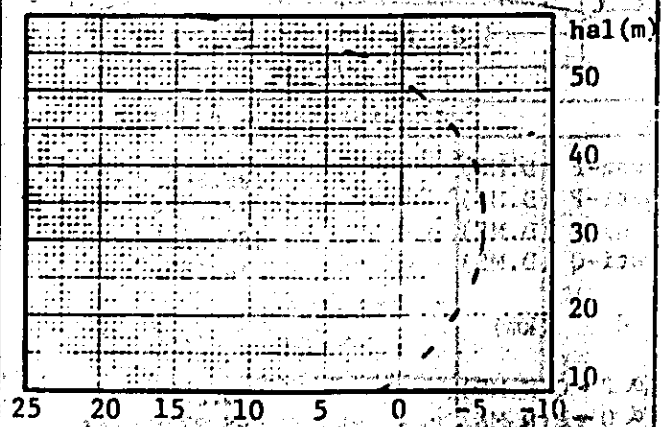
Reflection Loss(011A-2/3)

ha1′ (m)	33.0	***
Lr60m(dB)	16.5	***
55	4.0	***
50	-0.7	***
45	-3.3	***
40	-4.8	***
35	-5.5	***
30	-5.5	***
25	-4.9	***
20	-3.7	***
15	-1.5	***
10	2.1	***
ha2′ (m)	33.0	***
Lr60m(dB)	13.3	***
55	3.2	***
50	-1.0	***
45	-3.4	***
40	-4.8	***
35	-5.5	***
30	-5.5	***
25	-5.0	***
20	-3.8	***
15	-1.8	***
10	1.5	***

Height Pattern



Lr Pattern at Q (dB, ha1′ = 33 m)



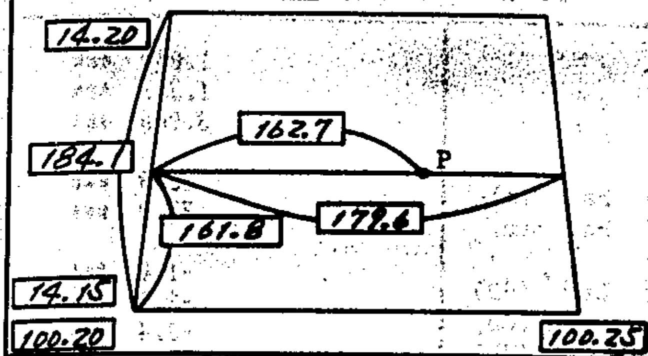
Lr Pattern at P (dB, ha2′ = 33 m)

PROPAGATION PATH DATA

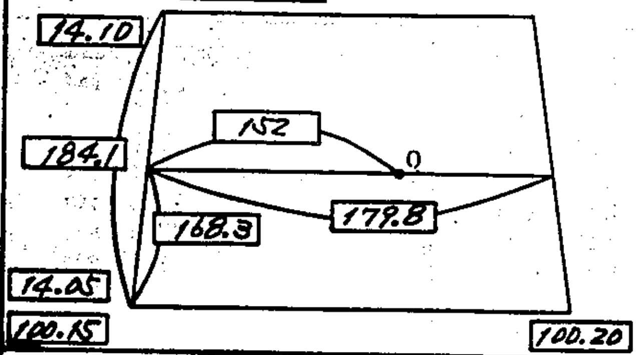
Path No. 3516-10

Site P	Site Q
Sena	Lat Bua Luang

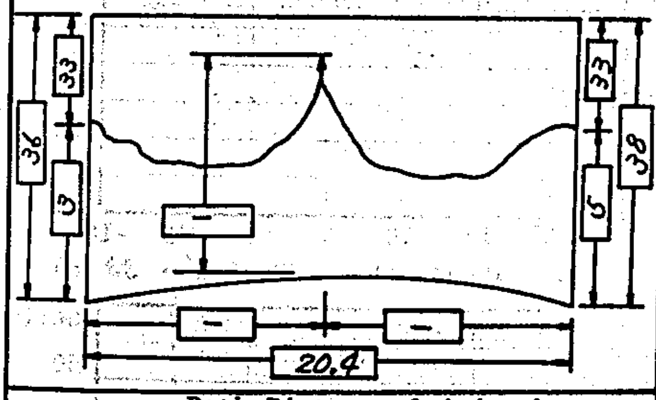
Map No. 5037 I



Map No. 5037 II



Site P		Site Q	
Long-1 (D.MS)	100.2000 ***	Long-1 (D.MS)	100.1500 ***
Long-2 (D.MS)	100.2500 ***	Long-2 (D.MS)	100.2000 ***
Lati-1 (D.MS)	14.1500 ***	Lati-1 (D.MS)	14.0500 ***
Lati-2 (D.MS)	14.2000 ***	Lati-2 (D.MS)	14.1000 ***
X 1-2 (mm)	179.6 ***	X 1-2 (mm)	179.8 ***
X 1-0 (mm)	162.7 ***	X 1-0 (mm)	152.0 ***
Y 1-2 (mm)	184.1 ***	Y 1-2 (mm)	184.1 ***
Y 1-0 (mm)	161.8 ***	Y 1-0 (mm)	168.3 ***
Long. (D.MS)	100.2432 ***	Long. (D.MS)	100.1914 ***
Lati. (D.MS)	14.1924 ***	Lati. (D.MS)	14.0934 ***
G.Elevation	3 (m)	G.Elevation	5 (m)
Profile No.	5-3516-10	Type of Path	L/S (~~no~~ reflection)



Path Distance & Azimuth

Long-P (D.MS)	100.2432 ***
Lati-P (D.MS)	14.1924 ***
Long-Q (D.MS)	100.1914 ***
Lati-Q (D.MS)	14.0934 ***
d (km)	20.4 ***
α P→Q (D.MS)	207.4642 ***
α Q→P (D.MS)	27.4524 ***

Antenna Height & Diffraction Loss

No Obstacles

d (km)	
d1 (km)	
hm (m)	
hg1 (m)	
hg2 (m)	
ha1 (m)	
ha1 (m)	
ha2 (m)	
(k = 4/3)	
hp (m)	
Rs (m)	
Cs (m)	
U	
M	
(k = 1)	
U	
M	

PROPAGATION PATH DATA

Path No. 3516-10

Site P Sena — **Site Q** Lat Bua Luang

Reflection Area(011A-1/3)

f (MHz)	900.00	***
K	1.333	***
hg1 (m)	3.0	***
hg2 (m)	5.0	***
d (km)	20.4	***
ha1′ (m)	33.0	***
ha2′ (m)	33.0	***
hr′ (m)	2.0	***
hr (m)		
d1 (m)	9.9	***
d2 (m)	10.5	***
ψ (D.MS)	0.0950	***
T1 (km)	14.4	***
Dv	0.84	***
ρ_e	0.8	***
Φr (deg)	180.0	***
Lr min(dB)	-5.1	***
Lr max(dB)	14.0	***

Variation of Reflection Loss(011A-3/3)

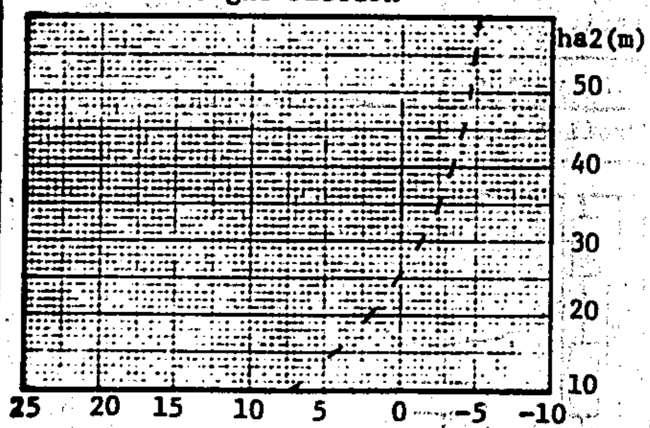
K	1.000	***
K	1.333	***
K	3.000	***
ha1′ (m)	33.0	***
ha2′ (m)	33.0	***
Lr (dB)	-1.0	***
Lr (dB)	-2.0	***
Lr (dB)	-3.4	***
ha1′ (m)		
ha1′ (m)		
Lr (dB)		
Lr (dB)		
Lr (dB)		

ha1 determined	33 (m)
ha2 determined	33 (m)

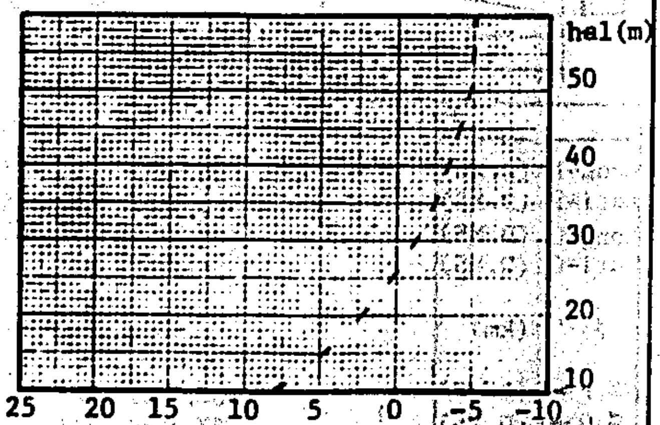
Reflection Loss(011A-2/3)

ha1′ (m)	33.0	***
Lr60m(dB)	-5.1	***
55	-4.9	***
50	-4.6	***
45	-4.1	***
40	-3.4	***
35	-2.4	***
30	-1.3	***
25	0.2	***
20	2.0	***
15	4.3	***
10	7.2	***
ha2′ (m)	33.0	***
Lr60m(dB)	-5.1	***
55	-5.0	***
50	-4.7	***
45	-4.1	***
40	-3.4	***
35	-2.5	***
30	-1.2	***
25	0.3	***
20	2.3	***
15	4.8	***
10	7.9	***

Height Pattern



Lr Pattern at Q (dB, ha1′ = 33 m)



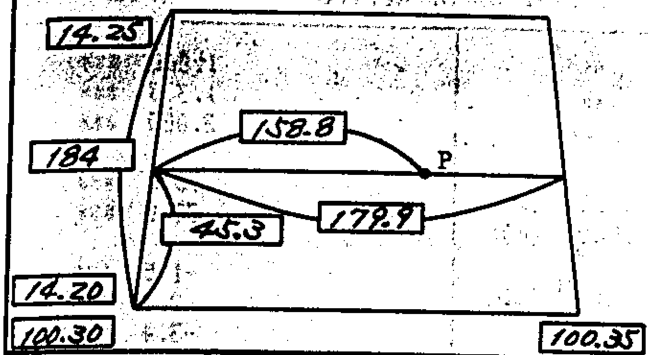
Lr Pattern at P (dB, ha2′ = 33 m)

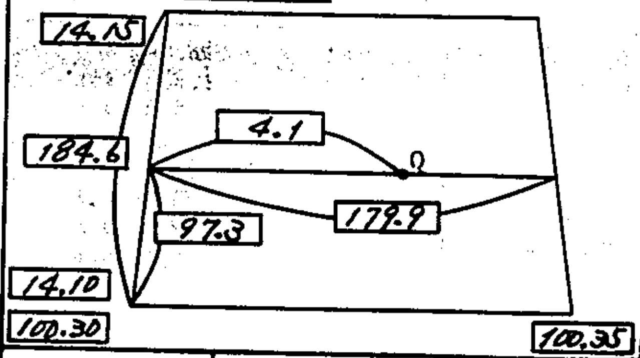
PROPAGATION PATH DATA

Path No. 3516-11

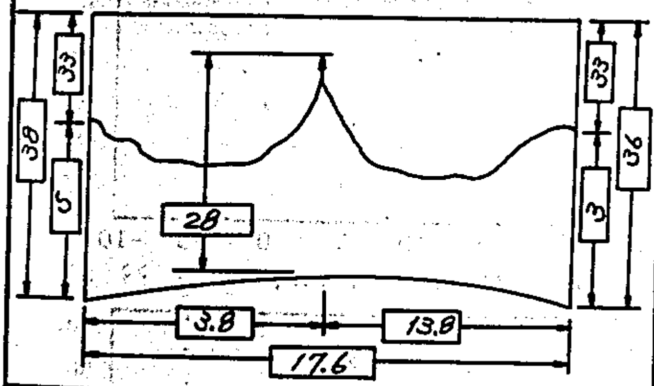
Site P: Ayutthaya — Site Q: Ban Si

Site P		Site Q	
Map No.	5137 IV	Map No.	5137 III





Site P		Site Q	
Long-1 (D.MS)	100.3000 ***	Long-1 (D.MS)	100.3000 ***
Long-2 (D.MS)	100.3500 ***	Long-2 (D.MS)	100.3500 ***
Lati-1 (D.MS)	14.2000 ***	Lati-1 (D.MS)	14.1000 ***
Lati-2 (D.MS)	14.2500 ***	Lati-2 (D.MS)	14.1500 ***
X 1-2 (mm)	179.9 ***	X 1-2 (mm)	179.9 ***
X 1-0 (mm)	158.8 ***	X 1-0 (mm)	4.1 ***
Y 1-2 (mm)	184.0 ***	Y 1-2 (mm)	184.6 ***
Y 1-0 (mm)	45.3 ***	Y 1-0 (mm)	97.3 ***
Long. (D.MS)	100.3425 ***	Long. (D.MS)	100.3007 ***
Lati. (D.MS)	14.2114 ***	Lati. (D.MS)	14.1238 ***
G.Elevation	5 (m)	G.Elevation	3 (m)
Profile No.	5-3516-11	Type of Path	L/S (~~no~~ reflection)



Path Distance & Azimuth

Long-P (D.MS)	100.3425 ***
Lati-P (D.MS)	14.2114 ***
Long-Q (D.MS)	100.3007 ***
Lati-Q (D.MS)	14.1238 ***
d (km)	17.6 ***
α P→Q (D.MS)	206.0047 ***
α Q→P (D.MS)	25.5943 ***

Antenna Height & Diffraction Loss

d (km)	17.6 ***
d1 (km)	3.8 ***
hm (m)	28.0 ***
hg1 (m)	5.0 ***
hg2 (m)	3.0 ***
ha1 (m)	38.0 ***
ha1 (m)	33.0 *
ha2 (m)	33.0 ***
(k = 4/3)	
hp (m)	34.5 ***
Rs (m)	31.5 ***
Cs (m)	6.5 ***
U	0.2 ***
M	10. ***
	Ld 50 = 3 dB
(k = 1)	
U	0.17 ***
M	[illegible] ***
	Ld99.9 = 5 dB

PROPAGATION PATH DATA

Path No. 3516-11

Site P	Site Q
Ayutthaya	Ban Si

Reflection Area(011A-1/3)

f (MHz)	900.00 ***
K	1.333 ***
hg1 (m)	5.0 ***
hg2 (m)	3.0 ***
d (km)	17.6 ***
ha1′ (m)	33.0 ***
ha2′ (m)	33.0 ***
hr′ (m)	5.0 ***
hr (m)	
d1 (m)	9.1 ***
d2 (m)	8.5 ***
ψ (D.MS)	0.1940 ***
T1 (km)	12.3 ***
Dv	0.87 ***
ρ_c	0.8 ***
Φ_r (deg)	180.0 ***
Lr min(dB)	-5.1 ***
Lr max(dB)	14.0 ***

Variation of Reflection Loss(011A-3/3)

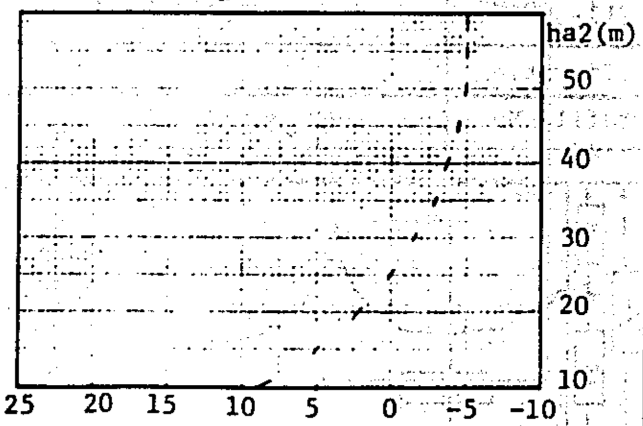
$K^{99.9}$	1.000 ***
K^{50}	1.333 ***
$K^{0.1}$	3.000 ***
ha1′ (m)	33.0 ***
ha2′ (m)	33.0 ***
$Lr^{99.9}$ (dB)	-1.5 ***
Lr^{50} (dB)	-2.3 ***
$Lr^{0.1}$ (dB)	-3.4 ***
ha1′ (m)	
ha1′ (m)	
$Lr^{99.9}$ (dB)	
Lr^{50} (dB)	
$Lr^{0.1}$ (dB)	

ha1 determined	33 (m)
ha2 determined	33 (m)

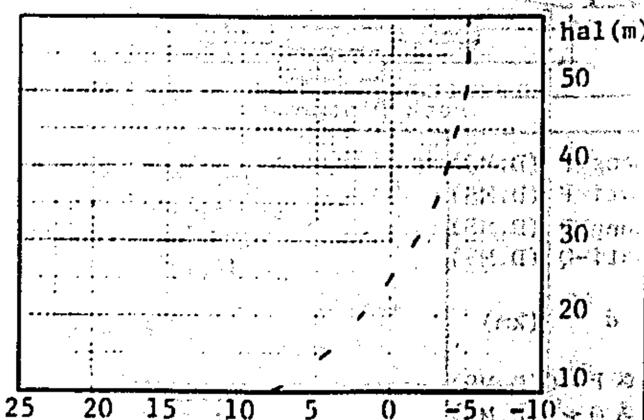
Reflection Loss(011A-2/3)

ha1′ (m)	33.0 ***
Lr60m(dB)	-5.1 ***
55	-5.1 ***
50	-4.9 ***
45	-4.4 ***
40	-3.7 ***
35	-2.8 ***
30	-1.5 ***
25	0.1 ***
20	2.3 ***
15	5.1 ***
10	8.9 ***
ha2′ (m)	33.0 ***
Lr60m(dB)	-5.1 ***
55	-5.1 ***
50	-4.8 ***
45	-4.3 ***
40	-3.7 ***
35	-2.8 ***
30	-1.6 ***
25	-2.369111038-02 ***
20	2.0 ***
15	4.5 ***
10	7.9 ***

Height Pattern



Lr Pattern at Q (dB, ha1′ = 33 m)

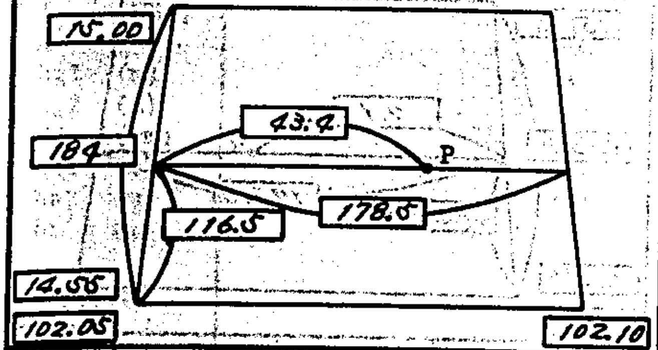


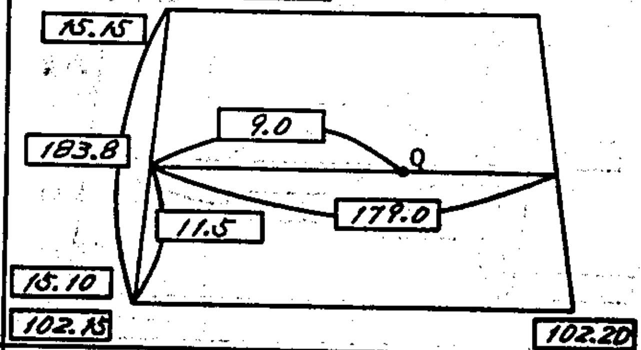
Lr Pattern at P (dB, ha2′ = 33 m)

PROPAGATION PATH DATA

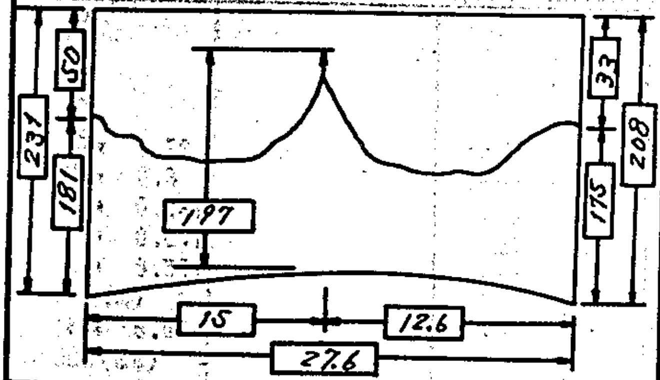
Path No.	4421-1
Site P	Nakhon Ratchasima
Site Q	Non Sung

Site P		Site Q	
Map No.	5438 IV	Map No.	5439 II





Site P		Site Q	
Long-1 (D.MS)	102.0500 ***	Long-1 (D.MS)	102.1500 ***
Long-2 (D.MS)	102.1000 ***	Long-2 (D.MS)	102.2000 ***
Lati-1 (D.MS)	14.5500 ***	Lati-1 (D.MS)	15.1000 ***
Lati-2 (D.MS)	15.0000 ***	Lati-2 (D.MS)	15.1500 ***
X 1-2 (mm)	178.5 ***	X 1-2 (mm)	179.0 ***
X 1-0 (mm)	43.4 ***	X 1-0 (mm)	9.0 ***
Y 1-2 (mm)	184.0 ***	Y 1-2 (mm)	183.8 ***
Y 1-0 (mm)	116.5 ***	Y 1-0 (mm)	11.5 ***
Long. (D.MS)	102.0613 ***	Long. (D.MS)	102.1515 ***
Lati. (D.MS)	14.5810 ***	Lati. (D.MS)	15.1019 ***
G.Elevation	181 (m)	G.Elevation	175 (m)
Profile No.	δ-4421-1	Type of Path	L/S (no reflection)



Path Distance & Azimuth

Long-P (D.MS)	102.0613 ***
Lati-P (D.MS)	14.5810 ***
Long-Q (D.MS)	102.1515 ***
Lati-Q (D.MS)	15.1019 ***
d (km)	27.6 ***
α P→Q (D.MS)	35.5023 ***
α Q→P (D.MS)	215.5243 ***

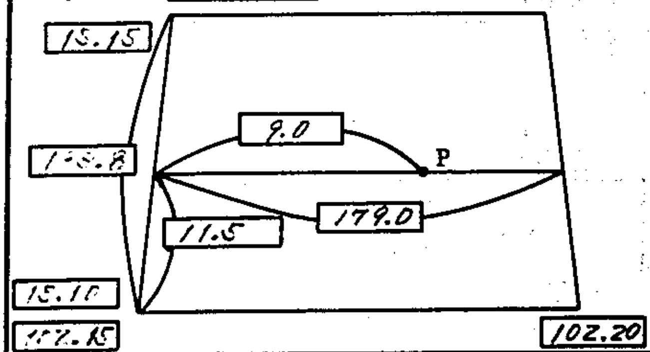
Antenna Height & Diffraction Loss

d (km)	27.5 ***
d1 (km)	15.0 ***
hm (m)	197.0 ***
hg1 (m)	181.0 ***
hg2 (m)	175.0 ***
hal (m)	45.0 ***
ha1 (m)	50.0 ***
ha2 (m)	33.0 ***
(k = 4/3)	
hp (m)	207.4 ***
Rs (m)	47.8 ***
Cs (m)	10.4 ***
U	0.22 ***
M	23. ***
(k = 1)	Ld^{50} = 10 dB
U	0.14 ***
M	24. ***
	$Ld^{99.9}$ = 12 dB

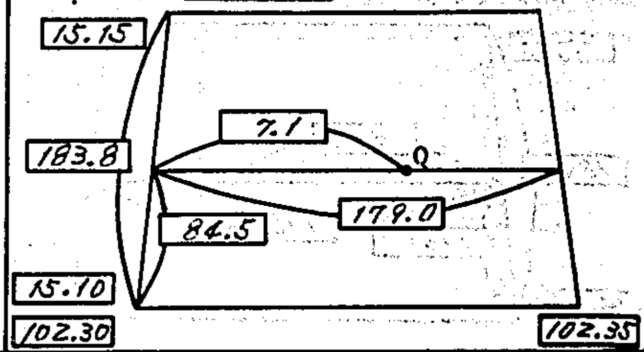
PROPAGATION PATH DATA	Path No. 4421-2

Site P	Site Q
Non Sung	Phi Mai

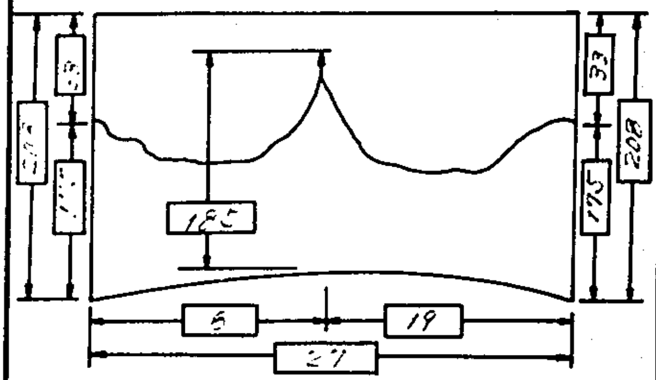
Map No. 5439 II



Map No. 5539 II



Site P		Site Q	
Long-1 (D.MS)	102.1500 ***	Long-1 (D.MS)	102.3000 ***
Long-2 (D.MS)	102.2000 ***	Long-2 (D.MS)	102.3500 ***
Lati-1 (D.MS)	15.1000 ***	Lati-1 (D.MS)	15.1000 ***
Lati-2 (D.MS)	15.1500 ***	Lati-2 (D.MS)	15.1500 ***
X 1-2 (mm)	179.0 ***	X 1-2 (mm)	179.0 ***
X 1-0 (mm)	9.0 ***	X 1-0 (mm)	7.1 ***
Y 1-2 (mm)	183.8 ***	Y 1-2 (mm)	183.8 ***
Y 1-0 (mm)	11.5 ***	Y 1-0 (mm)	84.5 ***
Long. (D.MS)	102.1515 ***	Long. (D.MS)	102.3012 ***
Lati. (D.MS)	15.1019 ***	Lati. (D.MS)	15.1218 ***
G.Elevation	175 (m)	G.Elevation	175 (m)
Profile No.	5-4421-2	Type of Path	L/S (~~no~~ reflection)



Path Distance & Azimuth

Long-P (D.MS)	102.1515 ***
Lati-P (D.MS)	15.1019 ***
Long-Q (D.MS)	102.3012 ***
Lati-Q (D.MS)	15.1218 ***
d (km)	27.0 ***
α P→Q (D.MS)	82.1038 ***
α Q→P (D.MS)	262.1432 ***

Antenna Height & Diffraction Loss

d (km)	27.2 ***
dl (km)	8.3 ***
hm (m)	185.0 ***
hg1 (m)	175.0 ***
hg2 (m)	175.0 ***
ha1 (m)	30.0 ***
ha1 (m)	33.0 ***
ha2 (m)	33.0 ***
(k = 4/3)	
hp (m)	199.0 ***
Rs (m)	43.3 ***
Cs (m)	14.0 ***
U	0.32 ***
M	25. ***
Ld^{50} =	3 dB
(k = 1)	
U	0.26 ***
M	27. ***
$Ld^{99.9}$ =	4 dB

PROPAGATION PATH DATA

Path No. 4421-2

Site P: Non Sung — Site Q: Phi Mai

Reflection Area(011A-1/3)

f (MHz)	900.00 ***
K	1.333 ***
hg1 (m)	175.0 ***
hg2 (m)	175.0 ***
d (km)	27.0 ***
ha1′ (m)	33.0 ***
ha2′ (m)	33.0 ***
hr′ (m)	165.0 ***
hr (m)	
d1 (m)	13.5 ***
d2 (m)	13.5 ***
ψ (D.MS)	0.0813 ***
T1 (km)	19.8 ***
Dv	0.77 ***
ρe	0.7 ***
Φr (deg)	180.0 ***
Lr min(dB)	-4.6 ***
Lr max(dB)	10.5 ***

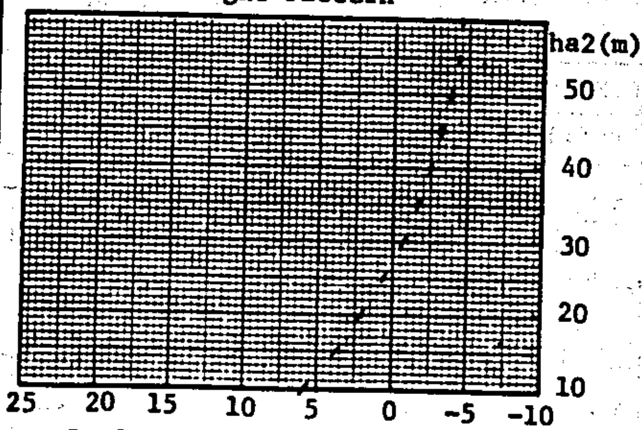
Variation of Reflection Loss(011A-3/3)

$K^{99.9}$	1.000 ***
K^{50}	1.333 ***
$K^{0.1}$	3.000 ***
ha1′ (m)	33.0 ***
ha2′ (m)	33.0 ***
$Lr^{99.9}$ (dB)	0.4 ***
Lr^{50} (dB)	-1.2 ***
$Lr^{0.1}$ (dB)	-3.3 ***
ha1′ (m)	
ha1′ (m)	
$Lr^{99.9}$ (dB)	
Lr^{50} (dB)	
$Lr^{0.1}$ (dB)	
ha1 determined	33 (m)
ha2 determined	33 (m)

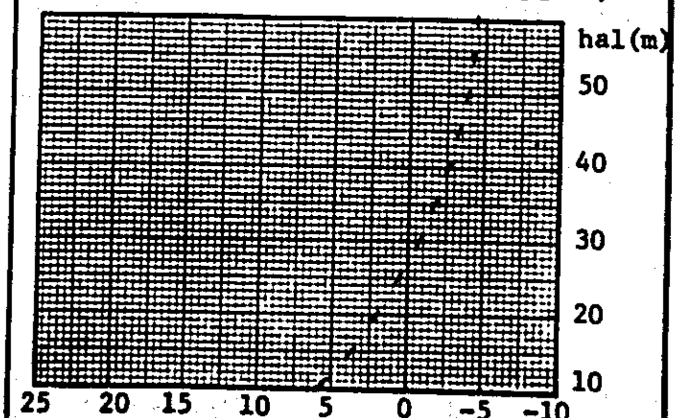
Reflection Loss(011A-2/3)

ha1′ (m)	33.0 ***
Lr60m(dB)	-4.4 ***
55	-4.2 ***
50	-3.8 ***
45	-3.2 ***
40	-2.5 ***
35	-1.6 ***
30	-0.6 ***
25	0.7 ***
20	2.1 ***
15	3.8 ***
10	5.7 ***
ha2′ (m)	33.0 ***
Lr60m(dB)	-4.4 ***
55	-4.2 ***
50	-3.8 ***
45	-3.2 ***
40	-2.5 ***
35	-1.6 ***
30	-0.6 ***
25	0.7 ***
20	2.1 ***
15	3.8 ***
10	5.7 ***

Height Pattern



Lr Pattern at Q (dB, ha1′ = 33 m)



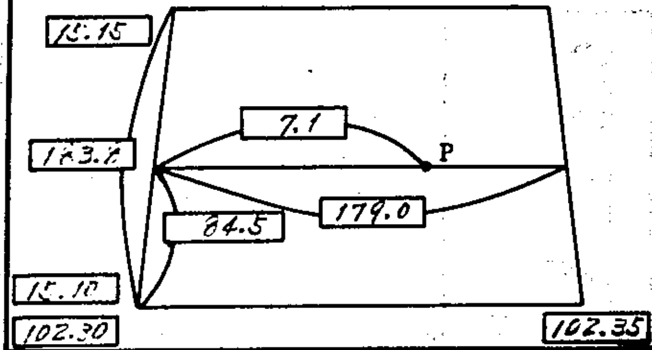
Lr Pattern at P (dB, ha2′ = 33 m)

PROPAGATION PATH DATA

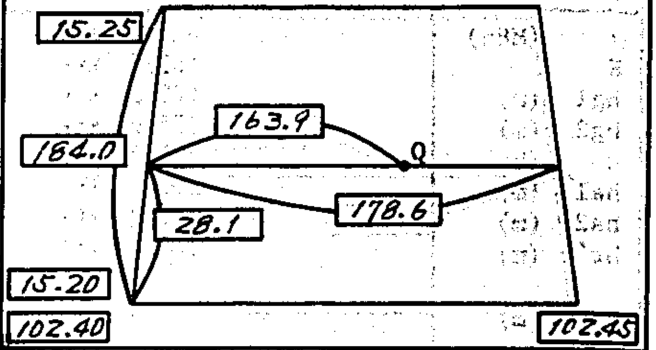
Path No. 4421-3

Site P	Phi Mai	Site Q	Chum Phuang

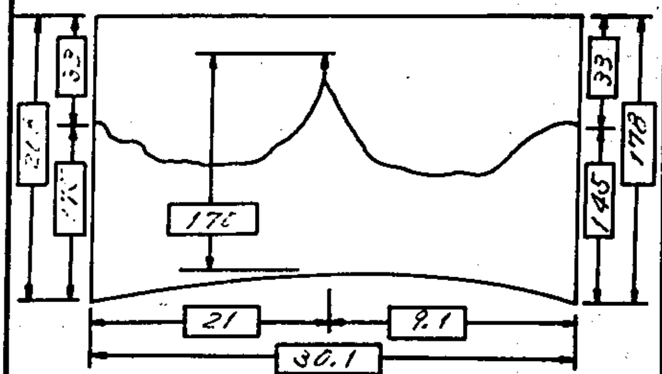
Map No. 5539 II



Map No. 5539 IV



Long-1(D.MS)	102.3000 ***	Long-1(D.MS)	102.4000 ***
Long-2(D.MS)	102.3500 ***	Long-2(D.MS)	102.4500 ***
Lati-1(D.MS)	15.1000 ***	Lati-1(D.MS)	15.2000 ***
Lati-2(D.MS)	15.1500 ***	Lati-2(D.MS)	15.2500 ***
X 1-2(mm)	179.0 ***	X 1-2(mm)	178.6 ***
X 1-0(mm)	7.1 ***	X 1-0(mm)	163.9 ***
Y 1-2(mm)	183.8 ***	Y 1-2(mm)	184.0 ***
Y 1-0(mm)	84.5 ***	Y 1-0(mm)	28.1 ***
Long. (D.MS)	102.3012 ***	Long. (D.MS)	102.4435 ***
Lati. (D.MS)	15.1218 ***	Lati. (D.MS)	15.2046 ***
G.Elevation	175 (m)	G.Elevation	145 (m)
Profile No.	5-4421-3	Type of Path	L/S (~~no~~ reflection)



Path Distance & Azimuth

Long-P (D.MS)	102.3012 ***
Lati-P (D.MS)	15.1218 ***
Long-Q (D.MS)	102.4435 ***
Lati-Q (D.MS)	15.2046 ***
d (km)	30.1 ***
α P→Q(D.MS)	58.4512 ***
α Q→P(D.MS)	238.4533 ***

Antenna Height & Diffraction Loss

d (km)	30.1 ***
dl (km)	21.0 ***
hm (m)	170.0 ***
hg1 (m)	175.0 ***
hg2 (m)	145.0 ***
hal (m)	30.0 ***
hal (m)	33.0 ***
ha2 (m)	33.0 ***
(k = 4/3)	
hp (m)	175.8 ***
Rs (m)	46.0 ***
Cs (m)	5.8 ***
U	0.13 ***
M	22. ***
(k = 1)	Ld^{50} = 6 dB
U	0.04 ***
M	23. ***
	$Ld^{99.9}$ = 10 dB

PROPAGATION PATH DATA

Path No.	4421-3

Site P	Phi Mai	Site Q	Chum Phuang

Reflection Area(011A-1/3)

f (MHz)	900.00	***
K	1.333	***
hg1' (m)	175.0	***
hg2 (m)	145.0	***
d (km)	30.1	***
ha1' (m)	33.0	***
ha2' (m)	33.0	***
hr' (m)	150.0	***
hr (m)		
d1 (m)	19.3	***
d2 (m)	10.8	***
ψ (D.MS)	0.0626	***
T1 (km)	25.7	***
Dv	0.73	***
ρe	0.7	***
Φr (deg)	180.0	***
Lr min(dB)	-4.6	***
Lr max(dB)	10.5	***

Variation of Reflection Loss(011A-3/3)

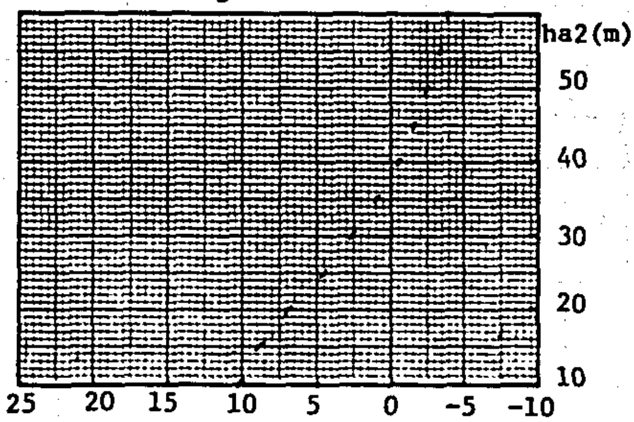
$K^{99.9}$	1.000	***
K^{50}	1.333	***
$K^{0.1}$	3.000	***
ha1' (m)	33.0	***
ha2' (m)	33.0	***
$Lr^{99.9}$ (dB)	4.0	***
Lr^{50} (dB)	1.7	***
$Lr^{0.1}$ (dB)	-1.5	***
ha1' (m)		
ha1' (m)		
$Lr^{99.9}$ (dB)		
Lr^{50} (dB)		
$Lr^{0.1}$ (dB)		

ha1 determined	33	(m)
ha2 determined	33	(m)

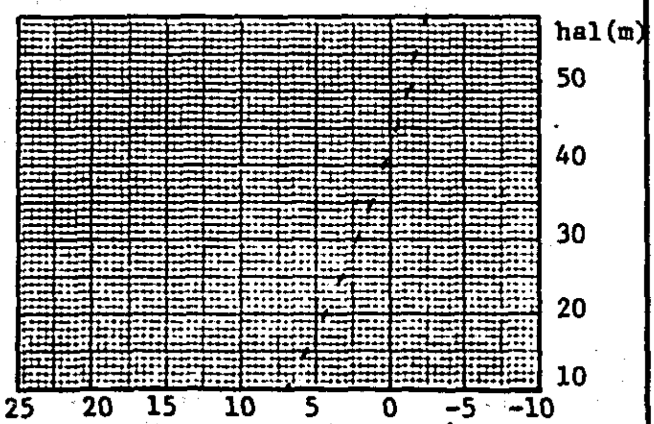
Reflection Loss(011A-2/3)

ha1' (m)	33.0	***
Lr60m(dB)	-3.9	***
55	-3.3	***
50	-2.5	***
45	-1.6	***
40	-0.4	***
35	1.0	***
30	2.7	***
25	4.7	***
20	6.8	***
15	8.5	***
10	10.2	***
ha2' (m)	33.0	***
Lr60m(dB)	-2.3	***
55	-1.7	***
50	-1.1	***
45	-0.4	***
40	0.4	***
35	1.3	***
30	2.3	***
25	3.3	***
20	4.5	***
15	5.7	***
10	6.9	***

Height Pattern



Lr Pattern at Q (dB, ha1' = m)

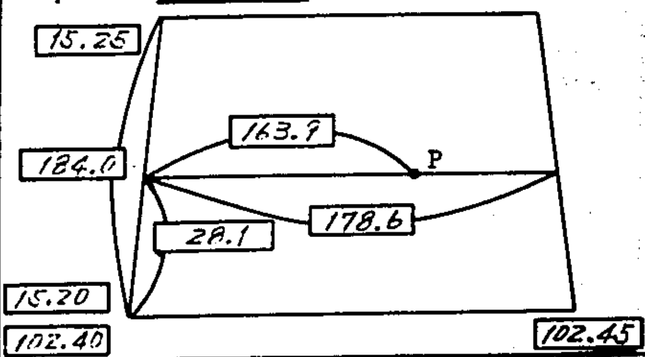
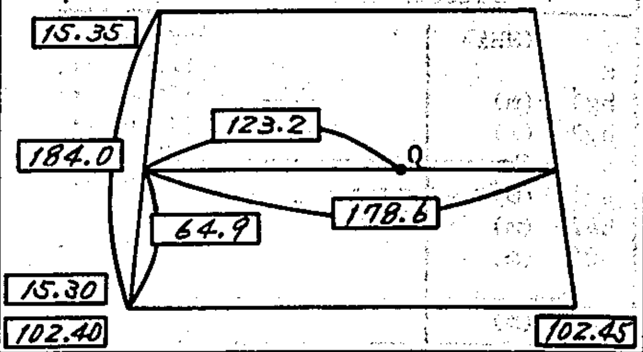


Lr Pattern at P (dB, ha2' = m)

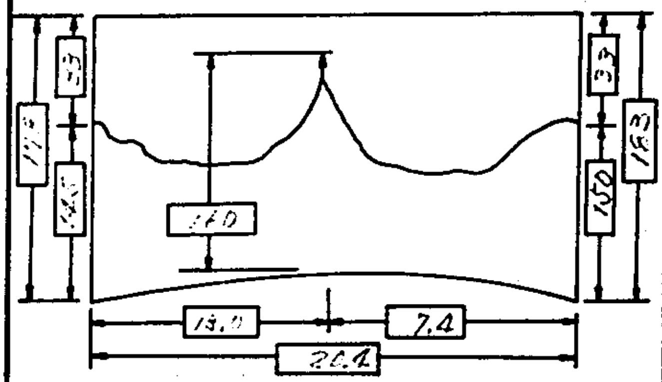
PROPAGATION PATH DATA

Path No. 4421-4

Site P	Site Q
Chum Phuang	Prathai

Map No. 5539 IV	Map No. 5540 III
	

Site P		Site Q	
Long-1(D.MS)	102.4000 ***	Long-1(D.MS)	102.4000 ***
Long-2(D.MS)	102.4500 ***	Long-2(D.MS)	102.4500 ***
Lati-1(D.MS)	15.2000 ***	Lati-1(D.MS)	15.3000 ***
Lati-2(D.MS)	15.2500 ***	Lati-2(D.MS)	15.3500 ***
X 1-2(mm)	178.6 ***	X 1-2(mm)	178.6 ***
X 1-0(mm)	163.9 ***	X 1-0(mm)	123.2 ***
Y 1-2(mm)	184.0 ***	Y 1-2(mm)	184.0 ***
Y 1-0(mm)	28.1 ***	Y 1-0(mm)	64.9 ***
Long. (D.MS)	102.4435 ***	Long. (D.MS)	102.4327 ***
Lati. (D.MS)	15.2046 ***	Lati. (D.MS)	15.3146 ***
G.Elevation	145 (m)	G.Elevation	150 (m)
Profile No.	5-4421-4	Type of Path	L/S (no reflection)



Path Distance & Azimuth

Long-P (D.MS)	102.4435 ***
Lati-P (D.MS)	15.2046 ***
Long-Q (D.MS)	102.4327 ***
Lati-Q (D.MS)	15.3146 ***
d (km)	20.4 ***
α P→Q(D.MS)	354.1555 ***
α Q→P(D.MS)	174.1537 ***

Antenna Height & Diffraction Loss

d (km)	20.4 ***
d1 (km)	13.0 ***
hm (m)	160.0 ***
hg1 (m)	145.0 ***
hg2 (m)	150.0 ***
hal (m)	
ha1 (m)	33.0 ***
ha2 (m)	33.0 ***
(k = 4/3)	
bp (m)	175.5 ***
Rs (m)	3916 ***
Cs (m)	15.5 ***
U	0.39 ***
M	22. ***
	Ld^{50} = 19 dB
(k = 1)	
U	0.34 ***
M	24. ***
	Ld^{99} = 45 dB

PROPAGATION PATH DATA

Path No.
4421-4

Site P	Chum Phuang	——	Site Q	Prathai

Reflection Area(011A-1/3)

f (MHz)	900.00	***
K	1.333	***
hg1 (m)	145.0	***
hg2 (m)	150.0	***
d (km)	20.4	***
ha1′ (m)	33.0	***
ha2′ (m)	33.0	***
hr′ (m)	140.0	***
hr (m)		
d1 (m)	9.6	***
d2 (m)	10.8	***
ψ (D.MS)	0.1144	***
T1 (km)	12.1	***
Dv	0.86	***
ρe	0.6	***
ϕr (deg)	180.0	***
Lr min(dB)	-5.1	***
Lr max(dB)	14.0	***

Variation of Reflection Loss(011A-3/3)

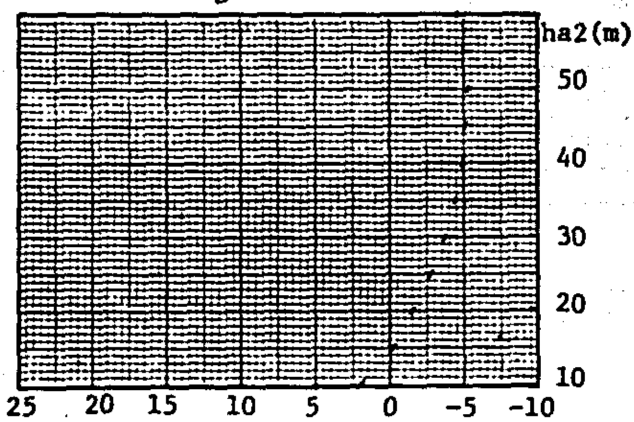
$K^{99.9}$	1.000	***
K^{50}	1.333	***
$K^{0.1}$	3.000	***
ha1′ (m)	33.0	***
ha2′ (m)	33.0	***
$Lr^{99.9}$ (dB)	-3.4	***
Lr^{50} (dB)	-4.1	***
$Lr^{0.1}$ (dB)	-4.8	***
ha1′ (m)		
ha1′ (m)		
$Lr^{99.9}$ (dB)		
Lr^{50} (dB)		
$Lr^{0.1}$ (dB)		

ha1 determined	33 (m)
ha2 determined	33 (m)

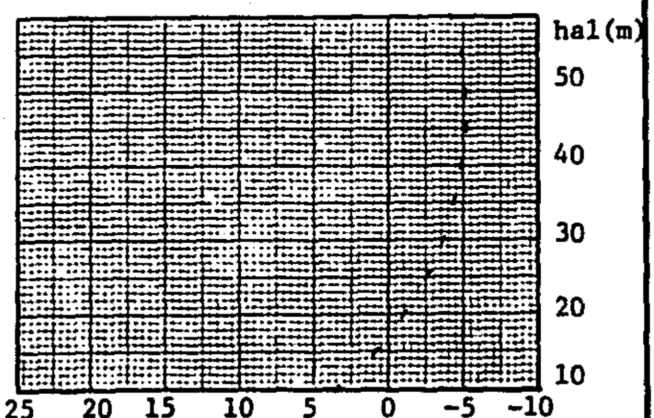
Reflection Loss(011A-2/3)

ha1′ (m)	33.0	***
Lr60m(dB)	-4.5	***
55	-4.9	***
50	-5.1	***
45	-5.0	***
40	-4.6	***
35	-4.3	***
30	-3.6	***
25	-2.7	***
20	-1.4	***
15	0.1	***
10	2.2	***
ha2′ (m)	33.0	***
Lr60m(dB)	-4.2	***
55	-4.8	***
50	-5.1	***
45	-5.1	***
40	-4.6	***
35	-4.3	***
30	-3.6	***
25	-2.5	***
20	-1.0	***
15	0.9	***
10	3.5	***

Height Pattern



Lr Pattern at Q (dB, ha1′= m)



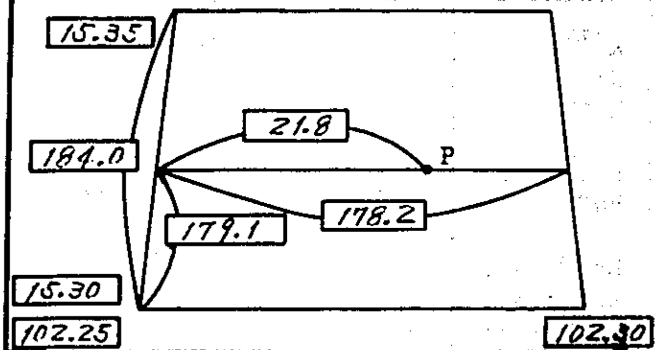
Lr Pattern at P (dB, ha2′= m)

PROPAGATION PATH DATA

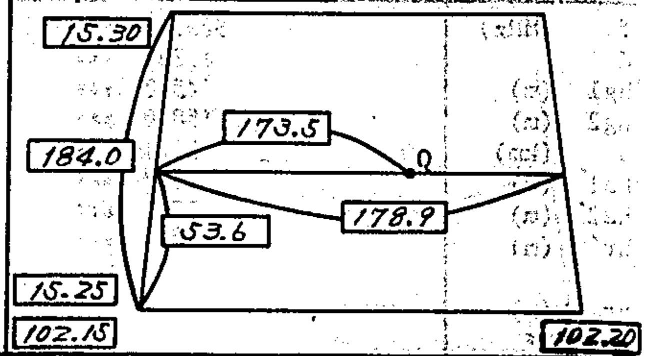
Path No. 4421-5

Site P	Bua Yai	Site Q	Khong

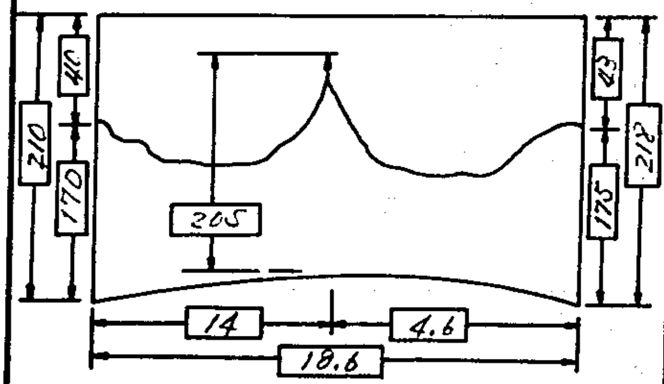
Map No. 5440 II



Map No. 5439 I



Site P		Site Q	
Long-1 (D.MS)	102.2500 ***	Long-1 (D.MS)	102.1500 ***
Long-2 (D.MS)	102.3000 ***	Long-2 (D.MS)	102.2000 ***
Lati-1 (D.MS)	15.3000 ***	Lati-1 (D.MS)	15.2500 ***
Lati-2 (D.MS)	15.3500 ***	Lati-2 (D.MS)	15.3000 ***
X 1-2 (mm)	178.2 ***	X 1-2 (mm)	178.9 ***
X 1-0 (mm)	21.8 ***	X 1-0 (mm)	173.5 ***
Y 1-2 (mm)	184.0 ***	Y 1-2 (mm)	184.0 ***
Y 1-0 (mm)	179.1 ***	Y 1-0 (mm)	53.6 ***
Long. (D.MS)	102.2537 ***	Long. (D.MS)	102.1951 ***
Lati. (D.MS)	15.3452 ***	Lati. (D.MS)	15.2627 ***
G.Elevation	170 (m)	G.Elevation	175 (m)
Profile No.	5-4421-5	Type of Path	L/S (~~no~~ reflection)



Path Distance & Azimuth

Long-P (D.MS)	102.2537 ***
Lati-P (D.MS)	15.3452 ***
Long-Q (D.MS)	102.1951 ***
Lati-Q (D.MS)	15.2627 ***
d (km)	18.6 ***
α P→Q (D.MS)	213.3648 ***
α Q→P (D.MS)	33.3508 ***

Antenna Height & Diffraction Loss

d (km)	18.6 ***
d1 (km)	14.0 ***
hm (m)	205.0 ***
hg1 (m)	170.0 ***
hg2 (m)	175.0 ***
ha1 (m)	
ha1 (m)	40.0 ***
ha2 (m)	43.0 ***
(k = 4/3)	
hp (m)	212.2 ***
Rs (m)	34.0 ***
Cs (m)	7.2 ***
U	0.21 ***
M	9. ***
	Ld^{50} = 8 dB
(k = 1)	
U	0.18 ***
M	10. ***
	$Ld^{99.9}$ = 9 dB

PROPAGATION PATH DATA

Path No. 4421-5

Site P Bua Yai ——— Site Q Khong

Reflection Area(011A-1/3)

f (MHz)	900.00	***
K	1.333	***
hg1 (m)	170.0	***
hg2 (m)	175.0	***
d (km)	18.6	***
ha1′ (m)	40.0	***
ha2′ (m)	43.0	***
hr′ (m)	170.0	***
hr (m)		
d1 (m)	8.6	***
d2 (m)	10.0	***
ψ (D.MS)	0.1418	***
T1 (km)	5.4	***
Dv	0.89	***
ρc	0.6	***
Φr (deg)	180.0	***
Lr min(dB)	-5.1	***
Lr max(dB)	14.0	***

Variation of Reflection Loss(011A-3/3)

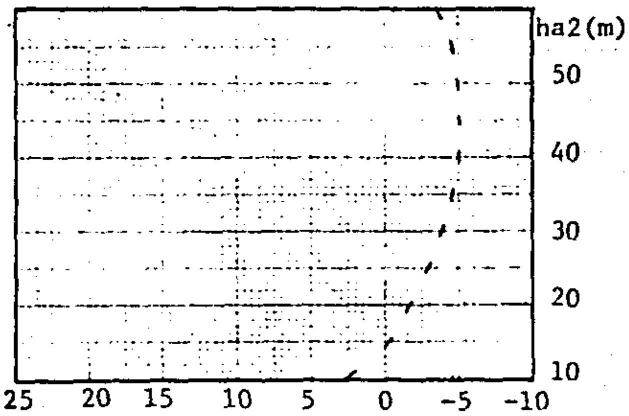
$K^{99.9}$	1.000	***
K^{50}	1.333	***
$K^{0.1}$	3.000	***
ha1′ (m)	40.0	***
ha2′ (m)	43.0	***
$Lr^{99.9}$ (dB)	-5.0	***
Lr^{50} (dB)	-5.1	***
$Lr^{0.1}$ (dB)	-5.0	***
ha1′ (m)		
ha1′ (m)		
$Lr^{99.9}$ (dB)		
Lr^{50} (dB)		
$Lr^{0.1}$ (dB)		

ha1 determined	40 (m)
ha2 determined	43 (m)

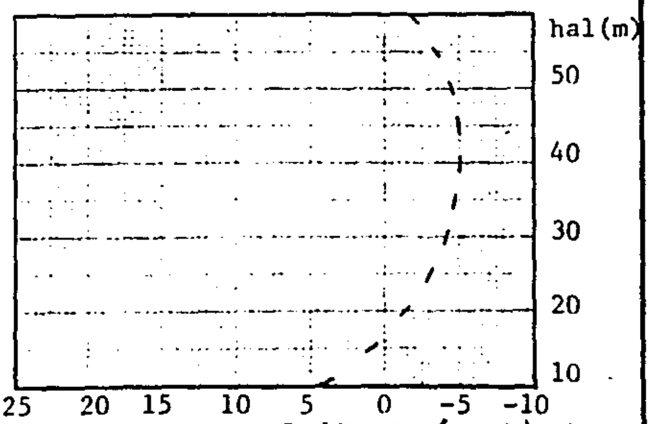
Reflection Loss(011A-2/3)

ha1′ (m)	40.0	***
Lr60m(dB)	-3.6	***
55	-4.4	***
50	-4.9	***
45	-5.1	***
40	-5.0	***
35	-4.6	***
30	-3.9	***
25	-2.9	***
20	-1.6	***
15	0.3	***
10	2.8	***
ha2′ (m)	43.0	***
Lr60m(dB)	-1.8	***
55	-3.5	***
50	-4.5	***
45	-5.0	***
40	-5.1	***
35	-4.8	***
30	-4.1	***
25	-3.0	***
20	-1.4	***
15	1.0	***
10	4.4	***

Height Pattern



Lr Pattern at Q (dB, ha1′ = 40 m)



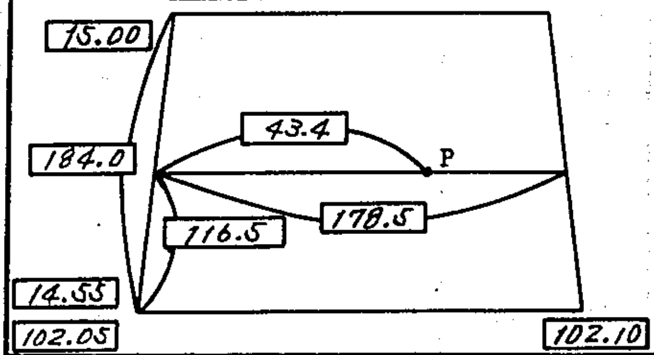
Lr Pattern at P (dB, ha2′ = 43 m)

PROPAGATION PATH DATA

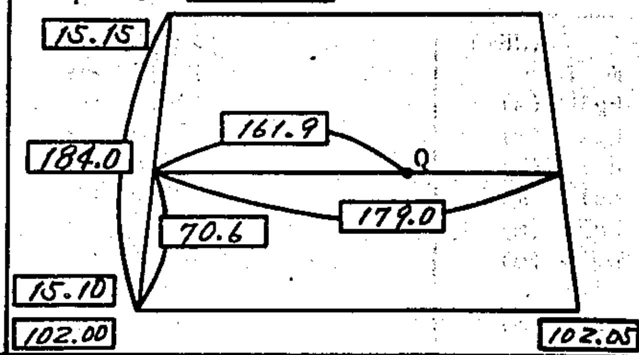
Path No. 4421-6

Site P	Nakhon Ratchasima	——	Site Q	Non Thai

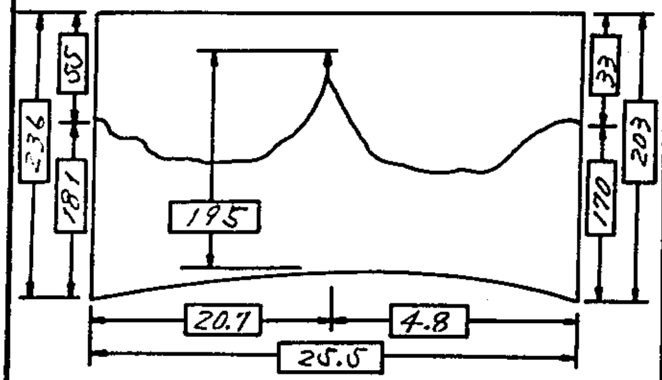
Map No. 5438 IV



Map No. 5439 III



Site P			Site Q		
Long-1 (D.MS)	102.0500	***	Long-1 (D.MS)	102.0000	***
Long-2 (D.MS)	102.1000	***	Long-2 (D.MS)	102.0500	***
Lati-1 (D.MS)	14.5500	***	Lati-1 (D.MS)	15.1000	***
Lati-2 (D.MS)	15.0000	***	Lati-2 (D.MS)	15.1500	***
X 1-2 (mm)	178.5	***	X 1-2 (mm)	179.0	***
X 1-0 (mm)	43.4	***	X 1-0 (mm)	161.9	***
Y 1-2 (mm)	184.0	***	Y 1-2 (mm)	184.0	***
Y 1-0 (mm)	116.5	***	Y 1-0 (mm)	70.6	***
Long. (D.MS)	102.0613	***	Long. (D.MS)	102.0431	***
Lati. (D.MS)	14.5810	***	Lati. (D.MS)	15.1155	***
G.Elevation	181 (m)		G.Elevation	170 (m)	
Profile No.	5-4421-6		Type of Path	L/S (no reflection)	



Path Distance & Azimuth

Long-P (D.MS)	102.0613	***
Lati-P (D.MS)	14.5810	***
Long-Q (D.MS)	102.0431	***
Lati-Q (D.MS)	15.1155	***
d (km)	25.5	***
α P→Q (D.MS)	353.1054	***
α Q→P (D.MS)	173.1027	***

Antenna Height & Diffraction Loss

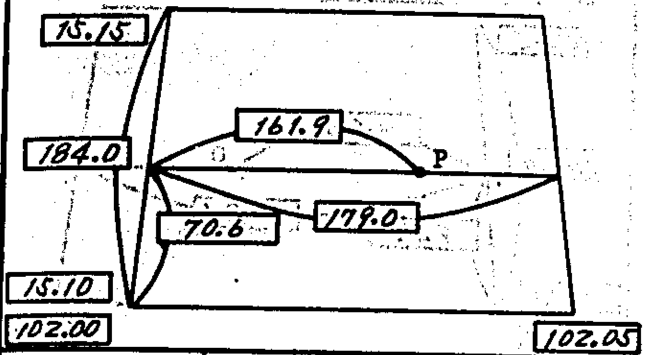
d	(km)	25.5	***
d1	(km)	20.7	***
hm	(m)	195.0	***
hg1	(m)	181.0	***
hg2	(m)	170.0	***
ha1	(m)	50.0	***
ha1	(m)	55.0	***
ha2	(m)	33.0	***
(k = 4/3)			
hp	(m)	203.4	***
Rs	(m)	36.0	***
Cs	(m)	8.4	***
U		0.23	***
M		23.	***
	L_{d50} =	6	dB
(k = 1)			
U		0.18	***
M		25.	***
	$L_{d99.9}$ =	10	dB

PROPAGATION PATH DATA

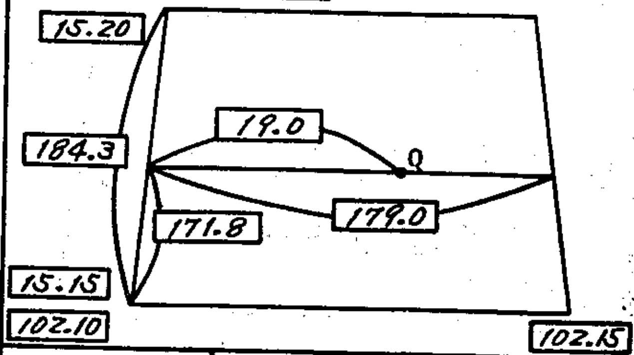
Path No. 4421-7

Site P	Non Thai	Site Q	Kham Sakae Saeng

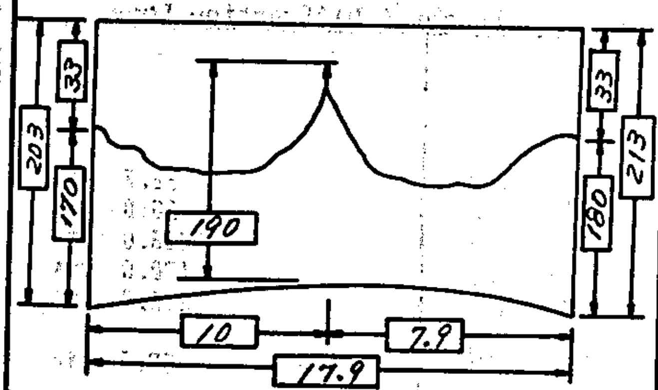
Map No. 5439 III



Map No. 5439 IV



	Site P		Site Q
Long-1 (D.MS)	102.0000 ***	Long-1 (D.MS)	102.1000 ***
Long-2 (D.MS)	102.0500 ***	Long-2 (D.MS)	102.1500 ***
Lati-1 (D.MS)	15.1000 ***	Lati-1 (D.MS)	15.1500 ***
Lati-2 (D.MS)	15.1500 ***	Lati-2 (D.MS)	15.2000 ***
X 1-2 (mm)	179.0 ***	X 1-2 (mm)	179.0 ***
X 1-0 (mm)	161.9 ***	X 1-0 (mm)	19.0 ***
Y 1-2 (mm)	184.0 ***	Y 1-2 (mm)	184.3 ***
Y 1-0 (mm)	70.6 ***	Y 1-0 (mm)	171.8 ***
Long. (D.MS)	102.0431 ***	Long. (D.MS)	102.1032 ***
Lati. (D.MS)	15.1155 ***	Lati. (D.MS)	15.1940 ***
G.Elevation	170 (m)	G.Elevation	180 (m)
Profile No.	5-4421-7	Type of Path	L/S (no reflection)



Path Distance & Azimuth

Long-P (D.MS)	102.0431 ***
Lati-P (D.MS)	15.1155 ***
Long-Q (D.MS)	102.1032 ***
Lati-Q (D.MS)	15.1940 ***
d (km)	17.9 ***
α P→Q (D.MS)	36.5848 ***
α Q→P (D.MS)	217.0022 ***

Antenna Height & Diffraction Loss

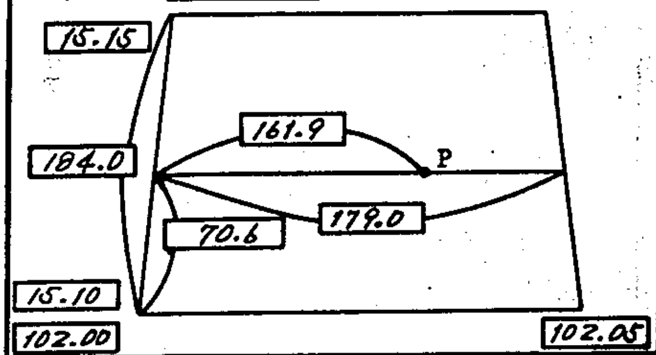
d	(km)	17.9 ***
d1	(km)	10.0 ***
hm	(m)	190.0 ***
hg1	(m)	170.0 ***
hg2	(m)	180.0 ***
ha1	(m)	
ha1	(m)	33.0 ***
ha2	(m)	33.0 ***
(k = 4/3)		
hp	(m)	203.9 ***
Rs	(m)	38.4 ***
Cs	(m)	17.9 ***
U		0.72 ***
M		19. ***
(k = 1)	Ld^{50} =	6 dB
U		0.72 ***
M		20. ***
	$Ld^{99.9}$ =	9 dB

PROPAGATION PATH DATA

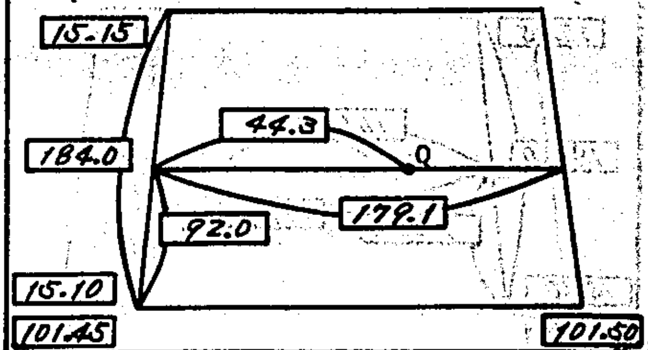
Path No. 4421-8

Site P	Non Thai	Site Q	Dan Khun That

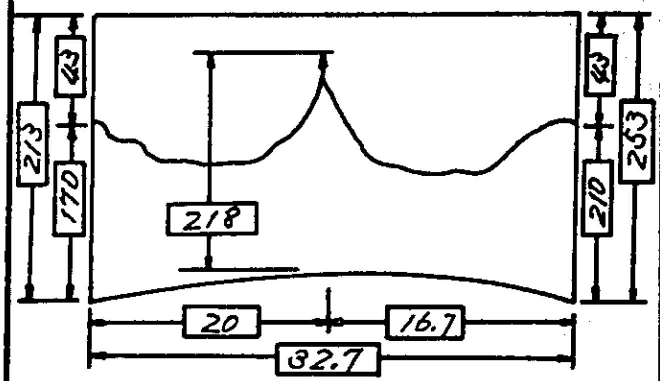
Map No. 5439 III



Map No. 5339 II



Long-1(D.MS)	102.0000 ***	Long-1(D.MS)	101.4500 ***
Long-2(D.MS)	102.0500 ***	Long-2(D.MS)	101.5000 ***
Lati-1(D.MS)	15.1000 ***	Lati-1(D.MS)	15.1000 ***
Lati-2(D.MS)	15.1500 ***	Lati-2(D.MS)	15.1500 ***
X 1-2(mm)	179.0 ***	X 1-2(mm)	179.1 ***
X 1-0(mm)	161.9 ***	X 1-0(mm)	44.3 ***
Y 1-2(mm)	184.0 ***	Y 1-2(mm)	184.0 ***
Y 1-0(mm)	70.6 ***	Y 1-0(mm)	92.0 ***
Long. (D.MS)	102.0431 ***	Long. (D.MS)	101.4614 ***
Lati. (D.MS)	15.1155 ***	Lati. (D.MS)	15.1230 ***
G.Elevation	170 (m)	G.Elevation	210 (m)
Profile No.	5-4421-8	Type of Path	L/S (no reflection)



Path Distance & Azimuth

Long-P (D.MS)	102.0431 ***
Lati-P (D.MS)	15.1155 ***
Long-Q (D.MS)	101.4614 ***
Lati-Q (D.MS)	15.1230 ***
d (km)	32.7 ***
α P→Q(D.MS)	271.5456 ***
α Q→P(D.MS)	91.5010 ***

Antenna Height & Diffraction Loss

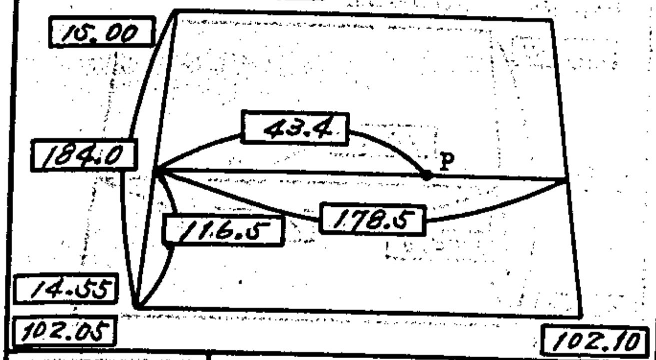
d (km)	32.7 ***
d1 (km)	20.0 ***
hm (m)	218.0 ***
hg1 (m)	170.0 ***
hg2 (m)	210.0 ***
hal (m)	50.0 ***
ha1 (m)	43.0 ***
ha2 (m)	43.0 ***
(k = 4/3)	
hp (m)	222.5 ***
Rs (m)	50.9 ***
Cs (m)	4.5 ***
U	0.09 ***
M	
(k = 1)	
U	L_d° = 13 dB
M	

PROPAGATION PATH DATA

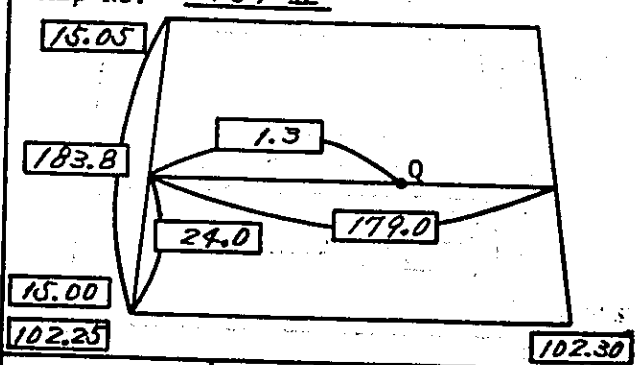
Path No. 4421-9

Site P: Nakhon Ratchasima — Site Q: Chakkarat

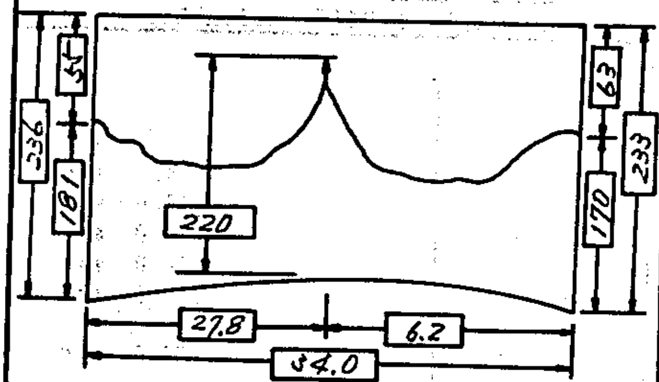
Map No. 5438 IV



Map No. 5439 II



	Site P		Site Q
Long-1 (D.MS)	102.0500 ***	Long-1 (D.MS)	102.2500 ***
Long-2 (D.MS)	102.1000 ***	Long-2 (D.MS)	102.3000 ***
Lati-1 (D.MS)	14.5500 ***	Lati-1 (D.MS)	15.0000 ***
Lati-2 (D.MS)	15.0000 ***	Lati-2 (D.MS)	15.0500 ***
X 1-2 (mm)	178.5 ***	X 1-2 (mm)	179.0 ***
X 1-0 (mm)	43.4 ***	X 1-0 (mm)	1.3 ***
Y 1-2 (mm)	184.0 ***	Y 1-2 (mm)	183.8 ***
Y 1-0 (mm)	116.5 ***	Y 1-0 (mm)	24.0 ***
Long. (D.MS)	102.0613 ***	Long. (D.MS)	102.2502 ***
Lati. (D.MS)	14.5810 ***	Lati. (D.MS)	15.0039 ***
G.Elevation	181 (m)	G.Elevation	170 (m)
Profile No.	S-4421-9	Type of Path	L/S (no reflection)



Path Distance & Azimuth

Long-P (D.MS)	102.0613 ***
Lati-P (D.MS)	14.5810 ***
Long-Q (D.MS)	102.2502 ***
Lati-Q (D.MS)	15.0039 ***
d (km)	34.0 ***
α P→Q (D.MS)	82.1364 ***
α Q→P (D.MS)	262.1755 ***

Antenna Height & Diffraction Loss

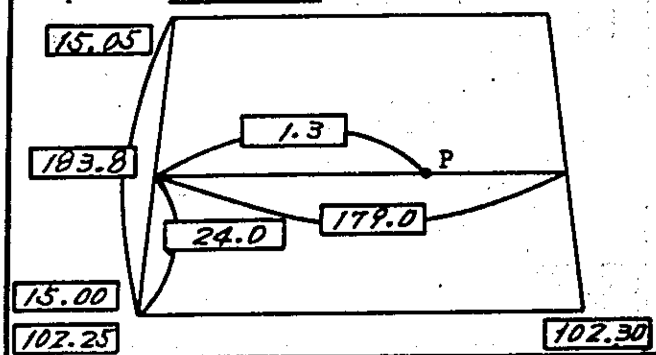
d (km)	34.0 ***
d1 (km)	27.8 ***
hm (m)	220.0 ***
hg1 (m)	181.0 ***
hg2 (m)	170.0 ***
ha1 (m)	55.0 ***
ha1 (m)	55.0 ***
ha2 (m)	63.0 ***
(k = 4/3)	
hp (m)	223.4 ***
Rs (m)	41.1 ***
Cs (m)	3.4 ***
U	0.08 ***
M	16. ***
	1d.50 = 12 dB
(k = 1)	
U	4.086580919-04 ***
M	17. ***
	199.9 = 16 dB

PROPAGATION PATH DATA

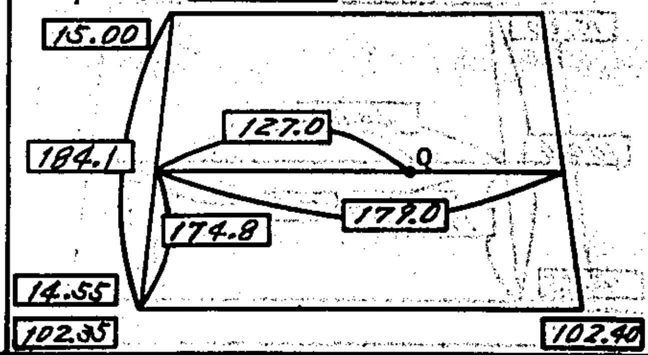
Path No. 4421-10

Site P	Site Q
Chakkarat	Huai Thalaeng

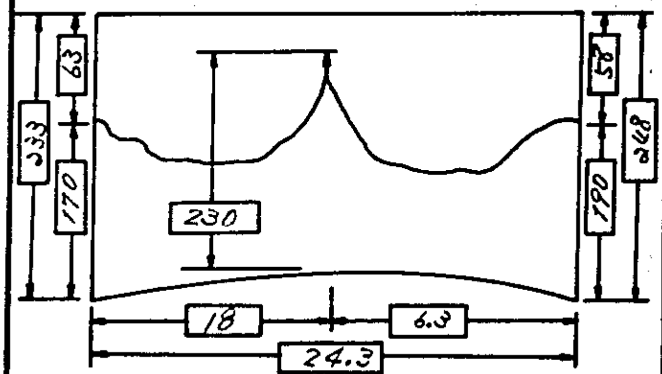
Map No. 5439 II



Map No. 5538 IV



Site P		Site Q	
Long-1 (D.MS)	102.2500 ***	Long-1 (D.MS)	102.3500 ***
Long-2 (D.MS)	102.3000 ***	Long-2 (D.MS)	102.4000 ***
Lati-1 (D.MS)	15.0000 ***	Lati-1 (D.MS)	14.5500 ***
Lati-2 (D.MS)	15.0500 ***	Lati-2 (D.MS)	15.0000 ***
X 1-2 (mm)	179.0 ***	X 1-2 (mm)	179.0 ***
X 1-0 (mm)	1.3 ***	X 1-0 (mm)	127.0 ***
Y 1-2 (mm)	183.8 ***	Y 1-2 (mm)	184.[illegible] ***
Y 1-0 (mm)	24.0 ***	Y 1-0 (mm)	174.8 ***
Long. (D.MS)	102.2502 ***	Long. (D.MS)	102.3833 ***
Lati. (D.MS)	15.0039 ***	Lati. (D.MS)	14.5945 ***
G.Elevation	170 (m)	G.Elevation	190 (m)
Profile No.	5-4421-10	Type of Path	L/S (no reflection)



Path Distance & Azimuth

Long-P (D.MS)	102.2502 ***
Lati-P (D.MS)	15.0039 ***
Long-Q (D.MS)	102.3833 ***
Lati-Q (D.MS)	14.5945 ***
d (km)	24.3 ***
α P→Q (D.MS)	93.5[illegible] ***
α Q→P (D.MS)	273.5[illegible]3 ***

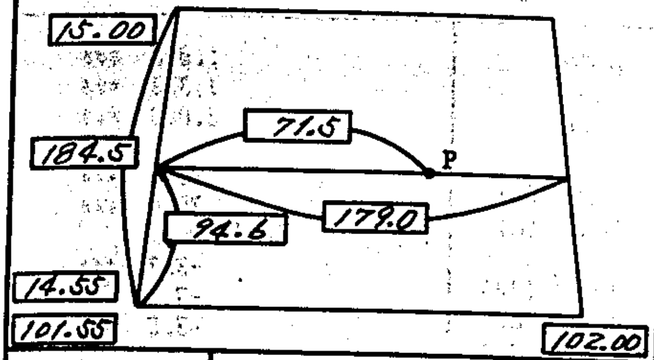
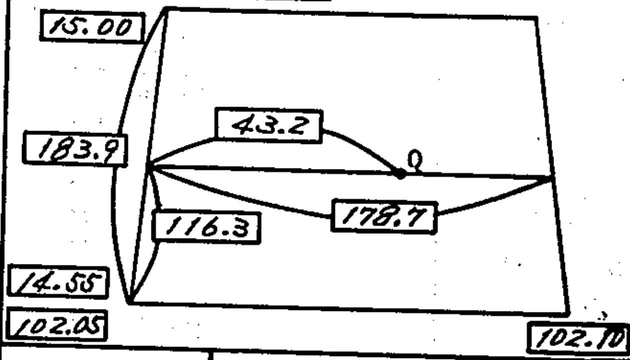
Antenna Height & Diffraction Loss

d (km)	24.3 ***
dl (km)	18.0 ***
hm (m)	230.0 ***
hg1 (m)	170.0 ***
hg2 (m)	190.0 ***
ha1 (m)	58.0 ***
ha1 (m)	63.0 ***
ha2 (m)	58.0 ***
(k = 4/3)	
hp (m)	237.4 ***
Rs (m)	39.4 ***
Cs (m)	7.4 ***
U	0.19 ***
M	10. ***
(k = 1)	Ld^{50} = 10 dB
U	0.13 ***
M	10. ***
	$Ld^{99.9}$ = 13 dB

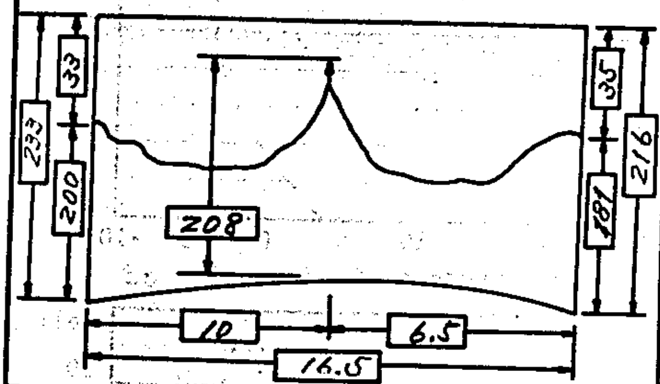
PROPAGATION PATH DATA

Path No. 4421-11

Site P Kham Thale So — **Site Q** Nakhon Ratchasima

Map No. 5338 I	Map No. 5438 IV
	

Long-1 (D.MS)	101.5500 ***	Long-1 (D.MS)	102.0500 ***
Long-2 (D.MS)	102.0000 ***	Long-2 (D.MS)	102.1000 ***
Lati-1 (D.MS)	14.5500 ***	Lati-1 (D.MS)	14.5500 ***
Lati-2 (D.MS)	15.0000 ***	Lati-2 (D.MS)	15.0000 ***
X 1-2 (mm)	179.0 ***	X 1-2 (mm)	178.7 ***
X 1-0 (mm)	71.5 ***	X 1-0 (mm)	43.2 ***
Y 1-2 (mm)	184.5 ***	Y 1-2 (mm)	183.9 ***
Y 1-0 (mm)	94.6 ***	Y 1-0 (mm)	116.3 ***
Long. (D.MS)	101.5660 ***	Long. (D.MS)	102.0613 ***
Lati. (D.MS)	14.5734 ***	Lati. (D.MS)	14.5810 ***
G.Elevation	200 (m)	G.Elevation	181 (m)
Profile No.	5-4421-11	Type of Path	L/S (~~no~~ reflection)



Path Distance & Azimuth		Antenna Height & Diffraction Loss	
Long-P (D.MS)	101.5660 ***	d (km)	16.5 ***
Lati-P (D.MS)	14.5734 ***	d1 (km)	10.0 ***
Long-Q (D.MS)	102.0613 ***	hm (m)	208.0 ***
Lati-Q (D.MS)	14.5810 ***	hg1 (m)	200.0 ***
d (km)	16.5 ***	hg2 (m)	181.0 ***
α P→Q (D.MS)	86.[illegible] ***	ha1 (m)	
α Q→P (D.MS)	266.[illegible] ***	ha1 (m)	33.0 ***
		ha2 (m)	75.0 ***
		(k = 4/3)	
		hp (m)	218.[illegible] ***
		Rs (m)	36.2 ***
		Cs (m)	10.9 ***
		U	0.30 ***
		M	17. ***
			Ld^{50} = 6 dB
		(k = 1)	
		U	0.26 ***
		M	13. ***
			$Ld^{99.9}$ = 7 dB

PROPAGATION PATH DATA

Path No. 4421-11

Site P	Kham Thale So	Site Q	Nakhon Ratchasima

Reflection Area(011A-1/3)

f (MHz)	900.00	***
K	1.333	***
hg1 (m)	200.0	***
hg2 (m)	181.0	***
d (km)	16.5	***
ha1′ (m)	33.0	***
ha2′ (m)	35.0	***
hr′ (m)	185.6	***
hr (m)	184.0	***
d1 (m)	9.8	***
d2 (m)	6.7	***
ψ (D.MS)	0.1513	***
T1 (km)	8.2	***
Dv	0.91	***
ρe	0.5	***
Φr (deg)	180.0	***
Lr min(dB)	-3.5	***
Lr max(dB)	6.0	***

Variation of Reflection Loss(011A-3/3)

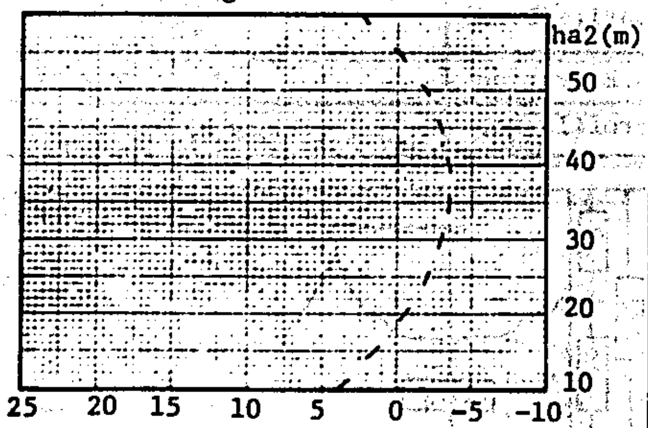
$K^{99.9}$	1.000	***
K^{50}	1.333	***
$K^{0.1}$	3.000	***
ha1′ (m)	33.0	***
ha2′ (m)	35.0	***
$Lr^{99.9}$ (dB)	-3.3	***
Lr^{50} (dB)	-3.5	***
$Lr^{0.1}$ (dB)	-3.5	***
ha1′ (m)		
ha1′ (m)		
$Lr^{99.9}$ (dB)		
Lr^{50} (dB)		
$Lr^{0.1}$ (dB)		

ha1 determined	33 (m)
ha2 determined	35 (m)

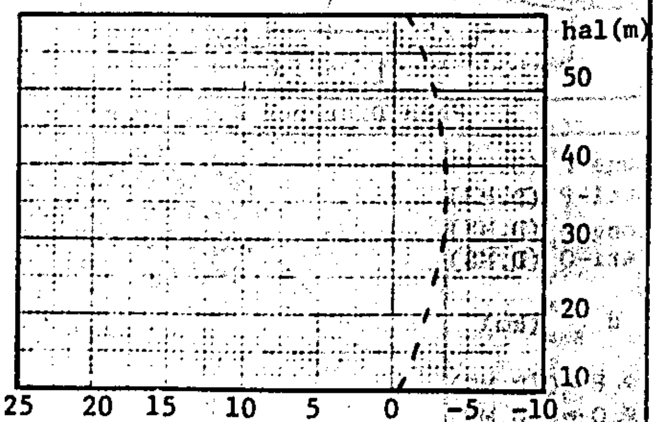
Reflection Loss(011A-2/3)

ha1′ (m)	33.0	***
Lr60m(dB)	2.4	***
55	-0.1	***
50	-1.9	***
45	-2.9	***
40	-3.5	***
35	-3.5	***
30	-3.0	***
25	-2.1	***
20	-0.6	***
15	1.5	***
10	3.9	***
ha2′ (m)	35.0	***
Lr60m(dB)	-0.8	***
55	-1.9	***
50	-2.7	***
45	-3.2	***
40	-3.5	***
35	-3.5	***
30	-3.3	***
25	-2.9	***
20	-2.3	***
15	-1.5	***
10	-0.4	***

Height Pattern



Lr Pattern at Q (dB, ha1′ = 33 m)



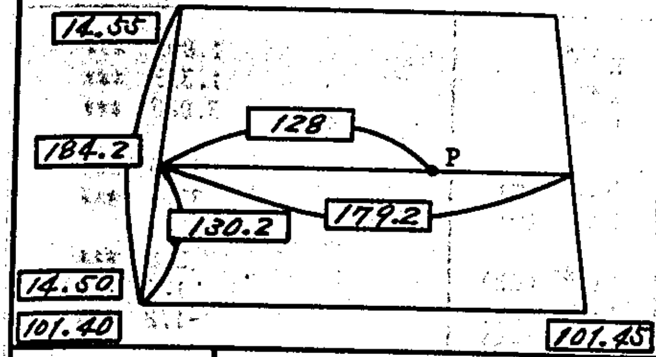
Lr Pattern at P (dB, ha2′ = 35 m)

PROPAGATION PATH DATA

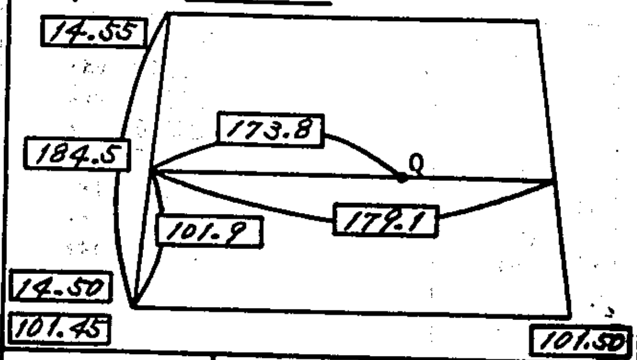
Path No. 4421-12

Site P	Si Kiu	Site Q	Sung Noen

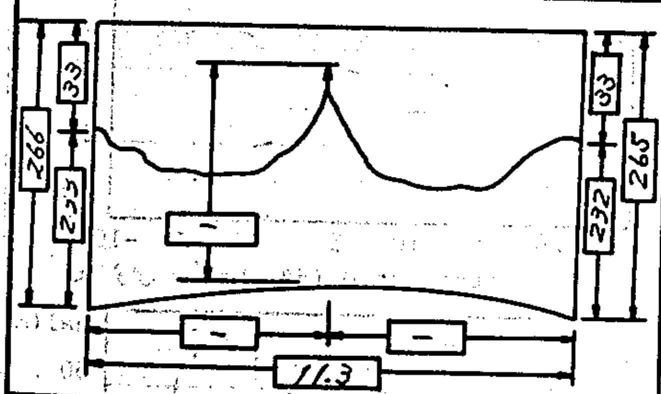
Map No. 5338 IV



Map No. 5338 I



Site P		Site Q	
Long-1 (D.MS)	101.4000 ***	Long-1 (D.MS)	101.4500 ***
Long-2 (D.MS)	101.4500 ***	Long-2 (D.MS)	101.5000 ***
Lati-1 (D.MS)	14.5000 ***	Lati-1 (D.MS)	14.5000 ***
Lati-2 (D.MS)	14.5500 ***	Lati-2 (D.MS)	14.5500 ***
X 1-2 (mm)	179.2 ***	X 1-2 (mm)	179.1 ***
X 1-0 (mm)	128.0 ***	X 1-0 (mm)	173.8 ***
Y 1-2 (mm)	184.2 ***	Y 1-2 (mm)	184.5 ***
Y 1-0 (mm)	130.2 ***	Y 1-0 (mm)	101.9 ***
Long. (D.MS)	101.4334 ***	Long. (D.MS)	101.4951 ***
Lati. (D.MS)	14.5332 ***	Lati. (D.MS)	14.5246 ***
G.Elevation	233 (m)	G.Elevation	232 (m)
Profile No.	5-4421-12	Type of Path	L/S (no reflection)



Path Distance & Azimuth

Long-P (D.MS)	101.4334 ***
Lati-P (D.MS)	14.5332 ***
Long-Q (D.MS)	101.4951 ***
Lati-Q (D.MS)	14.5246 ***
d (km)	11.3 ***
α P→Q (D.MS)	97.1147 ***
α Q→P (D.MS)	277.1323 ***

Antenna Height & Diffraction Loss

No Obstacles

d (km)	
d1 (km)	
hm (m)	
hg1 (m)	
hg2 (m)	
ha1 (m)	
ha1 (m)	
ha2 (m)	
(k = 4/3)	
hp (m)	
Rs (m)	
Cs (m)	
U	
M	
(k = 1)	
U	
M	

PROPAGATION PATH DATA

Path No.
4421-12

Site P	Si Kiu	Site Q	Sung Noen

Reflection Area(011A-1/3)

f (MHz)	900.00 ***
K	1.333 ***
hg1 (m)	233.0 ***
hg2 (m)	232.0 ***
d (km)	11.3 ***
ha1′ (m)	33.0 ***
ha2′ (m)	33.0 ***
hr′ (m)	217.0 ***
hr (m)	
d1 (m)	5.7 ***
d2 (m)	5.6 ***
ψ (D.MS)	0.2826 ***
T1 (km)	3.7 ***
Dv	0.96 ***
ρ_c	0.9 ***
Φr (deg)	180.0 ***
Lr min(dB)	-5.6 ***
Lr max(dB)	20.0 ***

Variation of Reflection Loss(011A-3/3)

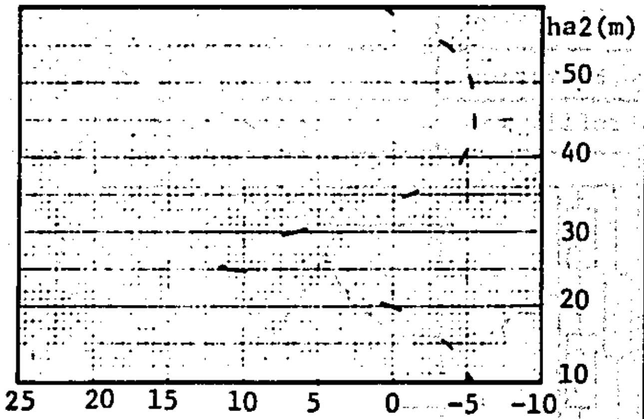
$K^{99.9}$	1.000 ***
K^{50}	1.333 ***
$K^{0.1}$	3.000 ***
ha1′ (m)	33.0 ***
ha2′ (m)	33.0 ***
$Lr^{99.9}$ (dB)	2.8 ***
Lr^{50} (dB)	1.9 ***
$Lr^{0.1}$ (dB)	-1.2 ***
ha1′ (m)	
ha1′ (m)	
$Lr^{99.9}$ (dB)	
Lr^{50} (dB)	
$Lr^{0.1}$ (dB)	

ha1 determined	33 (m)
ha2 determined	33 (m)

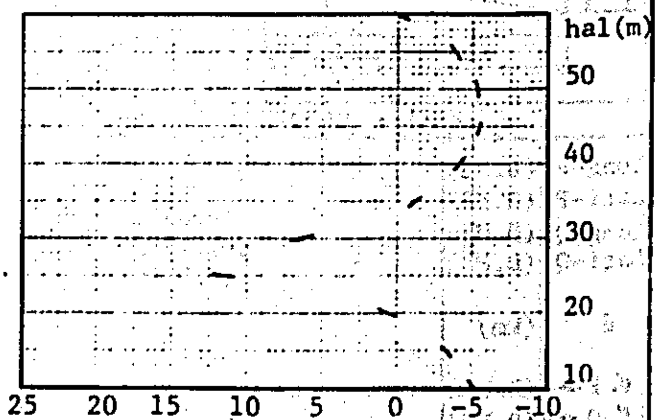
Reflection Loss(011A-2/3)

ha1′ (m)	33.0 ***
Lr60m(dB)	0.5 ***
55	-3.6 ***
50	-5.3 ***
45	-5.5 ***
40	-4.3 ***
35	-1.1 ***
30	6.4 ***
25	10.8 ***
20	0.3 ***
15	-3.6 ***
10	-5.3 ***
ha2′ (m)	33.0 ***
Lr60m(dB)	-0.1 ***
55	-3.8 ***
50	-5.3 ***
45	-5.5 ***
40	-4.2 ***
35	-1.1 ***
30	6.3 ***
25	11.5 ***
20	0.6 ***
15	-3.4 ***
10	-5.2 ***

Height Pattern



Lr Pattern at Q (dB, ha1′ = 33 m)



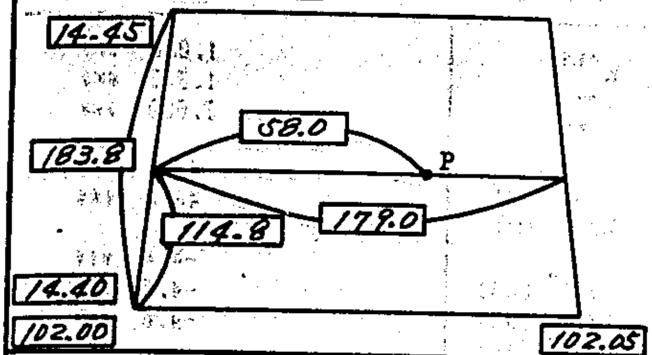
Lr Pattern at P (dB, ha2′ = 33 m)

PROPAGATION PATH DATA

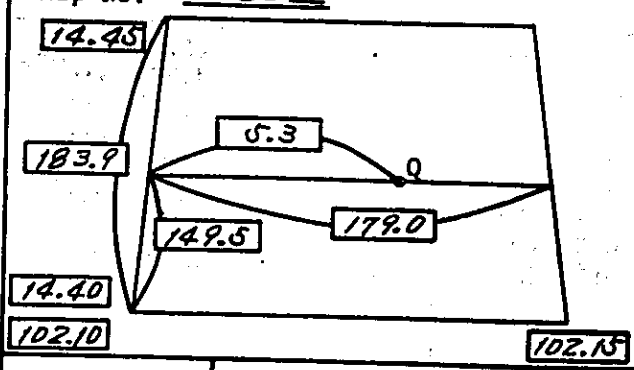
Path No. 4421-13

Site P	Pak Tong Chai	Site Q	Chok Chai

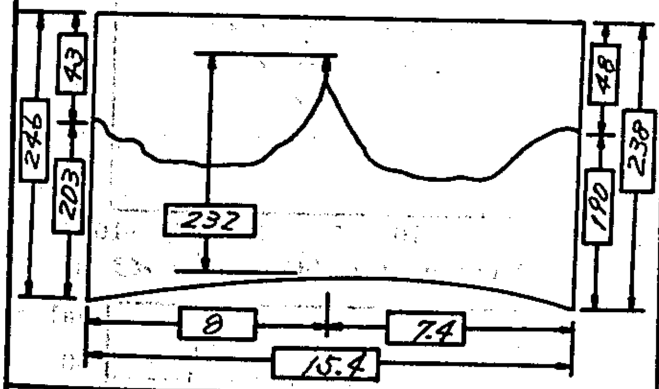
Map No. 5438 III



Map No. 5438 III



	Site P		Site Q
Long-1 (D.MS)	102.0000 ***	Long-1 (D.MS)	102.1000 ***
Long-2 (D.MS)	102.0500 ***	Long-2 (D.MS)	102.1500 ***
Lati-1 (D.MS)	14.4000 ***	Lati-1 (D.MS)	14.4000 ***
Lati-2 (D.MS)	14.4500 ***	Lati-2 (D.MS)	14.4500 ***
X 1-2 (mm)	179.0 ***	X 1-2 (mm)	179.0 ***
X 1-0 (mm)	58.0 ***	X 1-0 (mm)	5.3 ***
Y 1-2 (mm)	183.8 ***	Y 1-2 (mm)	183.9 ***
Y 1-0 (mm)	114.8 ***	Y 1-0 (mm)	149.5 ***
Long. (D.MS)	102.0137 ***	Long. (D.MS)	102.1009 ***
Lati. (D.MS)	14.4307 ***	Lati. (D.MS)	14.4404 ***
G.Elevation	203 (m)	G.Elevation	190 (m)
Profile No.	5-4421-13	Type of Path	L/S (no reflection)



Path Distance & Azimuth

Long-P (D.MS)	102.0137 ***
Lati-P (D.MS)	14.4307 ***
Long-Q (D.MS)	102.1009 ***
Lati-Q (D.MS)	14.4404 ***
d (km)	15.4 ***
α P→Q (D.MS)	83.3051 ***
α Q→P (D.MS)	263.3240 ***

Antenna Height & Diffraction Loss

d (km)	15.4 ***
d1 (km)	8.0 ***
hm (m)	232.0 ***
hg1 (m)	203.0 ***
hg2 (m)	[illegible] ***
ha1 (m)	38.0 ***
ha1 (m)	43.0 ***
ha2 (m)	48.0 ***
(k = 4/3)	
hp (m)	[illegible] ***
Rs (m)	35.8 ***
Cs (m)	5.4 ***
U	0.18 ***
M	10. ***
	L_d^{50} = 13 dB
(k = 1)	
U	0.15 ***
M	[illegible] ***
	$L_d^{99.9}$ = 15 dB

PROPAGATION PATH DATA

Path No. 4421-13

Site P		Site Q
Pak Tong Chai	——	Chok Chai

Reflection Area (011A-1/3)

f (MHz)	900.00 ***
K	1.333 ***
hg1 (m)	203.0 ***
hg2 (m)	190.0 ***
d (km)	15.4 ***
ha1′ (m)	43.0 ***
ha2′ (m)	48.0 ***
hr′ (m)	204.0 ***
hr (m)	
d1 (m)	8.4 ***
d2 (m)	7.0 ***
ψ (D.MS)	0.1526 ***
T1 (km)	7.9 ***
Dv	0.91 ***
ρ_e	0.7 ***
Φr (deg)	180.0 ***
Lr min(dB)	-4.6 ***
Lr max(dB)	10.5 ***

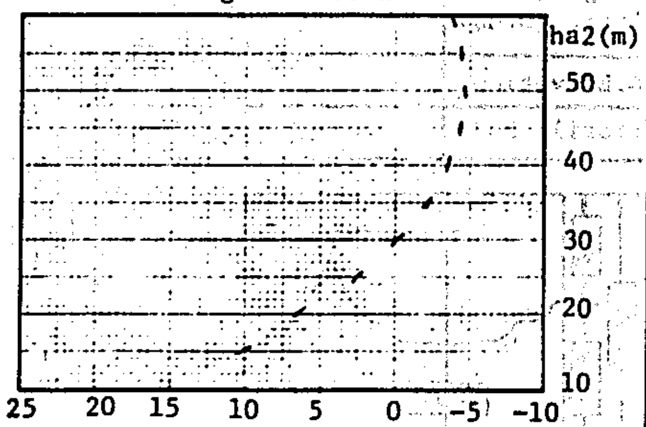
Variation of Reflection Loss (011A-3/3)

$K^{99.9}$	1.000 ***
K^{50}	1.333 ***
$K^{0.1}$	3.000 ***
ha1′ (m)	43.0 ***
ha2′ (m)	48.0 ***
$Lr^{99.9}$ (dB)	-4.4 ***
Lr^{50} (dB)	-4.5 ***
$Lr^{0.1}$ (dB)	-4.6 ***
ha1′ (m)	
ha1′ (m)	
$Lr^{99.9}$ (dB)	
Lr^{50} (dB)	
$Lr^{0.1}$ (dB)	
ha1 determined	43 (m)
ha2 determined	48 (m)

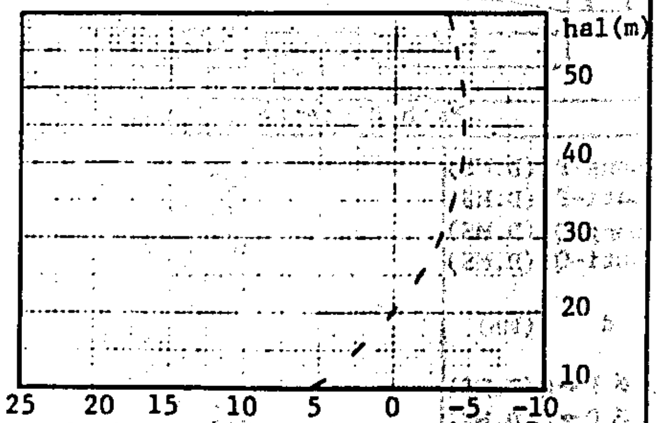
Reflection Loss (011A-2/3)

ha1′ (m)	43.0 ***
Lr60m(dB)	-3.6 ***
55	-4.4 ***
50	-4.6 ***
45	-4.3 ***
40	-3.5 ***
35	-2.2 ***
30	-0.3 ***
25	2.5 ***
20	6.5 ***
15	10.3 ***
10	
ha2′ (m)	48.0 ***
Lr60m(dB)	-3.4 ***
55	-4.1 ***
50	-4.5 ***
45	-4.6 ***
40	-4.4 ***
35	-3.8 ***
30	-2.9 ***
25	-1.6 ***
20	0.1 ***
15	2.5 ***
10	5.6 ***

Height Pattern



Lr Pattern at Q (dB, ha1′ = 43 m)



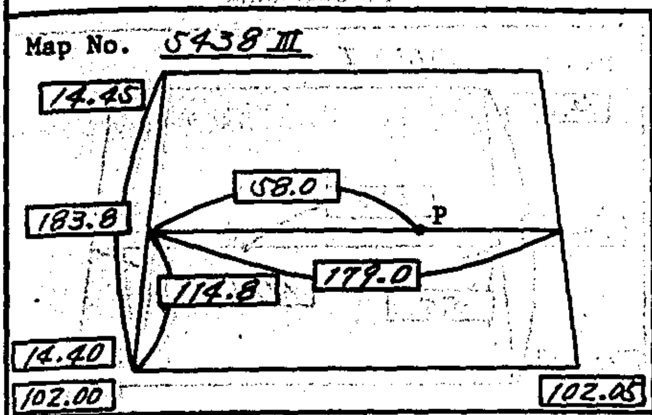
Lr Pattern at P (dB, ha2′ = 48 m)

PROPAGATION PATH DATA

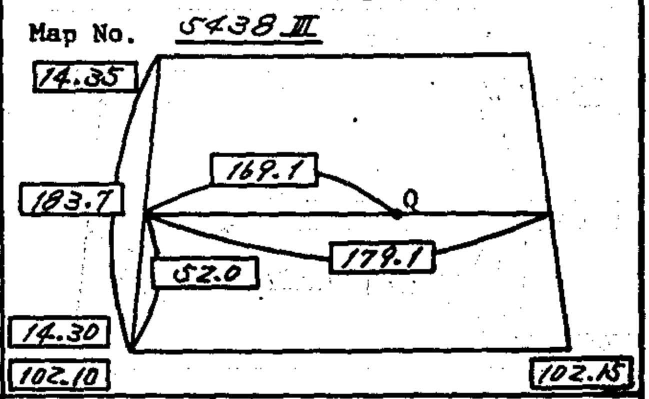
Path No. 4421-14

Site P Pak Tong Chai ——— Site Q Khon Buri

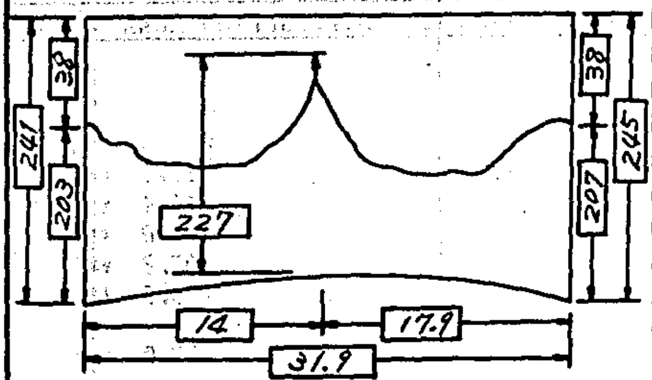
Map No. 5438 III



Map No. 5438 III



Long-1(D.MS)	102.0000 ***	Long-1(D.MS)	102.1000 ***
Long-2(D.MS)	102.0500 ***	Long-2(D.MS)	102.1500 ***
Lati-1(D.MS)	14.4000 ***	Lati-1(D.MS)	14.3000 ***
Lati-2(D.MS)	14.4500 ***	Lati-2(D.MS)	14.3500 ***
X 1-2(mm)	179.0 ***	X 1-2(mm)	179.1 ***
X 1-0(mm)	58.0 ***	X 1-0(mm)	169.1 ***
Y 1-2(mm)	183.8 ***	Y 1-2(mm)	183.7 ***
Y 1-0(mm)	114.8 ***	Y 1-0(mm)	52.0 ***
Long. (D.MS)	102.0137 ***	Long. (D.MS)	102.1443 ***
Lati. (D.MS)	14.4307 ***	Lati. (D.MS)	14.3125 ***
G.Elevation	203 (m)	G.Elevation	207 (m)
Profile No.	S-4421-14	Type of Path	L/S (no reflection)



Path Distance & Azimuth

Long-P (D.MS)	102.0137 ***
Lati-P (D.MS)	14.4307 ***
Long-Q (D.MS)	102.1443 ***
Lati-Q (D.MS)	14.3125 ***
d (km)	31.9 ***
α P→Q(D.MS)	132.[illegible]3 ***
α Q→P(D.MS)	312.3420 ***

Antenna Height & Diffraction Loss

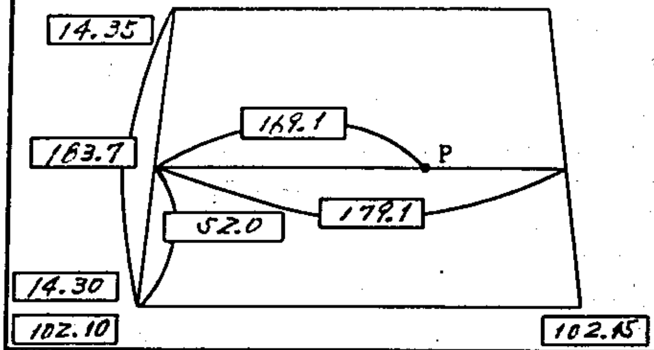
d	(km)	31.9 ***
d1	(km)	14.0 ***
hm	(m)	227.0 ***
hg1	(m)	203.0 ***
hg2	(m)	207.0 ***
ha1	(m)	
ha1	(m)	38.0 ***
ha2	(m)	39.0 ***
(k = 4/3)		
hp	(m)	[illegible] ***
Rs	(m)	51.2 ***
Cs	(m)	1.0 ***
U		0.02 ***
M		17. ***
(k = 1)		Ld^{50} = 14 dB
U		-0.08 ***
M		18. ***
		$Ld^{99.9}$ = 17 dB

PROPAGATION PATH DATA

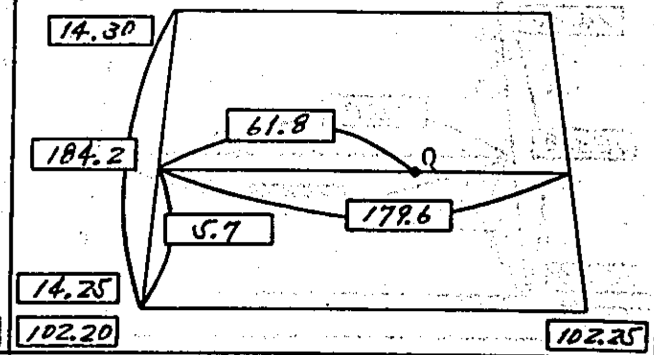
Path No. 4421-15

Site P	Khon Buri	Site Q	Sa Pratheep

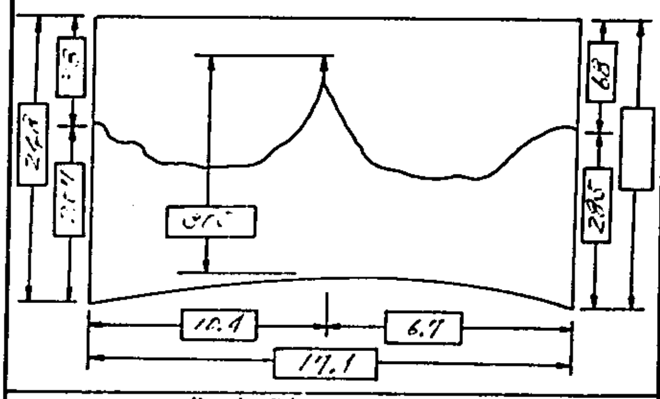
Map No. 5438 III



Map No. 5437 I



Long-1(D.MS)	102.1000 ***	Long-1(D.MS)	102.2000 ***
Long-2(D.MS)	102.1500 ***	Long-2(D.MS)	102.2500 ***
Lati-1(D.MS)	14.3000 ***	Lati-1(D.MS)	14.2500 ***
Lati-2(D.MS)	14.3500 ***	Lati-2(D.MS)	14.3000 ***
X 1-2(mm)	179.1 ***	X 1-2(mm)	179.6 ***
X 1-0(mm)	169.1 ***	X 1-0(mm)	61.8 ***
Y 1-2(mm)	183.7 ***	Y 1-2(mm)	184.2 ***
Y 1-0(mm)	52.0 ***	Y 1-0(mm)	5.7 ***
Long. (D.MS)	102.1443 ***	Long. (D.MS)	102.2143 ***
Lati. (D.MS)	14.3125 ***	Lati. (D.MS)	14.2509 ***
G.Elevation	207 (m)	G.Elevation	285 (m)
Profile No.	S-4421-16	Type of Path	L/S (no reflection)



Path Distance & Azimuth

Long-P (D.MS)	102.1443 ***
Lati-P (D.MS)	14.3125 ***
Long-Q (D.MS)	102.2143 ***
Lati-Q (D.MS)	14.2509 ***
d (km)	17.1 ***
α P→Q(D.MS)	132.3207 ***
α Q→P(D.MS)	312.3351 ***

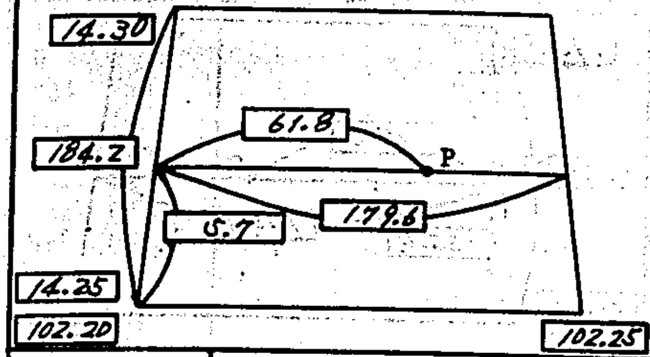
Antenna Height & Diffraction Loss

d (km)	17.1 ***
d1 (km)	10.4 ***
hm (m)	305.0 ***
hg1 (m)	207.0 ***
hg2 (m)	285.0 ***
ha1 (m)	33.0 ***
ha1 (m)	38.0 ***
ha2 (m)	68.0 ***
(k = 4/3)	
hp (m)	306.6 ***
Rs (m)	36.9 ***
Cs (m)	1.6 ***
U	0.04 ***
M	Ld^{50} = 15 dB
(k = 1)	
U	
M	

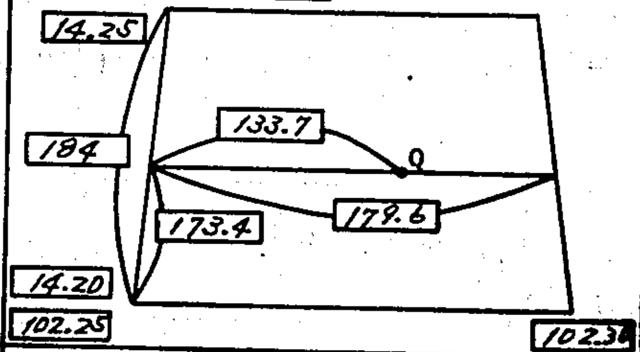
PROPAGATION PATH DATA	Path No. 4421-16

Site P	Site Q
Sa Pratheep	Saeng Sang

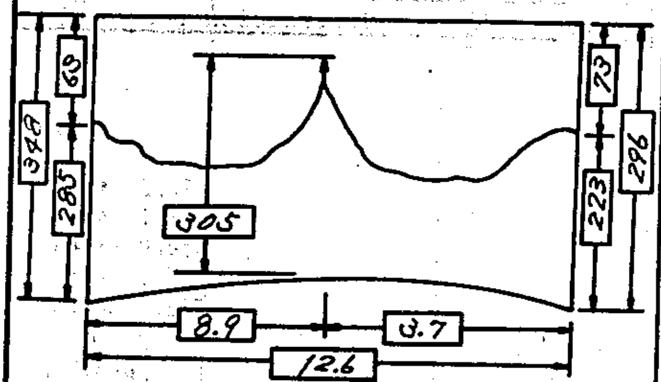
Map No. 5437 I



Map No. 5437 I



Site P		Site Q	
Long-1 (D.MS)	102.2000 ***	Long-1 (D.MS)	102.2500 ***
Long-2 (D.MS)	102.2500 ***	Long-2 (D.MS)	102.3000 ***
Lati-1 (D.MS)	14.2500 ***	Lati-1 (D.MS)	14.2000 ***
Lati-2 (D.MS)	14.3000 ***	Lati-2 (D.MS)	14.2500 ***
X 1-2 (mm)	179.6 ***	X 1-2 (mm)	179.6 ***
X 1-0 (mm)	61.8 ***	X 1-0 (mm)	133.7 ***
Y 1-2 (mm)	184.2 ***	Y 1-2 (mm)	184.0 ***
Y 1-0 (mm)	5.7 ***	Y 1-0 (mm)	173.4 ***
Long. (D.MS)	102.2143 ***	Long. (D.MS)	102.2843 ***
Lati. (D.MS)	14.2509 ***	Lati. (D.MS)	14.2443 ***
G.Elevation	285 (m)	G.Elevation	223 (m)
Profile No.	S-4421-17	Type of Path	L/S (no reflection)



Path Distance & Azimuth

Long-P (D.MS)	102.2143 ***
Lati-P (D.MS)	14.2509 ***
Long-Q (D.MS)	102.2843 ***
Lati-Q (D.MS)	14.2443 ***
d (km)	12.6 ***
α P→Q (D.MS)	93.4152 ***
α Q→P (D.MS)	273.4336 ***

Antenna Height & Diffraction Loss

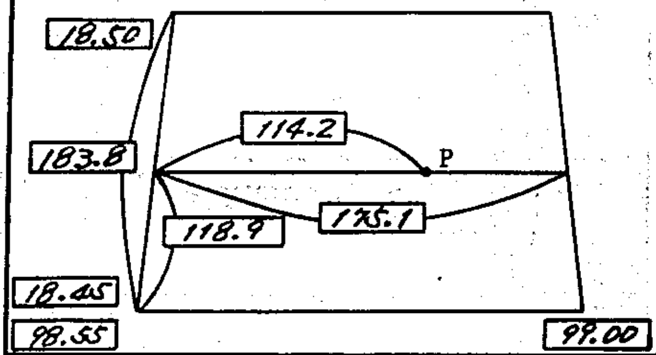
d (km)	12.6 ***
dl (km)	8.9 ***
hm (m)	305.0 ***
hg1 (m)	285.0 ***
hg2 (m)	223.0 ***
hal (m)	59.0 ***
ha1 (m)	63.0 ***
ha2 (m)	73.0 ***
(k = 4/3)	
hp (m)	309.3 ***
Rs (m)	29.5 ***
Cs (m)	4.3 ***
U	0.15 ***
M	$Ld^{50} = 10$ dB
(k = 1)	
U	
M	

PROPAGATION PATH DATA

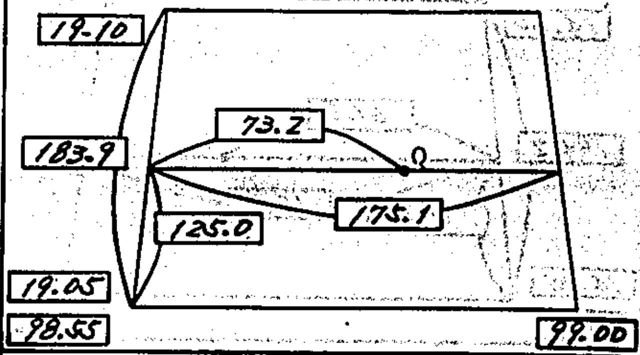
Path No. 5313-1

Site P	Site Q
Chiangmai	Ban Pak Tang

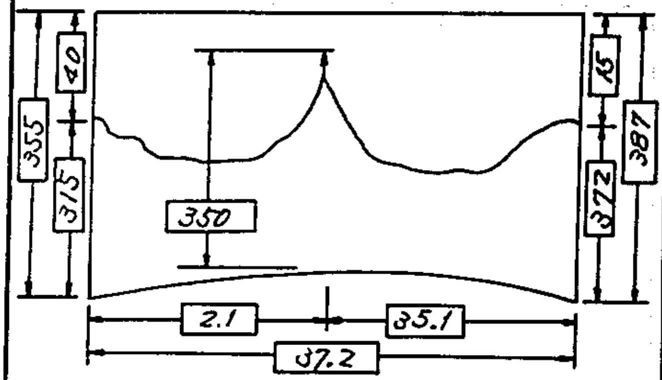
Map No. 4746 I



Map No. 4747 II



Long-1(D.MS)	98.5500 ***	Long-1(D.MS)	98.5500 ***
Long-2(D.MS)	99.0000 ***	Long-2(D.MS)	99.0000 ***
Lati-1(D.MS)	18.4500 ***	Lati-1(D.MS)	19.0500 ***
Lati-2(D.MS)	18.5000 ***	Lati-2(D.MS)	19.1000 ***
X 1-2(mm)	175.1 ***	X 1-2(mm)	175.1 ***
X 1-0(mm)	114.2 ***	X 1-0(mm)	73.2 ***
Y 1-2(mm)	183.8 ***	Y 1-2(mm)	183.9 ***
Y 1-0(mm)	118.9 ***	Y 1-0(mm)	125.0 ***
Long. (D.MS)	98.5815 ***	Long. (D.MS)	98.5705 ***
Lati. (D.MS)	18.4814 ***	Lati. (D.MS)	19.0824 ***
G.Elevation	315 (m)	G.Elevation	372 (m)
Profile No.	5-5313-1	Type of Path	L/S (no reflection)



Path Distance & Azimuth

Long-P (D.MS)	98.5815 ***
Lati-P (D.MS)	18.4814 ***
Long-Q (D.MS)	98.5705 ***
Lati-Q (D.MS)	19.0824 ***
d (km)	37.2 ***
α P→Q(D.MS)	356.5825 ***
α Q→P(D.MS)	176.5005 ***

Antenna Height & Diffraction Loss

d (km)	37.2 ***
d1 (km)	2.1 ***
hm (m)	350.0 ***
hg1 (m)	315.0 ***
hg2 (m)	372.0 ***
ha1 (m)	
ha1 (m)	40.0 ***
ha2 (m)	15.0 ***
(k = 4/3)	
hp (m)	352.5 ***
Rs (m)	25.7 ***
Cs (m)	2.5 ***
U	0.10 ***
M	19. ***
	Ld^{50} = 7 dB
(k = 1)	
U	0.04 ***
M	20. ***
	$Ld^{99.9}$ = 9 dB

PROPAGATION PATH DATA

Path No. 5313-1

Site P	Site Q
Chiangmai	Ban Pak Tang

Reflection Area(011A-1/3)

f (MHz)	900.00	***
K	1.333	***
hg1 (m)	315.0	***
hg2 (m)	372.0	***
d (km)	37.2	***
ha1′ (m)	40.0	***
ha2′ (m)	15.0	***
hr′ (m)	315.0	***
hr (m)		
d1 (m)	14.5	***
d2 (m)	22.7	***
ψ (D.MS)	0.0531	***
T1 (km)	28.6	***
Dv	0.69	***
ρ_e	0.7	***
Φr (deg)	180.0	***
Lr min(dB)	-4.6	***
Lr max(dB)	10.5	***

Variation of Reflection Loss(011A-3/3)

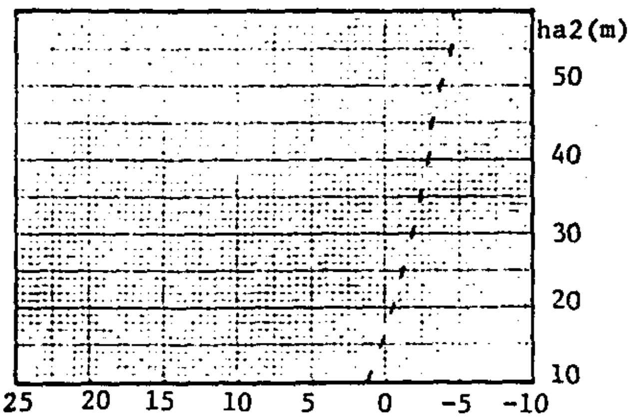
$K^{99.9}$	1.000	***
K^{50}	1.333	***
$K^{0.1}$	3.000	***
ha1′ (m)	40.0	***
ha2′ (m)	15.0	***
$Lr^{99.9}$ (dB)	3.3	***
Lr^{50} (dB)	0.3	***
$Lr^{0.1}$ (dB)	-3.3	***
ha1′ (m)		
ha1′ (m)		
$Lr^{99.9}$ (dB)		
Lr^{50} (dB)		
$Lr^{0.1}$ (dB)		

ha1 determined	40 (m)
ha2 determined	15 (m)

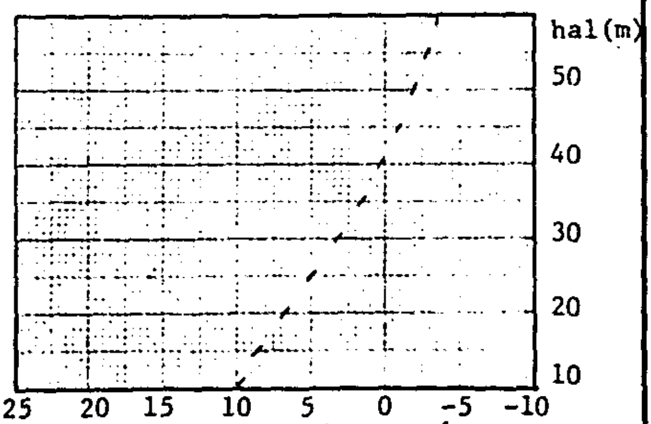
Reflection Loss(011A-2/3)

ha1′ (m)	40.0	***
Lr60m(dB)	-4.2	***
55	-4.0	***
50	-3.7	***
45	-3.3	***
40	-2.9	***
35	-2.4	***
30	-1.8	***
25	-1.2	***
20	-0.5	***
15	0.3	***
10	1.1	***
ha2′ (m)	15.0	***
Lr60m(dB)	-3.4	***
55	-2.7	***
50	-1.9	***
45	-0.9	***
40	0.3	***
35	1.6	***
30	3.2	***
25	5.0	***
20	6.9	***
15	8.6	***
10	9.9	***

Height Pattern



Lr Pattern at Q (dB, ha1′ = m)



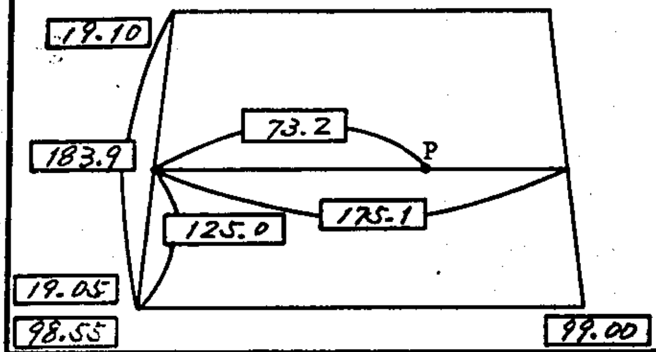
Lr Pattern at P (dB, ha2′ = m)

PROPAGATION PATH DATA

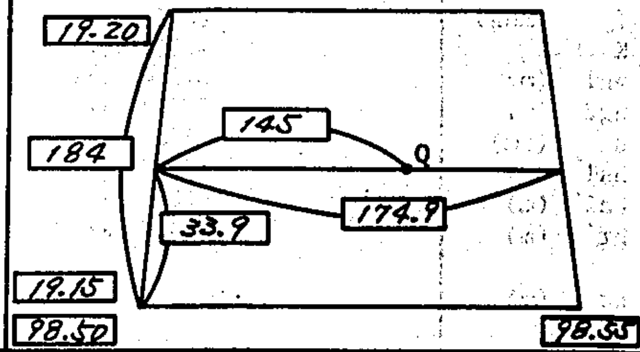
Path No. 5313-2

Site P	Ban Pak Tang	Site Q	Doi Chiang Dao

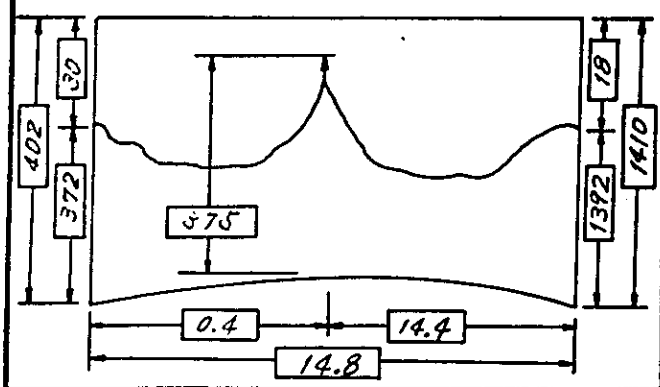
Map No. *47472*



Map No. *4747 I*



Long-1 (D.MS)	98.5500 ***	Long-1 (D.MS)	98.5000 ***
Long-2 (D.MS)	99.0000 ***	Long-2 (D.MS)	98.5500 ***
Lati-1 (D.MS)	19.0500 ***	Lati-1 (D.MS)	19.1500 ***
Lati-2 (D.MS)	19.1000 ***	Lati-2 (D.MS)	19.2000 ***
X 1-2 (mm)	175.1 ***	X 1-2 (mm)	174.9 ***
X 1-0 (mm)	73.2 ***	X 1-0 (mm)	145.0 ***
Y 1-2 (mm)	183.9 ***	Y 1-2 (mm)	184.0 ***
Y 1-0 (mm)	125.0 ***	Y 1-0 (mm)	33.9 ***
Long. (D.MS)	98.5705 ***	Long. (D.MS)	98.5405 ***
Lati. (D.MS)	19.0824 ***	Lati. (D.MS)	19.1555 ***
G.Elevation	*372* (m)	G.Elevation	*1392* (m)
Profile No.	*5-5313-2*	Type of Path	L/S (~~no~~ reflection)



Path Distance & Azimuth

Long-P (D.MS)	98.5705 ***
Lati-P (D.MS)	19.0824 ***
Long-Q (D.MS)	98.5405 ***
Lati-Q (D.MS)	19.1555 ***
d (km)	14.8 ***
α P→Q (D.MS)	339.3623 ***
α Q→P (D.MS)	159.3525 ***

Antenna Height & Diffraction Loss

d (km)	*No Obstacles*
d1 (km)	
hm (m)	
hg1 (m)	
hg2 (m)	
ha1 (m)	
ha1 (m)	
ha2 (m)	
(k = */*)	
hp (m)	
Rs (m)	
Cs (m)	
U	
M	
(k = 1)	
U	
M	

PROPAGATION PATH DATA

Path No. 5313-2

Site P: Ban Pak Tang —— Site Q: Doi Chiang Dao

Reflection Area(011A-1/3)

f (MHz)	900.00	***
K	1.333	***
hg1 (m)	372.0	***
hg2 (m)	1392.0	***
d (km)	14.8	***
ha1′ (m)	30.0	***
ha2′ (m)	18.0	***
hr′ (m)	390.0	***
hr (m)	375.0	***
d1 (m)	0.4	***
d2 (m)	14.4	***
ψ (D.MS)	4.0360	***
T1 (km)	0.2	***
Dv	1.00	***
ρ_c	0.8	***
Φr (deg)	179.0	***
Lr min(dB)	-5.1	***
Lr max(dB)	14.0	***

Variation of Reflection Loss(011A-3/3)

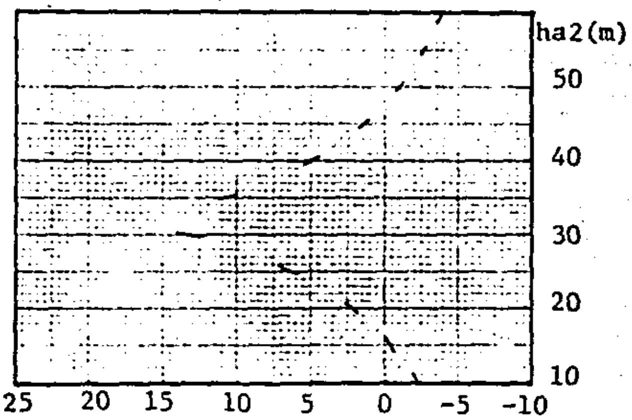
$K^{99.9}$	1.000	***
K^{50}	1.333	***
$K^{0.1}$	3.000	***
ha1′ (m)	30.0	***
ha2′ (m)	18.0	***
$Lr^{99.9}$ (dB)	2.1	***
Lr^{50} (dB)	-0.1	***
$Lr^{0.1}$ (dB)	-2.5	***
ha1′ (m)		
ha1′ (m)		
$Lr^{99.9}$ (dB)		
Lr^{50} (dB)		
$Lr^{0.1}$ (dB)		

ha1 determined	30 (m)
ha2 determined	18 (m)

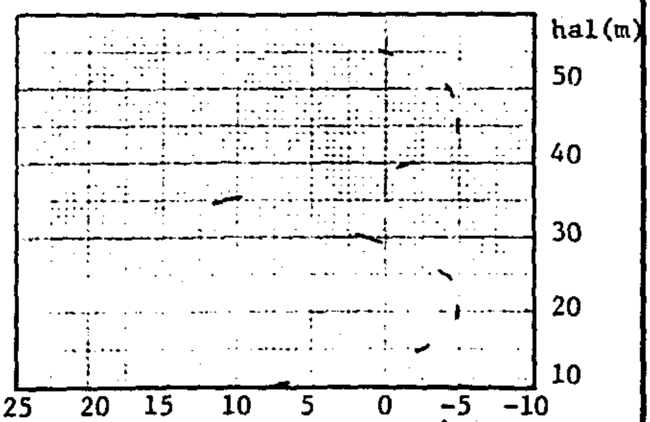
Reflection Loss(011A-2/3)

ha1′ (m)	30.0	***
Lr60m(dB)	-3.8	***
55	-2.6	***
50	-1.0	***
45	1.4	***
40	5.0	***
35	10.8	***
30	12.7	***
25	6.4	***
20	2.3	***
15	-0.4	***
10	-2.2	***
ha2′ (m)	18.0	***
Lr60m(dB)	13.6	***
55	-4.782983786-03	***
50	-4.5	***
45	-4.9	***
40	-1.6	***
35	11.0	***
30	1.1	***
25	-4.2	***
20	-5.0	***
15	-2.4	***
10	7.6	***

Height Pattern



Lr Pattern at Q (dB, ha1′ = 30 m)



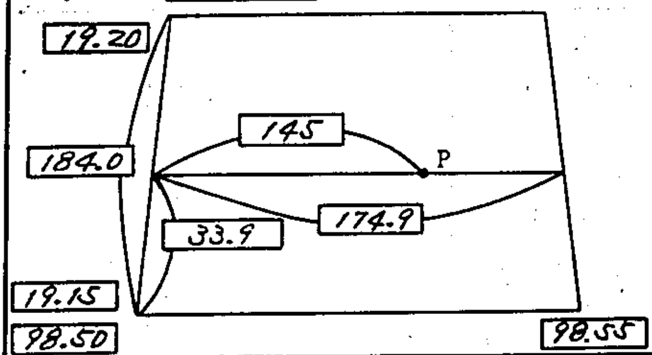
Lr Pattern at P (dB, ha2′ = 18 m)

PROPAGATION PATH DATA

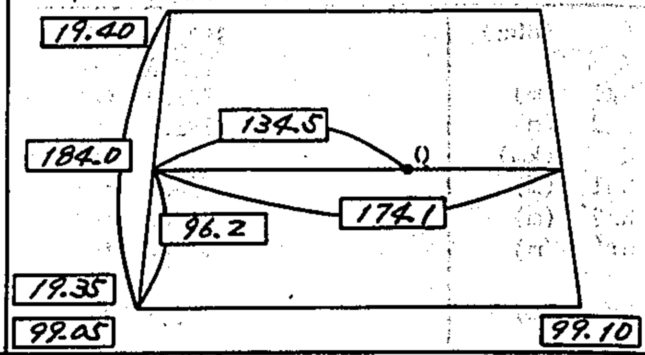
Path No. 5313-3

Site P	Site Q
Doi Chiang Dao	Doi Pha Hong

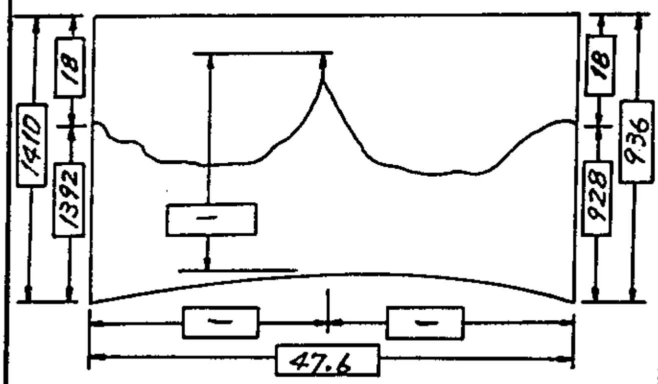
Map No. 4747 I



Map No. 4848 III



Long-1(D.MS)	98.5000 ***	Long-1(D.MS)	99.0500 ***
Long-2(D.MS)	98.5500 ***	Long-2(D.MS)	99.1000 ***
Lati-1(D.MS)	19.1500 ***	Lati-1(D.MS)	19.3500 ***
Lati-2(D.MS)	19.2000 ***	Lati-2(D.MS)	19.4000 ***
X 1-2(mm)	174.9 ***	X 1-2(mm)	174.1 ***
X 1-0(mm)	145.0 ***	X 1-0(mm)	134.5 ***
Y 1-2(mm)	184.0 ***	Y 1-2(mm)	184.0 ***
Y 1-0(mm)	33.9 ***	Y 1-0(mm)	96.2 ***
Long. (D.MS)	98.5409 ***	Long. (D.MS)	99.0852 ***
Lati. (D.MS)	19.1555 ***	Lati. (D.MS)	19.3737 ***
G.Elevation	1392 (m)	G.Elevation	928 (m)
Profile No.	S-5313-3	Type of Path	L/S (no reflection)



Path Distance & Azimuth

Long-P (D.MS)	98.5409 ***
Lati-P (D.MS)	19.1555 ***
Long-Q (D.MS)	99.0852 ***
Lati-Q (D.MS)	19.3737 ***
d (km)	47.6 ***
α P→Q(D.MS)	32.4[illegible]5 ***
α Q→P(D.MS)	212.[illegible]9 ***

Antenna Height & Diffraction Loss

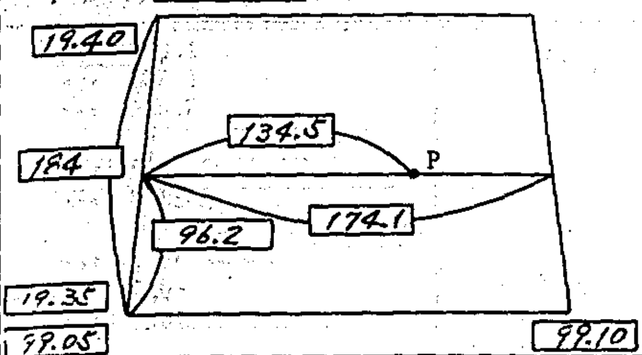
d (km)	No Obstacles
d1 (km)	
hm (m)	
hg1 (m)	
hg2 (m)	
ha1 (m)	
ha1 (m)	
ha2 (m)	
(k = /)	
hp (m)	
Rs (m)	
Cs (m)	
U	
M	
(k = 1)	
U	
M	

PROPAGATION PATH DATA

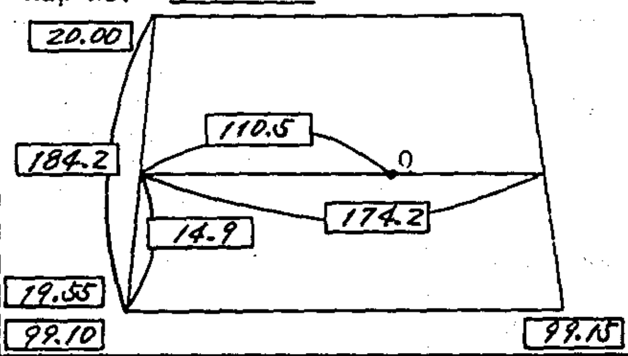
Path No. 5313-4

Site P	Site Q
Doi Pha Hong	Fang

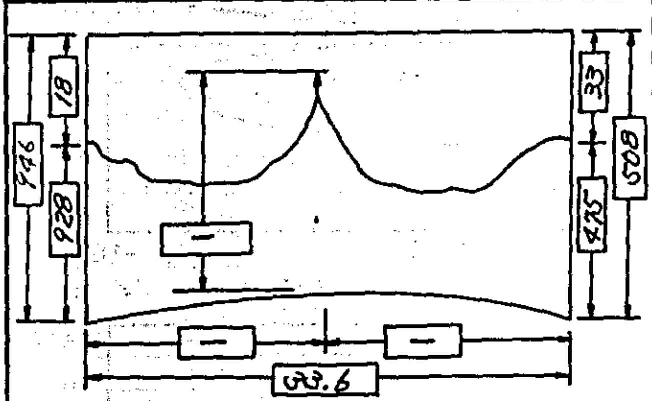
Map No. 4848 III



Map No. 4848 IV



	Site P		Site Q
Long-1 (D.MS)	99.0500 ***	Long-1 (D.MS)	99.1000 ***
Long-2 (D.MS)	99.1000 ***	Long-2 (D.MS)	99.1500 ***
Lati-1 (D.MS)	19.3500 ***	Lati-1 (D.MS)	19.5500 ***
Lati-2 (D.MS)	19.4000 ***	Lati-2 (D.MS)	20.0000 ***
X 1-2 (mm)	174.1 ***	X 1-2 (mm)	174.2 ***
X 1-0 (mm)	134.5 ***	X 1-0 (mm)	110.5 ***
Y 1-2 (mm)	184.0 ***	Y 1-2 (mm)	184.2 ***
Y 1-0 (mm)	96.2 ***	Y 1-0 (mm)	14.9 ***
Long. (D.MS)	99.0552 ***	Long. (D.MS)	99.1310 ***
Lati. (D.MS)	19.3737 ***	Lati. (D.MS)	19.5524 ***
G.Elevation	928 (m)	G.Elevation	475 (m)
Profile No.	5-5313-4	Type of Path	L/S (~~no~~ reflection)



Antenna Height & Diffraction Loss

No Obstacles

d (km)	
d1 (km)	
hm (m)	
hg1 (m)	
hg2 (m)	
ha1 (m)	
ha1 (m)	
ha2 (m)	
(k = /)	
hp (m)	
Rs (m)	
Cs (m)	
U	
M	
(k = 1)	
U	
M	

Path Distance & Azimuth

Long-P (D.MS)	99.0552 ***
Lati-P (D.MS)	19.3737 ***
Long-Q (D.MS)	99.1310 ***
Lati-Q (D.MS)	19.5524 ***
d (km)	33.5 ***
α P→Q (D.MS)	12.5406 ***
α Q→P (D.MS)	192.5533 ***

PROPAGATION PATH DATA

Path No. 5313-4

Site P	Doi Pha Hong	—	Site Q	Fang

Reflection Area(011A-1/3)

f (MHz)	900.00	***
K	1.333	***
hg1 (m)	928.0	***
hg2 (m)	475.0	***
d (km)	33.6	***
ha1′ (m)	18.0	***
ha2′ (m)	33.0	***
hr′ (m)	470.0	
hr (m)		
d1 (m)	30.8	***
d2 (m)	2.8	***
ψ (D.MS)	0.4649	***
T1 (km)	2.1	***
Dv	0.98	***
ρ_c	0.9	***
Φr (deg)	180.0	***
Lr min(dB)	-5.6	***
Lr max(dB)	20.0	***

Variation of Reflection Loss(011A-3/3)

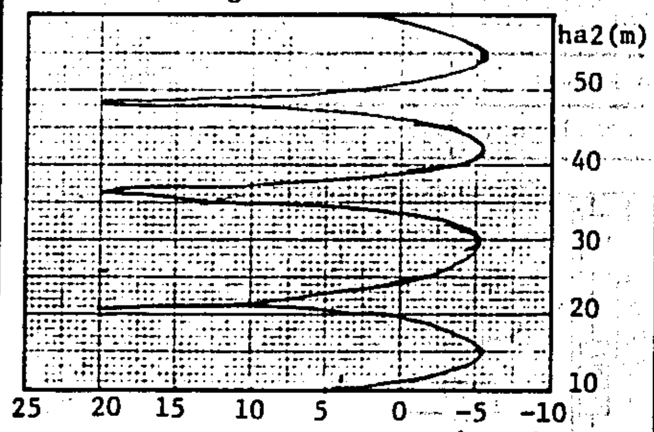
$K^{99.9}$	1.000	***
K^{50}	1.333	***
$K^{0.1}$	3.000	***
ha1′ (m)	18.0	***
ha2′ (m)	33.0	***
$Lr^{99.9}$ (dB)	-4.1	***
Lr^{50} (dB)	-0.3	***
$Lr^{0.1}$ (dB)	10.9	***
ha1′ (m)		
ha1′ (m)		
$Lr^{99.9}$ (dB)		
Lr^{50} (dB)		
$Lr^{0.1}$ (dB)		

ha1 determined	18 (m)
ha2 determined	33 (m)

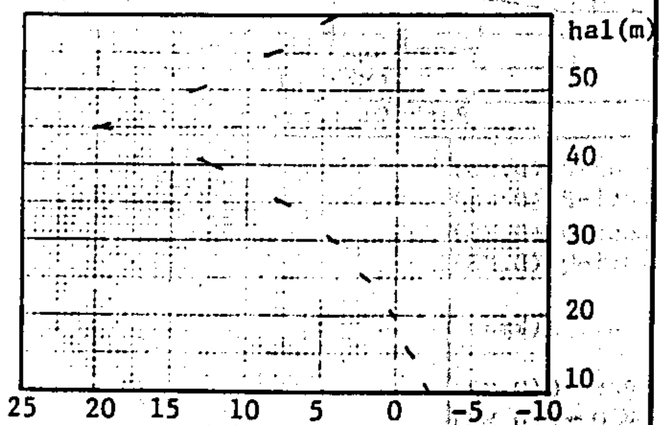
Reflection Loss(011A-2/3)

ha1′ (m)	18.0	***
Lr60m(dB)	1.5	***
55	-5.5	***
50	4.5	***
45	-7.7	***
40	-4.5	***
35	13.0	***
30	-5.3	***
25	-1.6	***
20	1.0	***
15	-5.5	***
10	4.3	***
ha2′ (m)	33.0	***
Lr60m(dB)	4.7	***
55	8.1	***
50	13.5	***
45	19.9	***
40	12.5	***
35	7.5	***
30	4.3	***
25	2.0	***
20	0.2	***
15	-1.1	***
10	-2.2	***

Height Pattern



Lr Pattern at Q (dB, ha1′ = 18 m)



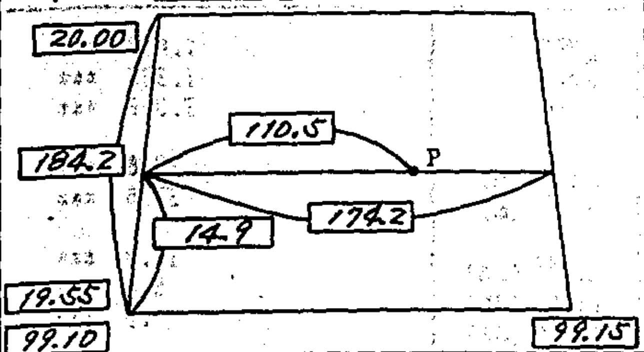
Lr Pattern at P (dB, ha2′ = 33 m)

PROPAGATION PATH DATA

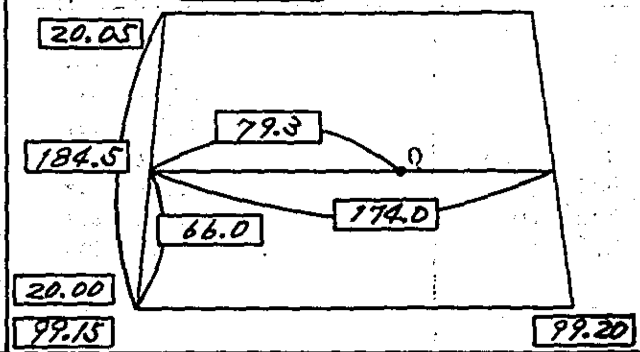
Path No. 5313-5

Site P Fang — Site Q Mae Ai

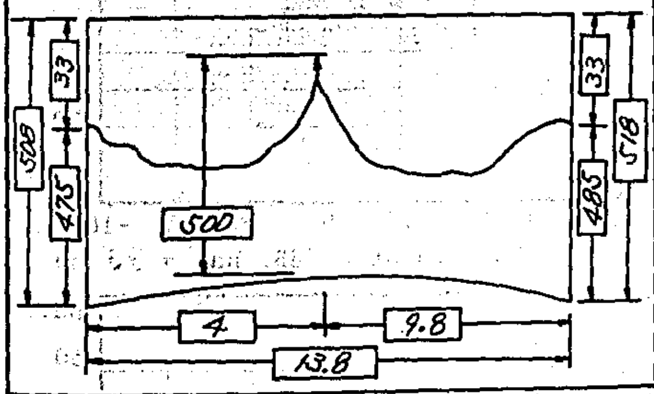
Map No. 4848 IV



Map No. 4849 II



Long-1(D.MS)	99.1000 ***	Long-1(D.MS)	99.1500 ***
Long-2(D.MS)	99.1500 ***	Long-2(D.MS)	99.2000 ***
Lati-1(D.MS)	19.5500 ***	Lati-1(D.MS)	20.0000 ***
Lati-2(D.MS)	20.0000 ***	Lati-2(D.MS)	20.0500 ***
X 1-2(mm)	174.2 ***	X 1-2(mm)	174.0 ***
X 1-0(mm)	110.5 ***	X 1-0(mm)	79.3 ***
Y 1-2(mm)	184.2 ***	Y 1-2(mm)	184.5 ***
Y 1-0(mm)	14.9 ***	Y 1-0(mm)	66.0 ***
Long. (D.MS)	99.1310 ***	Long. (D.MS)	99.1717 ***
Lati. (D.MS)	19.5524 ***	Lati. (D.MS)	20.0147 ***
G.Elevation	475 (m)	G.Elevation	485 (m)
Profile No.	5-5313-5	Type of Path	L/S (~~no~~ reflection)



Path Distance & Azimuth

Long-P (D.MS)	99.1310 ***
Lati-P (D.MS)	19.5524 ***
Long-Q (D.MS)	99.1717 ***
Lati-Q (D.MS)	20.0147 ***
d (km)	13.8 ***
α P→Q(D.MS)	31.1750 ***
α Q→P(D.MS)	211.1913 ***

Antenna Height & Diffraction Loss

d (km)	13.8 ***
d1 (km)	4.0 ***
hm (m)	500.0 ***
hg1 (m)	475.0 ***
hg2 (m)	485.0 ***
ha1 (m)	30.0 ***
ha1 (m)	33.0 ***
ha2 (m)	33.0 ***
(k = 4/3)	
hp (m)	505.6 ***
Rs (m)	30.8 ***
Cs (m)	6.6 ***
U	0.28 ***
M	14. ***
	Ld^{50} = 6 dB
(k = 1)	
U	0.25 ***
M	15. ***
	$Ld^{99.9}$ = 10 dB

PROPAGATION PATH DATA

Path No.	5313-5

Site P	Fang	——	Site Q	Mae Ai

Reflection Area(011A-1/3)

f (MHz)	900.00	***
K	1.333	***
hg1 (m)	475.0	***
hg2 (m)	485.0	***
d (km)	13.8	***
ha1′ (m)	33.0	***
ha2′ (m)	33.0	***
hr′ (m)	460.0	***
hr (m)		
d1 (m)	6.3	***
d2 (m)	7.5	***
ψ (D.MS)	0.2507	***
T1 (km)	4.6	***
Dv	0.95	***
ρ_e	0.5	***
Φr (deg)	180.0	***
Lr min(dB)	-5.6	***
Lr max(dB)	26.0	***

Variation of Reflection Loss(011A-3/3)

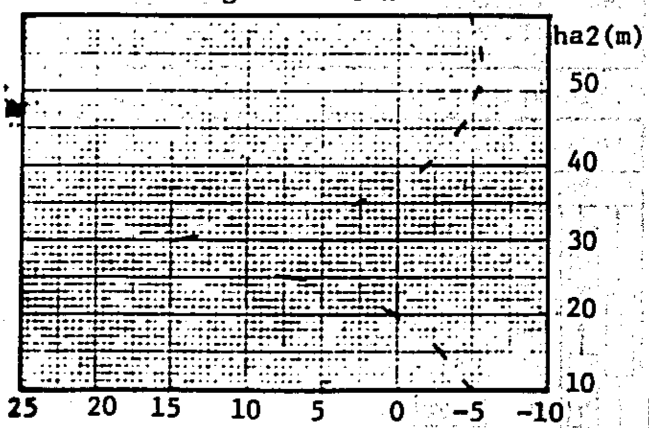
$K^{99.9}$	1.000	***
K^{50}	1.333	***
K^{a1}	3.000	***
ha1′ (m)	33.0	***
ha2′ (m)	33.0	***
$Lr^{99.9}$ (dB)	10.0	***
Lr^{50} (dB)	5.0	***
Lr^{a1} (dB)	1.0	***
ha1′ (m)		
ha1′ (m)		
$Lr^{99.9}$ (dB)		
Lr^{50} (dB)		
Lr^{a1} (dB)		

ha1 determined	33 (m)
ha2 determined	33 (m)

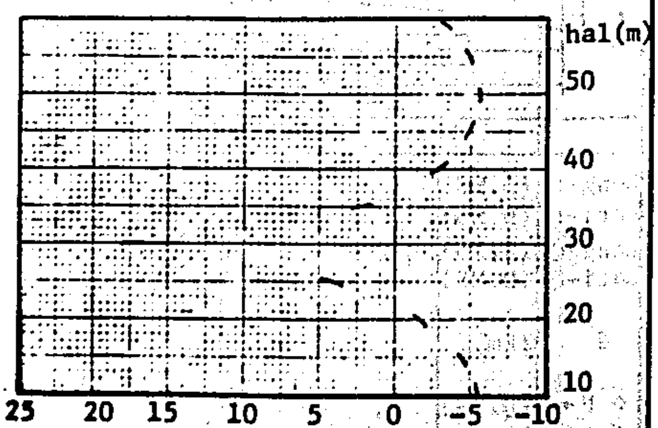
Reflection Loss(011A-2/3)

ha1′ (m)	33.0	***
Lr60m(dB)	-4.9	***
55	-5.5	***
50	-5.3	***
45	-4.2	***
40	-1.8	***
35	2.7	***
30	14.6	***
25	7.1	***
20	0.2	***
15	-3.0	***
10	-4.8	***
ha2′ (m)	33.0	***
Lr60m(dB)	-3.0	***
55	-5.0	***
50	-5.6	***
45	-4.9	***
40	-2.7	***
35	2.2	***
30	17.6	***
25	4.2	***
20	-1.7	***
15	-4.4	***
10	-5.5	***

Height Pattern



Lr Pattern at Q (dB, ha1′ = 33 m)



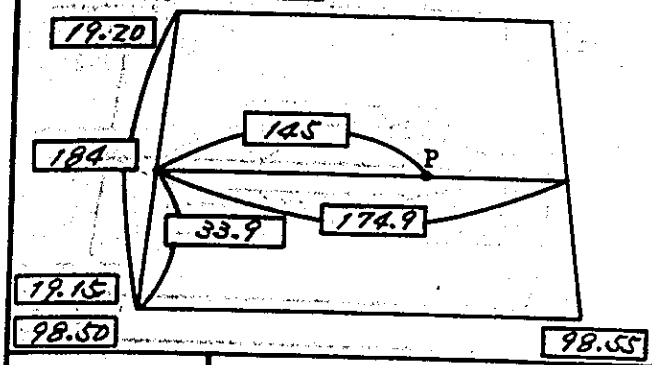
Lr Pattern at P (dB, ha2′ = 33 m)

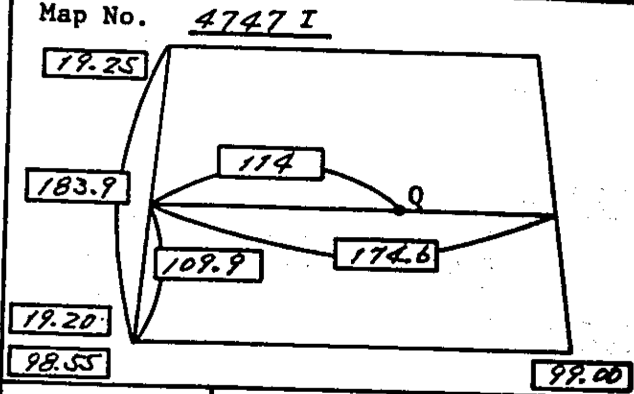
PROPAGATION PATH DATA

Path No. 5313-6

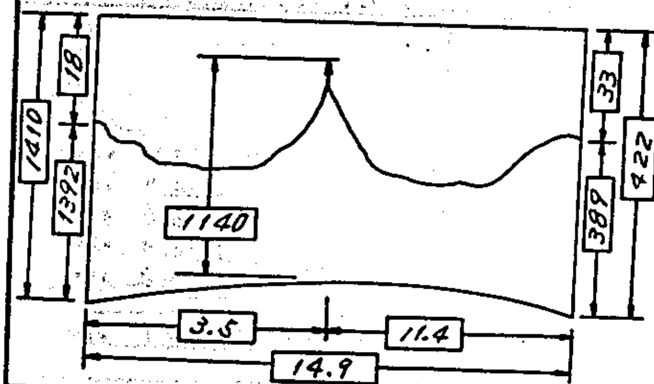
Site P: Doi Chiang Dao —— Site Q: Chiang Dao

Site P		Site Q	
Map No. 4747 I		Map No. 4747 I	





Site P		Site Q	
Long-1 (D.MS)	98.5000 ***	Long-1 (D.MS)	98.5500 ***
Long-2 (D.MS)	98.5500 ***	Long-2 (D.MS)	99.0000 ***
Lati-1 (D.MS)	19.1500 ***	Lati-1 (D.MS)	19.2000 ***
Lati-2 (D.MS)	19.2000 ***	Lati-2 (D.MS)	19.2500 ***
X 1-2 (mm)	174.9 ***	X 1-2 (mm)	174.6 ***
X 1-0 (mm)	145.0 ***	X 1-0 (mm)	114.0 ***
Y 1-2 (mm)	184.0 ***	Y 1-2 (mm)	183.9 ***
Y 1-0 (mm)	33.9 ***	Y 1-0 (mm)	109.9 ***
Long. (D.MS)	98.5409 ***	Long. (D.MS)	98.5816 ***
Lati. (D.MS)	19.1555 ***	Lati. (D.MS)	19.2259 ***
G.Elevation	1392 (m)	G.Elevation	389 (m)
Profile No.	5-5313-6	Type of Path	L/S (~~no~~ reflection)



Path Distance & Azimuth

Long-P (D.MS)	98.5409 ***
Lati-P (D.MS)	19.1555 ***
Long-Q (D.MS)	98.5816 ***
Lati-Q (D.MS)	19.2259 ***
d (km)	14.9 ***
αP→Q (D.MS)	28.5652 ***
αQ→P (D.MS)	208.5914 ***

Antenna Height & Diffraction Loss

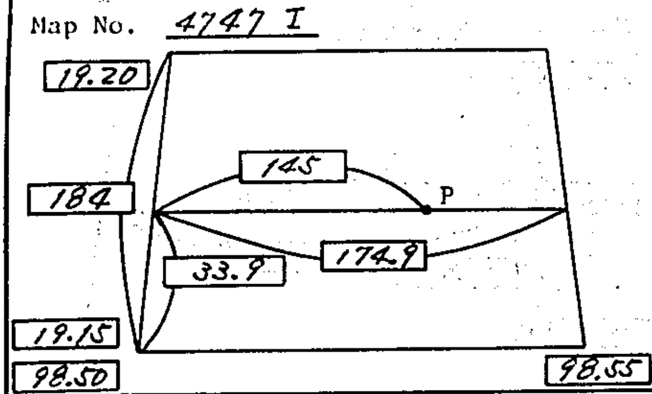
d (km)	14.9 ***
d1 (km)	3.5 ***
hm (m)	1140.0 ***
hg1 (m)	1392.0 ***
hg2 (m)	389.0 ***
ha1 (m)	18.0 ***
ha2 (m)	33.0 ***
(k = 4/3)	
hp (m)	1175.6 ***
Rs (m)	29.9 ***
Cs (m)	35.6 ***
U	1.19 ***
M	Ld_{50} = 0 dB
(k = 1)	
U	
M	

PROPAGATION PATH DATA

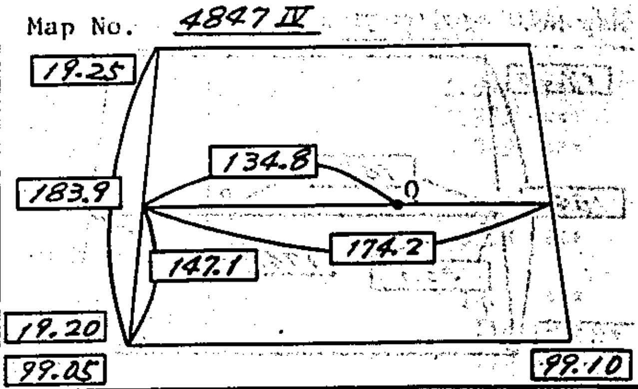
Path No. 5313-7

Site P	Site Q
Doi Chiang Dao	Doi Mu Soe

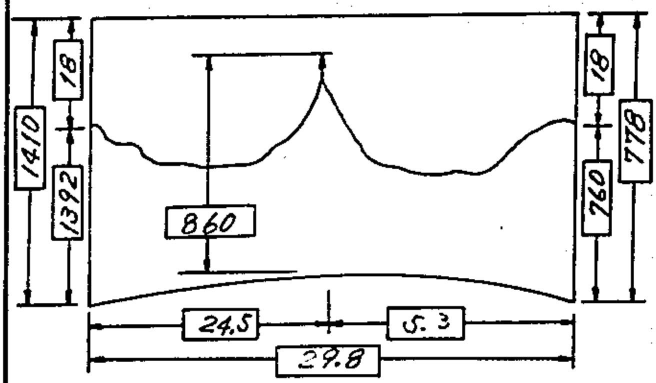
Map No. 4747 I



Map No. 4847 IV



Long-1(D.MS)	98.5000 ***	Long-1(D.MS)	99.0500 ***
Long-2(D.MS)	98.5500 ***	Long-2(D.MS)	99.1000 ***
Lati-1(D.MS)	19.1500 ***	Lati-1(D.MS)	19.2000 ***
Lati-2(D.MS)	19.2000 ***	Lati-2(D.MS)	19.2500 ***
X 1-2(mm)	174.9 ***	X 1-2(mm)	174.2 ***
X 1-0(mm)	145.0 ***	X 1-0(mm)	134.8 ***
Y 1-2(mm)	184.0 ***	Y 1-2(mm)	183.9 ***
Y 1-0(mm)	33.9 ***	Y 1-0(mm)	147.1 ***
Long. (D.MS)	98.5409 ***	Long. (D.MS)	99.0852 ***
Lati. (D.MS)	19.1555 ***	Lati. (D.MS)	19.2360 ***
G.Elevation	1392 (m)	G.Elevation	760 (m)
Profile No.	5-5316-7	Type of Path	L/S (no reflection)



Path Distance & Azimuth

Long-P (D.MS)	98.5409 ***
Lati-P (D.MS)	19.1555 ***
Long-Q (D.MS)	99.0852 ***
Lati-Q (D.MS)	19.2360 ***
d (km)	29.8 ***
α P→Q(D.MS)	59.5560 ***
α Q→P(D.MS)	240.0050 ***

Antenna Height & Diffraction Loss

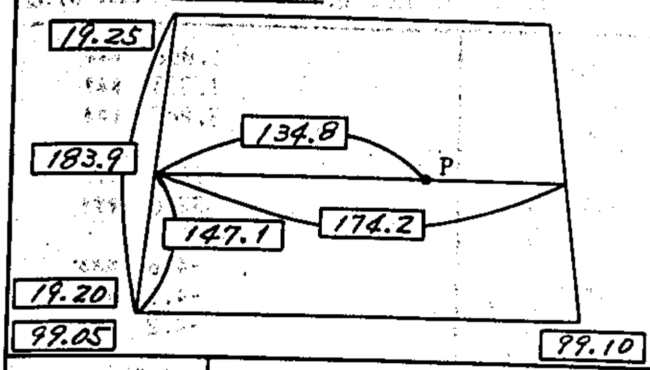
d	(km)	29.8 ***
d1	(km)	24.5 ***
hm	(m)	860.0 ***
hg1	(m)	1392.0 ***
hg2	(m)	760.0 ***
ha1	(m)	18.0 ***
ha1	(m)	18.0 ***
ha2	(m)	18.0 ***
(k = 4/3)		
hp	(m)	862.8 ***
Rs	(m)	38.1 ***
Cs	(m)	22.8 ***
U		0.60 ***
M		Ld_{50} = 0 dB
(k = 1)		
U		
M		

PROPAGATION PATH DATA

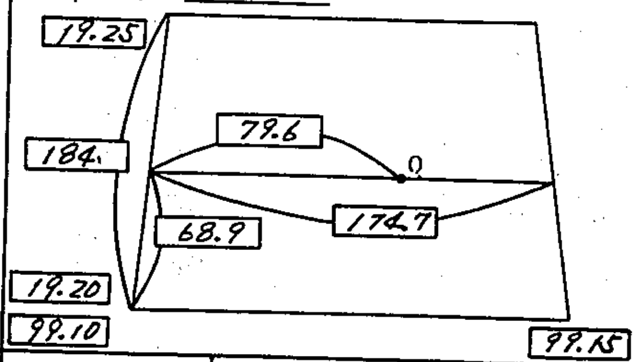
Path No. 5313-8

Site P	Site Q
Doi Mu Soe	Phrao

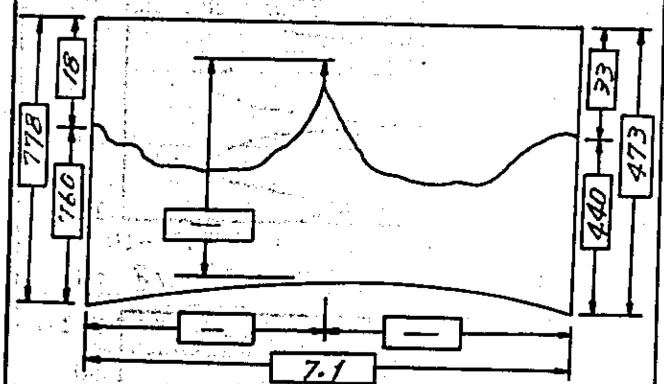
Map No. 4847 IV



Map No. 4847 IV



	Site P		Site Q
Long-1 (D.MS)	99.0500 ***	Long-1 (D.MS)	99.1000 ***
Long-2 (D.MS)	99.1000 ***	Long-2 (D.MS)	99.1500 ***
Lati-1 (D.MS)	19.2000 ***	Lati-1 (D.MS)	19.2000 ***
Lati-2 (D.MS)	19.2500 ***	Lati-2 (D.MS)	19.2500 ***
X 1-2 (mm)	174.2 ***	X 1-2 (mm)	174.7 ***
X 1-0 (mm)	134.8 ***	X 1-0 (mm)	79.6 ***
Y 1-2 (mm)	183.9 ***	Y 1-2 (mm)	184.0 ***
Y 1-0 (mm)	147.1 ***	Y 1-0 (mm)	68.9 ***
Long. (D.MS)	99.0852 ***	Long. (D.MS)	99.1217 ***
Lati. (D.MS)	19.2362 ***	Lati. (D.MS)	19.2152 ***
G.Elevation	760 (m)	G.Elevation	440 (m)
Profile No.		Type of Path	L/S (no reflection)



Path Distance & Azimuth	
Long-P (D.MS)	99.0852 ***
Lati-P (D.MS)	19.2362 ***
Long-Q (D.MS)	99.1217 ***
Lati-Q (D.MS)	19.2152 ***
d (km)	7.1 ***
α P→Q (D.MS)	123.1358 ***
α Q→P (D.MS)	303.2335 ***

Antenna Height & Diffraction Loss	
d (km)	No Obstacles
d1 (km)	
hm (m)	
hg1 (m)	
hg2 (m)	
ha1 (m)	
ha1 (m)	
ha2 (m)	
(k = /)	
hp (m)	
Rs (m)	
Cs (m)	
U	
M	
(k = 1)	
U	
M	

PROPAGATION PATH DATA

Path No. 5313-8

Site P	Site Q
Doi Mu Soe	Phrao

Reflection Area(011A-1/3)

f (MHz)	900.00	***
K	1.333	***
hg1 (m)	760.0	***
hg2 (m)	440.0	***
d (km)	7.1	***
ha1′ (m)	18.0	***
ha2′ (m)	33.0	***
hr′ (m)	430.0	***
hr (m)		
d1 (m)	6.3	***
d2 (m)	0.8	***
ψ (D.MS)	3.0810	***
T1 (km)	0.3	***
Dv	1.00	***
ρ_c	0.7	***
Φr (deg)	179.0	***
Lr min(dB)	-4.6	***
Lr max(dB)	10.5	***

Variation of Reflection Loss(011A-3/3)

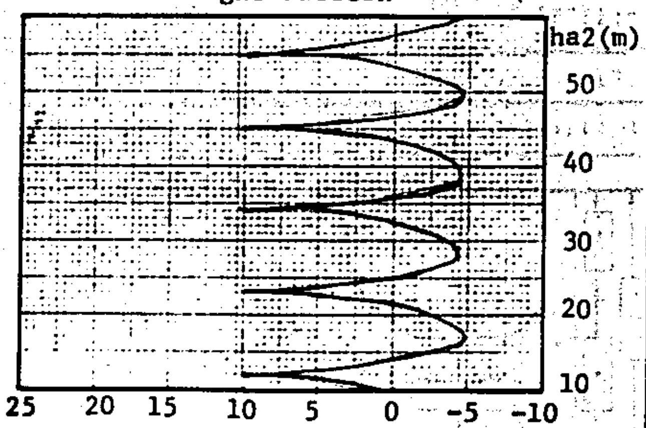
$K^{99.9}$	1.000	***
K^{50}	1.333	***
$K^{0.1}$	3.000	***
ha1′ (m)	18.0	***
ha2′ (m)	33.0	***
$Lr^{99.9}$ (dB)	-4.6	***
Lr^{50} (dB)	-4.5	***
$Lr^{0.1}$ (dB)	-4.2	***
ha1′ (m)		
ha1′ (m)		
$Lr^{99.9}$ (dB)		
Lr^{50} (dB)		
$Lr^{0.1}$ (dB)		

ha1 determined	18 (m)
ha2 determined	33 (m)

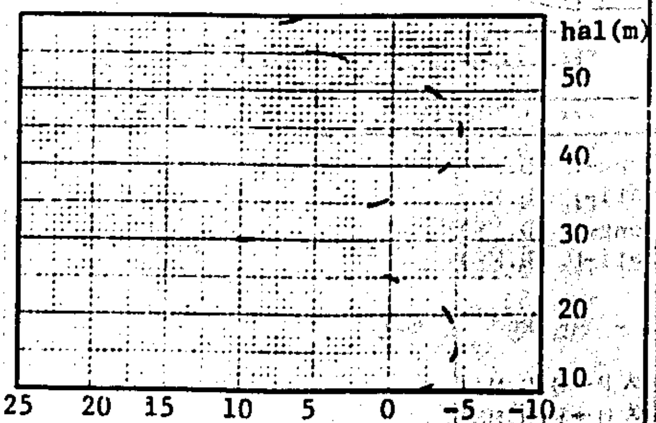
Reflection Loss(011A-2/3)

ha1′ (m)	18.0	***
Lr60m(dB)	-4.4	***
55	9.7	***
50	-4.6	***
45	7.8	***
40	-4.3	***
35	2.7	***
30	-3.3	***
25	-0.6	***
20	-1.7	***
15	-2.7	***
10	0.9	***
ha2′ (m)	33.0	***
Lr60m(dB)	6.4	***
55	3.9	***
50	-2.7	***
45	-4.6	***
40	-3.6	***
35	1.1	***
30	10.1	***
25	-0.2	***
20	-4.0	***
15	-4.4	***
10	-1.9	***

Height Pattern



Lr Pattern at Q (dB, ha1′ = 18 m)



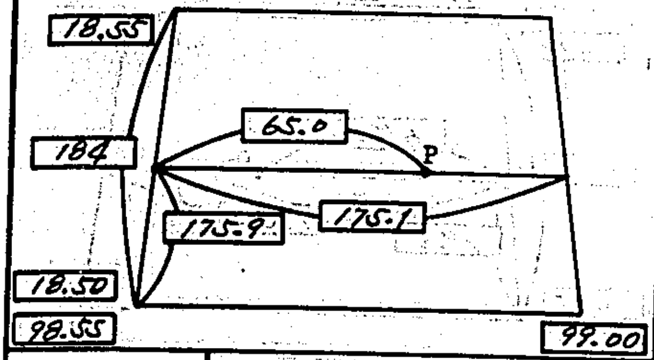
Lr Pattern at P (dB, ha2′ = 33 m)

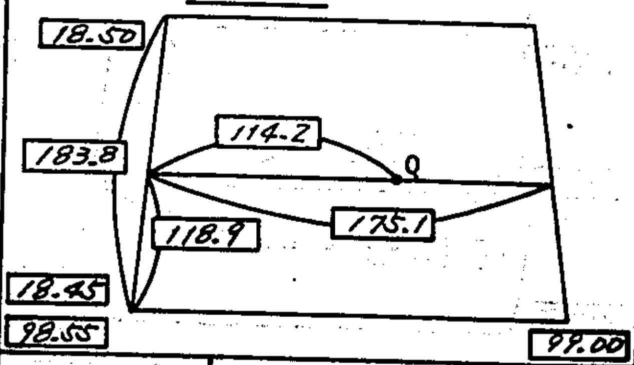
PROPAGATION PATH DATA

Path No.	5313-9

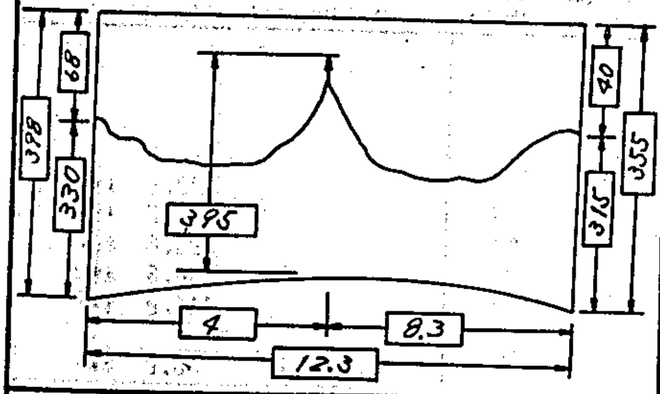
Site P	Site Q
Mae Rim	Chiangmai

Site P		Site Q	
Map No.	4746 I	Map No.	4746 I





Site P		Site Q	
Long-1 (D.MS)	98.5500 ***	Long-1 (D.MS)	98.5500 ***
Long-2 (D.MS)	99.0000 ***	Long-2 (D.MS)	99.0000 ***
Lati-1 (D.MS)	18.5000 ***	Lati-1 (D.MS)	18.4500 ***
Lati-2 (D.MS)	18.5500 ***	Lati-2 (D.MS)	18.5000 ***
X 1-2 (mm)	175.1 ***	X 1-2 (mm)	175.1 ***
X 1-0 (mm)	65.0 ***	X 1-0 (mm)	114.2 ***
Y 1-2 (mm)	184.0 ***	Y 1-2 (mm)	183.8 ***
Y 1-0 (mm)	175.9 ***	Y 1-0 (mm)	118.9 ***
Long. (D.MS)	98.5651 ***	Long. (D.MS)	98.5816 ***
Lati. (D.MS)	18.5447 ***	Lati. (D.MS)	18.4814 ***
G.Elevation	330 (m)	G.Elevation	315 (m)
Profile No.	5-5313-9	Type of Path	Mountain Diffraction



Path Distance & Azimuth

Long-P (D.MS)	98.5651 ***
Lati-P (D.MS)	18.5447 ***
Long-Q (D.MS)	98.5816 ***
Lati-Q (D.MS)	18.4814 ***
d (km)	12.3 ***
∢P→Q (D.MS)	168.2650 ***
∢Q→P (D.MS)	348.2717 ***

Antenna Height & Diffraction Loss

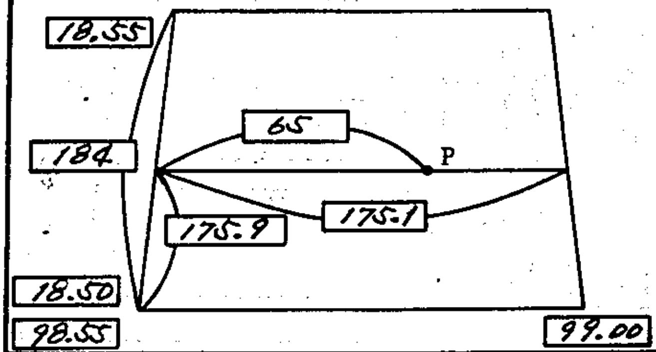
d (km)	12. ***
d1 (km)	4. ***
hm (m)	395.0 ***
hg1 (m)	330.0 ***
hg2 (m)	315.0 ***
ha1 (m)	68.0 ***
ha2 (m)	40.0 ***
(k = 4/3)	
hp (m)	[illegible]
Rs (m)	33.0 ***
Cs (m)	-12.9 ***
U	-0.43 ***
M	19. ***
	$Ld^{50} = 20$ dB
(k = 1)	
U	-0.45 ***
M	19. ***
	$Ld^{99.9} = 21$ dB

PROPAGATION PATH DATA

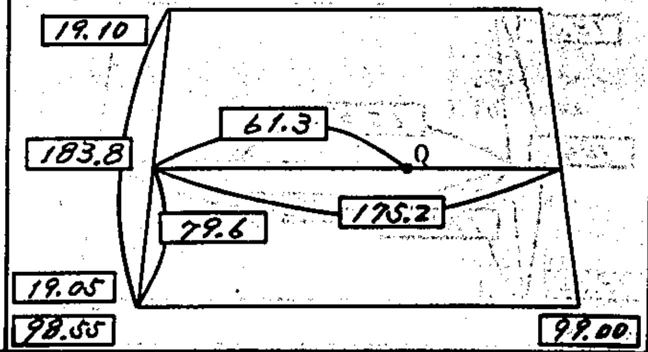
Path No. 5313-10

Site P	Site Q
Mae Rim	Mae Taeng

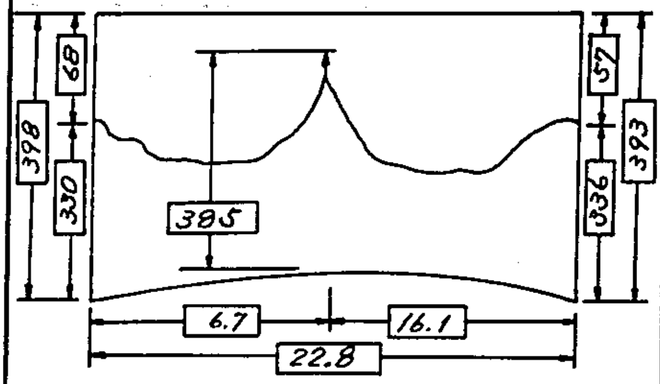
Map No. 4746 I



Map No. 4747 II



Site P		Site Q	
Long-1(D.MS)	98.5500 ***	Long-1(D.MS)	98.5500 ***
Long-2(D.MS)	99.0000 ***	Long-2(D.MS)	99.0000 ***
Lati-1(D.MS)	18.5000 ***	Lati-1(D.MS)	19.0500 ***
Lati-2(D.MS)	18.5500 ***	Lati-2(D.MS)	19.1000 ***
X 1-2(mm)	175.1 ***	X 1-2(mm)	175.2 ***
X 1-0(mm)	65.0 ***	X 1-0(mm)	61.3 ***
Y 1-2(mm)	184.0 ***	Y 1-2(mm)	183.8 ***
Y 1-0(mm)	175.9 ***	Y 1-0(mm)	79.6 ***
Long. (D.MS)	98.5651 ***	Long. (D.MS)	98.5645 ***
Lati. (D.MS)	18.5447 ***	Lati. (D.MS)	19.0710 ***
G.Elevation	330 (m)	G.Elevation	336 (m)
Profile No.	5-5313-10	Type of Path	L/S (no reflection)



Path Distance & Azimuth

Long-P (D.MS)	98.5645 ***
Lati-P (D.MS)	19.0710 ***
Long-Q (D.MS)	98.5651 ***
Lati-Q (D.MS)	18.5447 ***
d (km)	22.8 ***
α P→Q (D.MS)	179.3150 ***
α Q→P (D.MS)	359.3152 ***

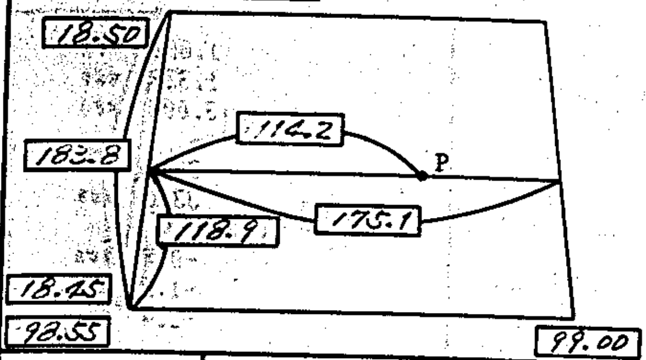
Antenna Height & Diffraction Loss

d (km)	22.8 ***
d1 (km)	6.7 ***
hm (m)	385.0 ***
hg1 (m)	330.0 ***
hg2 (m)	336.0 ***
ha1 (m)	68.0 ***
ha1 (m)	68.0 ***
ha2 (m)	57.0 ***
(k = 4/3)	
hp (m)	398.2 ***
Rs (m)	39.7 ***
Cs (m)	5.2 ***
U	0.131 ***
M	11. *** Ld^{50} = 10 dB
(k = 1)	
U	0.208 ***
M	12. *** $Ld^{99.9}$ = 11 dB

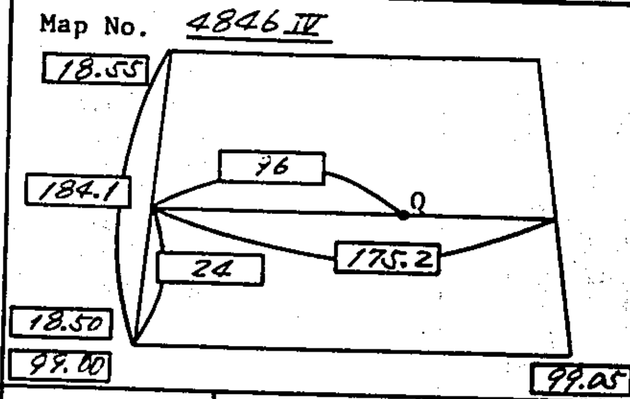
PROPAGATION PATH DATA

Path No.	5313-11
Site P	Chiangmai
Site Q	San Sai

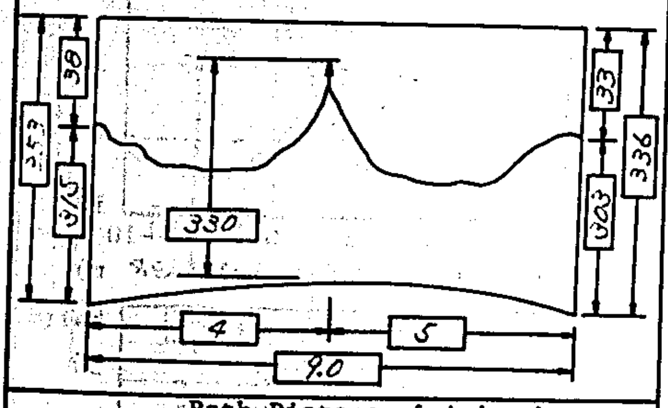
Map No. 4746 I



Map No. 4846 IV



Site P		Site Q	
Long-1 (D.MS)	98.5500 ***	Long-1 (D.MS)	99.0000 ***
Long-2 (D.MS)	99.0000 ***	Long-2 (D.MS)	99.0500 ***
Lati-1 (D.MS)	18.4500 ***	Lati-1 (D.MS)	18.5000 ***
Lati-2 (D.MS)	18.5000 ***	Lati-2 (D.MS)	18.5500 ***
X 1-2 (mm)	175.1 ***	X 1-2 (mm)	175.2 ***
X 1-0 (mm)	114.2 ***	X 1-0 (mm)	96.0 ***
Y 1-2 (mm)	183.8 ***	Y 1-2 (mm)	184.1 ***
Y 1-0 (mm)	118.9 ***	Y 1-0 (mm)	24.0 ***
Long. (D.MS)	98.5815 ***	Long. (D.MS)	99.0244 ***
Lati. (D.MS)	18.4814 ***	Lati. (D.MS)	18.5039 ***
G.Elevation	315 (m)	G.Elevation	303 (m)
Profile No.	5-5313-11	Type of Path	L/S (~~no~~ reflection)



Path Distance & Azimuth

Long-P (D.MS)	98.5815 ***
Lati-P (D.MS)	18.4814 ***
Long-Q (D.MS)	99.0244 ***
Lati-Q (D.MS)	18.5039 ***
d (km)	9.0 ***
α P→Q (D.MS)	60.26[illegible] ***
α Q→P (D.MS)	240.23[illegible] ***

Antenna Height & Diffraction Loss

d (km)	9.0 ***
d1 (km)	4.0 **
hm (m)	330.0 ***
hg1 (m)	315.0 ***
hg2 (m)	303.0 ***
ha1 (m)	39.0 ***
ha1 (m)	36.0 ***
ha2 (m)	33.0 ***
(k = 4/3)	
hp (m)	344.3 ***
Rs (m)	27.2 ***
Cs (m)	14.3 ***
U	0.52 ***
M	14. ***
	Ld^{50} = 2 dB
(k = 1)	
U	0.51 ***
M	15. ***
	$Ld^{99.9}$ = 2 dB

PROPAGATION PATH DATA

Path No.	5313-11

Site P	Chiangmai	Site Q	San Sai

Reflection Area(011A-1/3)

f	(MHz)	900.00	***
K		1.333	***
hg1	(m)	315.0	***
hg2	(m)	303.0	***
d	(km)	9.0	***
ha1′	(m)	38.0	***
ha2′	(m)	33.0	***
hr′	(m)	300.0	***
hr	(m)		
d1	(m)	5.3	***
d2	(m)	3.7	***
ψ	(D.MS)	0.3301	***
T1	(km)	2.8	***
Dv		0.97	***
ρ_e		0.9	***
Φ_r	(deg)	180.0	***
Lr min(dB)		-5.6	***
Lr max(dB)		20.0	***

Reflection Loss(011A-2/3)

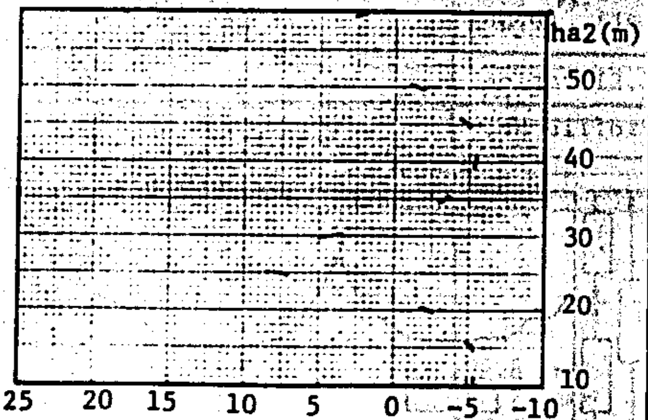
ha1′ (m)	38.0	***
Lr60m(dB)	2.1	***
55	12.2	***
50	-1.4	***
45	-5.0	***
40	-5.4	***
35	-3.2	***
30	4.3	***
25	7.6	***
20	-3.[illegible]	***
15	-5.[illegible]	***
10	-5.3	***
ha2′ (m)	33.0	***
Lr60m(dB)	-3.2	***
55	-5.1	***
50	-5.6	***
45	-4.5	***
40	-2.6	***
35	2.1	***
30	16.8	***
25	4.6	***
20	-1.5	***
15	-4.3	***
10	-5.4	***

Variation of Reflection Loss(011A-3/3)

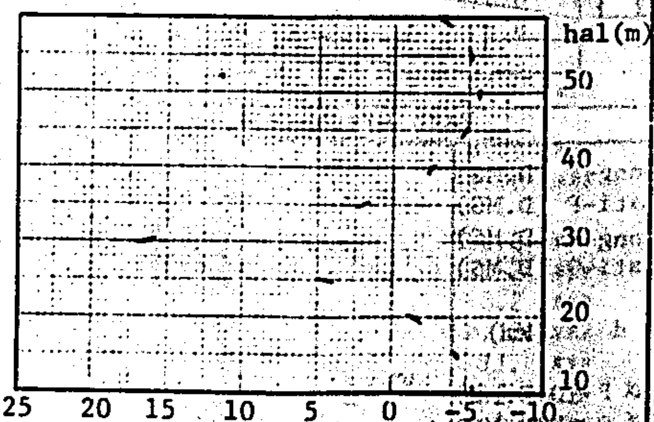
$K^{99.9}$		1.000	***
K^{50}		1.333	***
$K^{0.1}$		3.000	***
ha1′	(m)	38.0	***
ha2′	(m)	33.0	***
$Lr^{99.9}$	(dB)	-0.3	***
Lr^{50}	(dB)	-1.2	***
$Lr^{0.1}$	(dB)	-2.4	***
ha1′	(m)		
ha1′	(m)		
$Lr^{99.9}$	(dB)		
Lr^{50}	(dB)		
$Lr^{0.1}$	(dB)		

ha1 determined	38 (m)
ha2 determined	33 (m)

Height Pattern



Lr Pattern at Q (dB, ha1′ = 38 m)



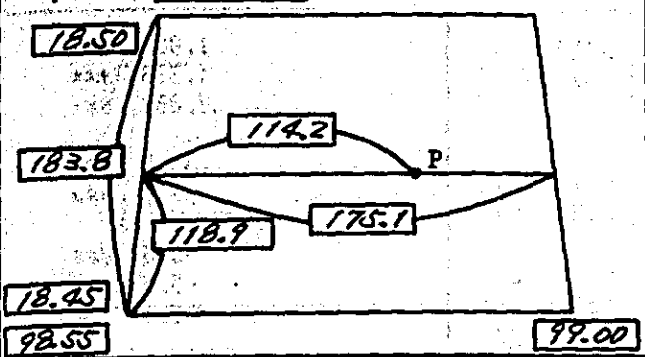
Lr Pattern at P (dB, ha2′ = 33 m)

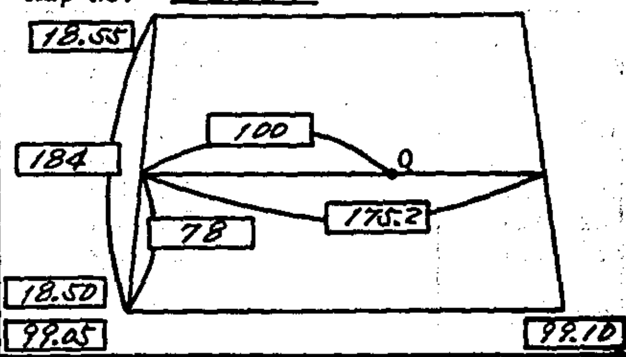
PROPAGATION PATH DATA

Path No. 5313-12

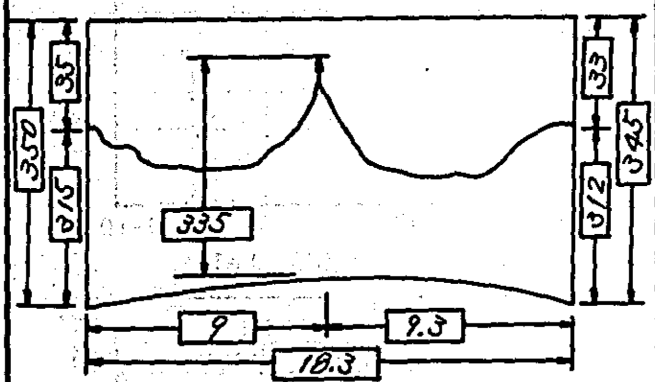
Site P Chiangmai — Site Q Doi Saket

Site P	Site Q
Map No. 4746 I	Map No. 4846 IV





Long-1(D.MS)	98.5500 ***	Long-1(D.MS)	99.0500 ***
Long-2(D.MS)	99.0000 ***	Long-2(D.MS)	99.1000 ***
Lati-1(D.MS)	18.4500 ***	Lati-1(D.MS)	18.5000 ***
Lati-2(D.MS)	18.5000 ***	Lati-2(D.MS)	18.5500 ***
X 1-2(mm)	175.1 ***	X 1-2(mm)	175.2 ***
X 1-0(mm)	114.2 ***	X 1-0(mm)	100.0 ***
Y 1-2(mm)	183.8 ***	Y 1-2(mm)	184.0 ***
Y 1-0(mm)	118.9 ***	Y 1-0(mm)	78.0 ***
Long. (D.MS)	98.5816 ***	Long. (D.MS)	99.0751 ***
Lati. (D.MS)	18.4814 ***	Lati. (D.MS)	18.5207 ***
G.Elevation	315 (m)	G.Elevation	312 (m)
Profile No.	5-5313-12	Type of Path	L/S (no reflection)



Path Distance & Azimuth

Long-P (D.MS)	98.5816 ***
Lati-P (D.MS)	18.4814 ***
Long-Q (D.MS)	99.0751 ***
Lati-Q (D.MS)	18.5207 ***
d (km)	18.3 ***
α P→Q(D.MS)	66.5556 ***
α Q→P(D.MS)	246.5901 ***

Antenna Height & Diffraction Loss

d (km)	18.3 ***
d1 (km)	9.0 ***
hm (m)	335.0 ***
hg1 (m)	315.0 ***
hg2 (m)	312.0 ***
ha1 (m)	35.0 ***
ha1 (m)	35.0 ***
ha2 (m)	33.0 ***
(k = 4/3)	
hp (m)	342.6 ***
Rs (m)	39.0 ***
Cs (m)	7.6 ***
U	0.19 ***
M	13. ***
	Ld50 = 4 dB
(k = 1)	
U	0.15 ***
M	14. ***
	Ld99.9 5 dB

PROPAGATION PATH DATA

Path No. 5313-12

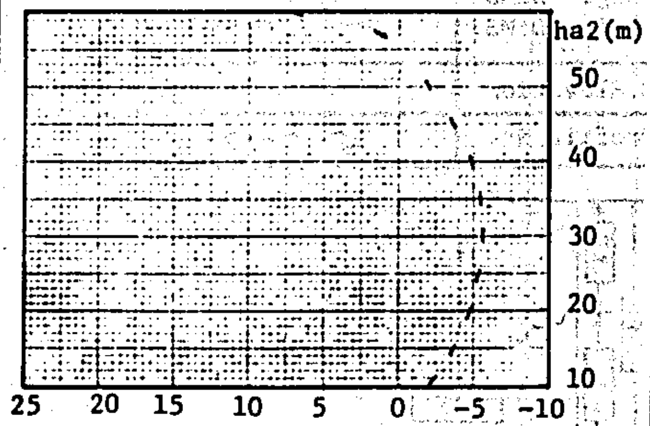
Site P Chiangmai —— Site Q Doi Saket

Reflection Area(011A-1/3)		
f (MHz)	900.00	***
K	1.333	***
hg1 (m)	315.0	***
hg2 (m)	312.0	***
d (km)	18.3	***
ha1′ (m)	35.0	***
ha2′ (m)	33.0	***
hr′ (m)	302.0	***
hr (m)		
d1 (m)	9.6	***
d2 (m)	8.7	***
ψ (D.MS)	0.1517	***
T1 (km)	8.8	***
Dv	0.90	***
ρ_e	0.9	***
Φr (deg)	180.0	***
Lr min(dB)	-5.6	***
Lr max(dB)	20.0	***

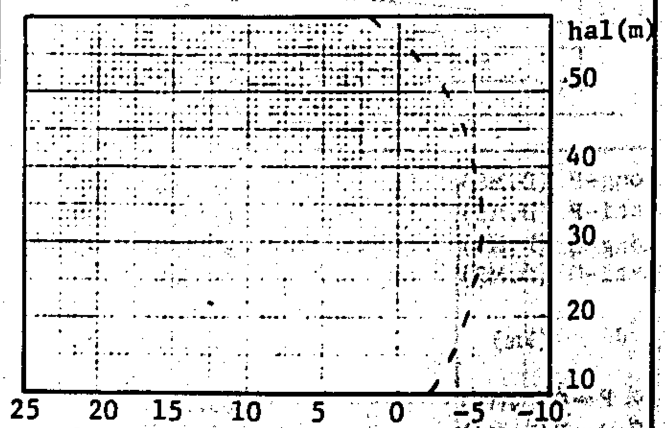
Variation of Reflection Loss(011A-3/3)		
$K^{99.9}$	1.000	***
K^{50}	1.333	***
$K^{0.1}$	3.000	***
ha1′ (m)	35.0	***
ha2′ (m)	33.0	***
$Lr^{99.9}$ (dB)	-5.6	***
Lr^{50} (dB)	-5.5	***
$Lr^{0.1}$ (dB)	-5.0	***
ha1′ (m)		
ha1′ (m)		
$Lr^{99.9}$ (dB)		
Lr^{50} (dB)		
$Lr^{0.1}$ (dB)		
ha1 determined	35 (m)	
ha2 determined	33 (m)	

Reflection Loss(011A-2/3)		
ha1′ (m)	35.0	***
Lr60m(dB)	6.9	***
55	1.3	***
50	-1.7	***
45	-3.6	***
40	-4.8	***
35	-5.4	***
30	-5.6	***
25	-5.3	***
20	-4.7	***
15	-3.6	***
10	-2.0	***
ha2′ (m)	33.0	***
Lr60m(dB)	1.9	***
55	-1.1	***
50	-3.1	***
45	-4.3	***
40	-5.1	***
35	-5.5	***
30	-5.5	***
25	-5.2	***
20	-4.6	***
15	-3.6	***
10	-2.1	***

Height Pattern



Lr Pattern at Q (dB, ha1′ = m)



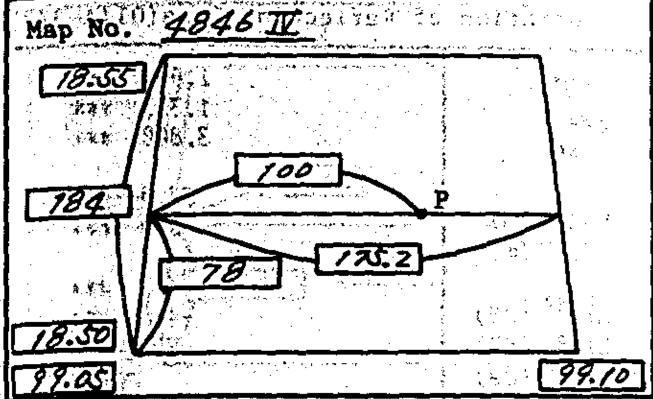
Lr Pattern at P (dB, ha2′ = m)

PROPAGATION PATH DATA

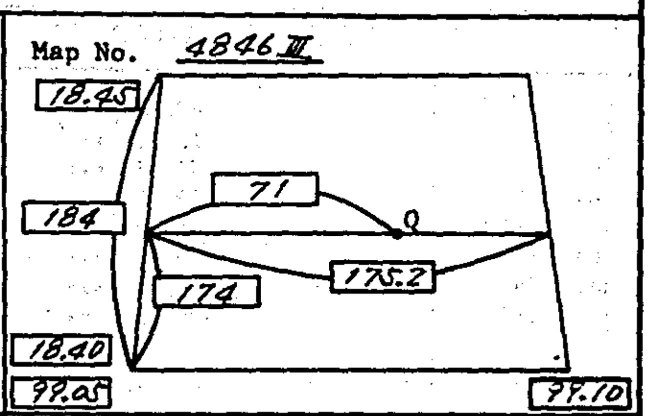
Path No. 5313-13

Site P	Doi Saket	Site Q	San Kam Phaeng

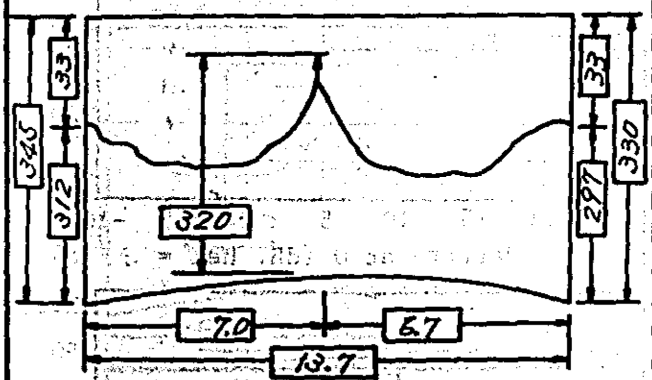
Map No. 4846 IV



Map No. 4846 III



Long-1(D.MS)	99.0500 ***	Long-1(D.MS)	99.0500 ***
Long-2(D.MS)	99.1000 ***	Long-2(D.MS)	99.1000 ***
Lati-1(D.MS)	18.5000 ***	Lati-1(D.MS)	18.4002 ***
Lati-2(D.MS)	18.5500 ***	Lati-2(D.MS)	18.4500 ***
X 1-2(mm)	175.2 ***	X 1-2(mm)	175.2 ***
X 1-0(mm)	100.0 ***	X 1-0(mm)	71.0 ***
Y 1-2(mm)	184.0 ***	Y 1-2(mm)	184.0 ***
Y 1-0(mm)	78.0 ***	Y 1-0(mm)	174.0 ***
Long. (D.MS)	99.0751 ***	Long. (D.MS)	99.0702 ***
Lati. (D.MS)	18.5207 ***	Lati. (D.MS)	18.4444 ***
G.Elevation	312 (m)	G.Elevation	297 (m)
Profile No.	5-5313-13	Type of Path	L/S (no reflection)



Path Distance & Azimuth

Long-P (D.MS)	99.0751 ***
Lati-P (D.MS)	18.5207 ***
Long-Q (D.MS)	99.0702 ***
Lati-Q (D.MS)	18.4444 ***
d (km)	13.7 ***
α P→Q(D.MS)	186.0520 ***
α Q→P(D.MS)	6.0504 ***

Antenna Height & Diffraction Loss

d (km)	13.6 ***
d1 (km)	7.0 ***
hm (m)	320.0 ***
hg1 (m)	312.0 ***
hg2 (m)	297.0 ***
ha1 (m)	33.0 ***
ha1 (m)	33.0 ***
ha2 (m)	33.0 ***
(k = 4/3)	
hp (m)	334.6 ***
Rs (m)	33.7 ***
Cs (m)	14.5 ***
U	0.43 ***
M	18. ***
	$Ld^{50} = 4$ dB
(k = 1)	
U	0.41 ***
M	15. ***
	$Ld^{99.9} = 4$ dB

PROPAGATION PATH DATA

Path No. 5313-13

Site P Doi Saket — Site Q San Kam Phaeng

Reflection Area(011A-1/3)

f (MHz)	900.00	***
K	1.333	***
hg1 (m)	312.0	***
hg2 (m)	297.0	***
d (km)	13.7	***
ha1′ (m)	33.0	***
ha2′ (m)	33.0	***
hr′ (m)	297.0	***
hr (m)	295.0	***
d1 (m)	8.0	***
d2 (m)	5.7	***
ψ (D.MS)	0.1947	***
T1 (km)	5.8	***
Dv	0.94	***
ρ_e	0.9	***
Φr (deg)	180.0	***
Lr min(dB)	-5.6	***
Lr max(dB)	20.0	***

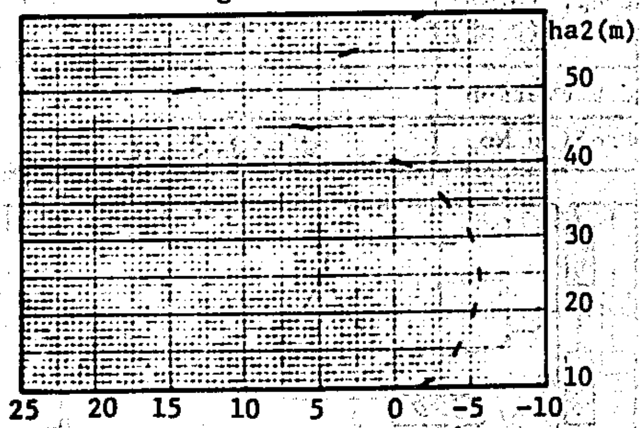
Reflection Loss(011A-2/3)

ha1′ (m)	33.0	***
Lr60m(dB)	-1.9	***
55	2.9	***
50	16.5	***
45	5.9	***
40	-0.5	***
35	-3.5	***
30	-5.1	***
25	-5.6	***
20	-5.2	***
15	-4.0	***
10	-1.6	***
ha2′ (m)	33.0	***
Lr60m(dB)	7.9	***
55	19.2	***
50	6.2	***
45	1.0	***
40	-1.9	***
35	-3.8	***
30	-4.9	***
25	-5.4	***
20	-5.6	***
15	-5.2	***
10	-4.5	***

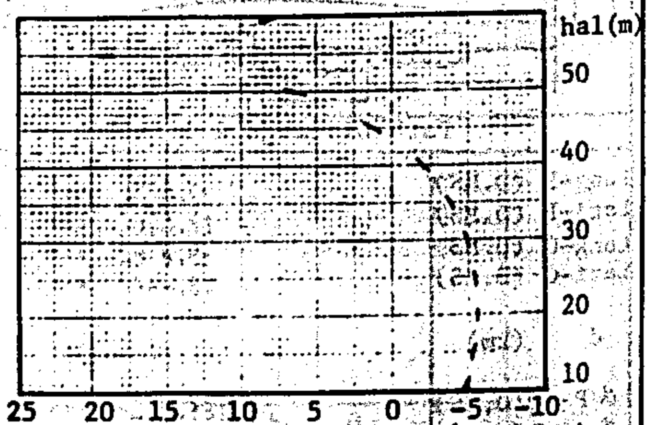
Variation of Reflection Loss(011A-3/3)

$K^{99.9}$	1.000	***
K^{50}	1.333	***
$K^{0.1}$	3.000	***
ha1′ (m)	33.0	***
ha2′ (m)	33.0	***
$Lr^{99.9}$ (dB)	-4.7	***
Lr^{50} (dB)	-4.3	***
$Lr^{0.1}$ (dB)	-3.3	***
ha1′ (m)		
ha1′ (m)		
$Lr^{99.9}$ (dB)		
Lr^{50} (dB)		
$Lr^{0.1}$ (dB)		
ha1 determined	33 (m)	
ha2 determined	33 (m)	

Height Pattern



Lr Pattern at Q (dB, ha1′ = 33 m)



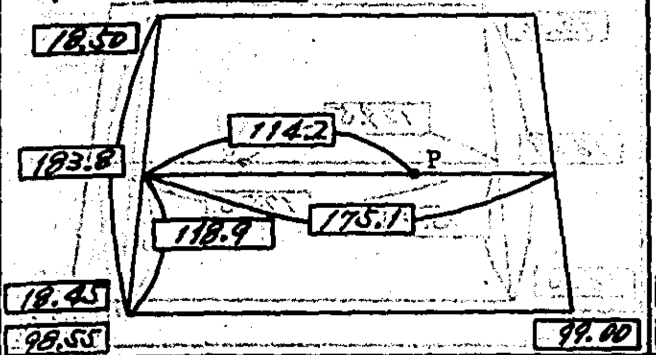
Lr Pattern at P (dB, ha2′ = 33 m)

PROPAGATION PATH DATA

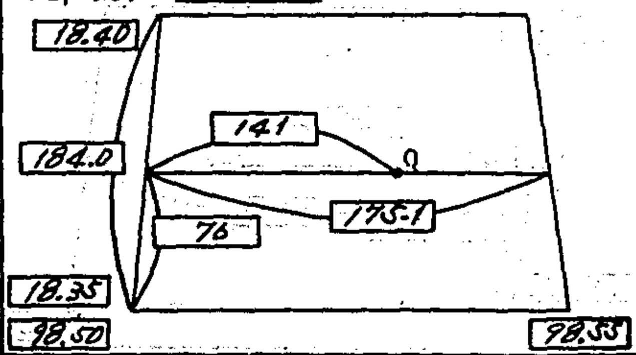
Path No. 5313-14

Site P	Site Q
Chiangmai	San Patong

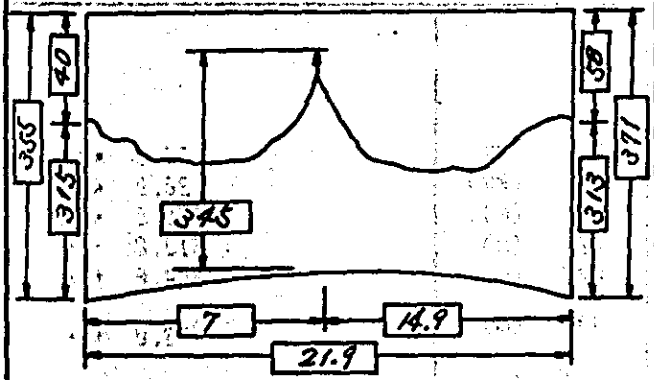
Map No. 4746 I



Map No. 4746 II



Long-1 (D.MS)	98.5500 ***	Long-1 (D.MS)	98.5000 ***
Long-2 (D.MS)	99.0000 ***	Long-2 (D.MS)	98.5500 ***
Lati-1 (D.MS)	18.4500 ***	Lati-1 (D.MS)	18.3500 ***
Lati-2 (D.MS)	18.5000 ***	Lati-2 (D.MS)	18.4000 ***
X 1-2 (mm)	175.1 ***	X 1-2 (mm)	175.1 ***
X 1-0 (mm)	114.2 ***	X 1-0 (mm)	141.0 ***
Y 1-2 (mm)	183.8 ***	Y 1-2 (mm)	184.0 ***
Y 1-0 (mm)	118.9 ***	Y 1-0 (mm)	76.0 ***
Long. (D.MS)	98.5816 ***	Long. (D.MS)	98.5402 ***
Lati. (D.MS)	18.4814 ***	Lati. (D.MS)	18.3704 ***
G.Elevation	315 (m)	G.Elevation	313 (m)
Profile No.	5-5313-14	Type of Path	L/S (no reflection)



Path Distance & Azimuth

Long-P (D.MS)	98.5816 ***
Lati-P (D.MS)	18.4814 ***
Long-Q (D.MS)	98.5402 ***
Lati-Q (D.MS)	18.3704 ***
d (km)	21.9 ***
α P→Q (D.MS)	199.5229 ***
α Q→P (D.MS)	19.5108 ***

Antenna Height & Diffraction Loss

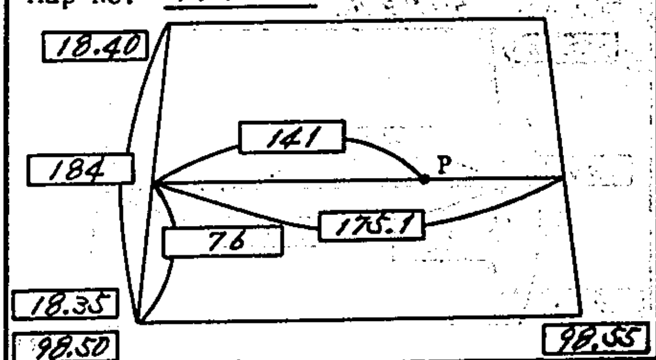
d	(km)	21.9 ***
d1	(km)	7.0 ***
hm	(m)	345.0 ***
hg1	(m)	315.0 ***
hg2	(m)	313.0 ***
ha1	(m)	40.0 ***
ha1	(m)	40.0 ***
ha2	(m)	58.0 ***
(k = 4/3)		
hp	(m)	354.0 ***
Rs	(m)	14.3 ***
Cs	(m)	9.0 ***
U		0.63 ***
M		18. ***
		Ld50 = 0 dB
(k = 1)		
U		0.43 ***
M		20. ***
		Ld99.9 = 2 dB

PROPAGATION PATH DATA

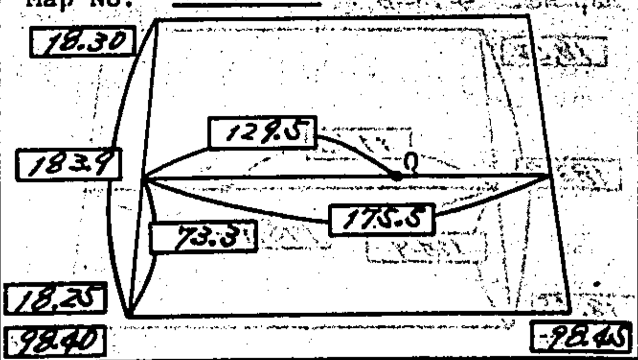
Path No. 5313-15

Site P	Site Q
San Patong	Ban Nong Hai

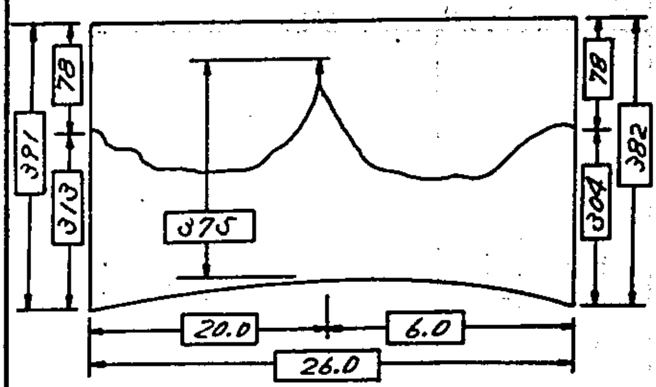
Map No. 4746 II



Map No. 4745 IV



	Site P		Site Q
Long-1 (D.MS)	98.5000 ***	Long-1 (D.MS)	98.4000 ***
Long-2 (D.MS)	98.5500 ***	Long-2 (D.MS)	98.4500 ***
Lati-1 (D.MS)	18.3500 ***	Lati-1 (D.MS)	18.2500 ***
Lati-2 (D.MS)	18.4000 ***	Lati-2 (D.MS)	18.3000 ***
X 1-2 (mm)	175.1 ***	X 1-2 (mm)	175.5 ***
X 1-0 (mm)	141.0 ***	X 1-0 (mm)	129.5
Y 1-2 (mm)	184.0 ***	Y 1-2 (mm)	183.9
Y 1-0 (mm)	76.0 ***	Y 1-0 (mm)	73.3
Long. (D.MS)	98.5402 ***	Long. (D.MS)	98.4341 ***
Lati. (D.MS)	18.3704 ***	Lati. (D.MS)	18.2660 ***
G.Elevation	313 (m)	G.Elevation	304 (m)
Profile No.	S-5313-15	Type of Path	L/S (no reflection)



Path Distance & Azimuth

Long-P (D.MS)	98.5402 ***
Lati-P (D.MS)	18.3704 ***
Long-Q (D.MS)	98.4341 ***
Lati-Q (D.MS)	18.2660 ***
d (km)	26.0 ***
α P→Q (D.MS)	224.2503 ***
α Q→P (D.MS)	44.2147 ***

Antenna Height & Diffraction Loss

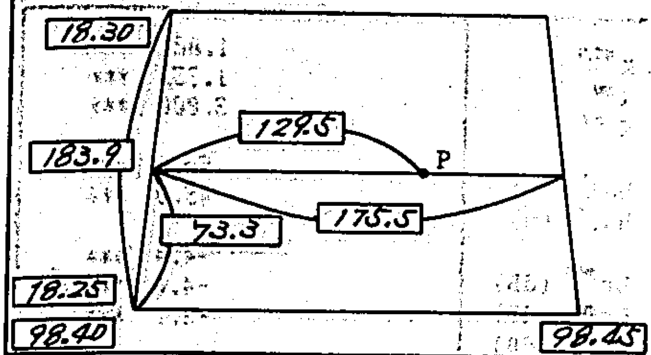
d (km)	26.0 ***
d1 (km)	20.0 ***
hm (m)	375.0 ***
hg1 (m)	313.0 ***
hg2 (m)	304.0 ***
ha1 (m)	73.0 ***
ha1 (m)	78.0 ***
ha2 (m)	78.0 ***
(k = 4/3)	
hp (m)	377.0 ***
Rs (m)	(39.2) ***
Cs (m)	(22.0) ***
U	0.05 ***
M	12.1 ***
	Ld50 = 17 dB
(k = 1)	
U	-0.01 ***
M	13.1 ***
	Ld99.9 = 18 dB

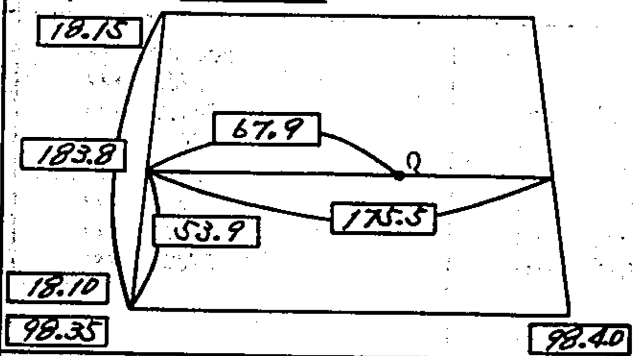
PROPAGATION PATH DATA

Path No. 5313-16

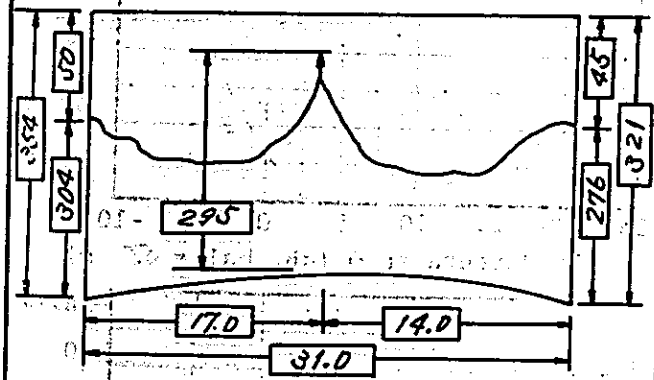
Site P	Site Q
Ban Nong Hai	Hot

Map No. 4745 IV	Map No. 4745 III





Site P		Site Q	
Long-1 (D.MS)	98.4000 **	Long-1 (D.MS)	98.3500 ***
Long-2 (D.MS)	98.4500 **	Long-2 (D.MS)	98.4000 ***
Lati-1 (D.MS)	18.2500 **	Lati-1 (D.MS)	18.1000 ***
Lati-2 (D.MS)	18.3000 **	Lati-2 (D.MS)	18.1500 ***
X 1-2 (mm)	175.5 ***	X 1-2 (mm)	175.5 ***
X 1-0 (mm)	129.5 ***	X 1-0 (mm)	67.9 ***
Y 1-2 (mm)	183.9 ***	Y 1-2 (mm)	183.8 ***
Y 1-0 (mm)	73.3 ***	Y 1-0 (mm)	53.9 ***
Long. (D.MS)	98.4341 ***	Long. (D.MS)	98.3656 ***
Lati. (D.MS)	18.2668 ***	Lati. (D.MS)	18.1128 ***
G.Elevation	304 (m)	G.Elevation	276 (m)
Profile No.	5-5313-16	Type of Path	L/S (no reflection)



Path Distance & Azimuth

Long-P (D.MS)	98.4341 ***
Lati-P (D.MS)	18.2668 ***
Long-Q (D.MS)	98.3656 ***
Lati-Q (D.MS)	18.1128 ***
d (km)	31.0 ***
α P→Q (D.MS)	202.3452 ***
α Q→P (D.MS)	22.3240 ***

Antenna Height & Diffraction Loss

d (km)	31.0 ***
d1 (km)	17.0 ***
hm (m)	295.0 ***
hg1 (m)	304.0 ***
hg2 (m)	276.0 ***
ha1 (m)	
ha1 (m)	50.0 ***
ha2 (m)	45.0 ***
(k = 4/3)	
hp (m)	321.9 ***
Rs (m)	50.6 ***
Cs (m)	26.9 ***
U	0.53 ***
M	44. ***
	Ld^{50} = 3 dB
(k = 1)	
U	0.44 ***
M	47. ***
	$Ld^{99.9}$ = 4 dB

PROPAGATION PATH DATA

Path No. 5313-16

Site P	Site Q
Ban Nong Hai	Hot

Reflection Area (011A-1/3)

f (MHz)	900.00	***
K	1.333	***
hg1 (m)	304.0	***
hg2 (m)	276.0	***
d (km)	31.0	***
ha1′ (m)	50.0	***
ha2′ (m)	45.0	***
hr′ (m)	270.0	***
hr (m)		
d1 (m)	18.6	***
d2 (m)	12.4	***
ψ (D.MS)	0.1143	***
T1 (km)	14.6	***
Dv	0.81	***
ρ_e	0.7	***
Φr (deg)	180.0	***
Lr min(dB)	-4.6	***
Lr max(dB)	10.5	***

Variation of Reflection Loss (011A-3/3)

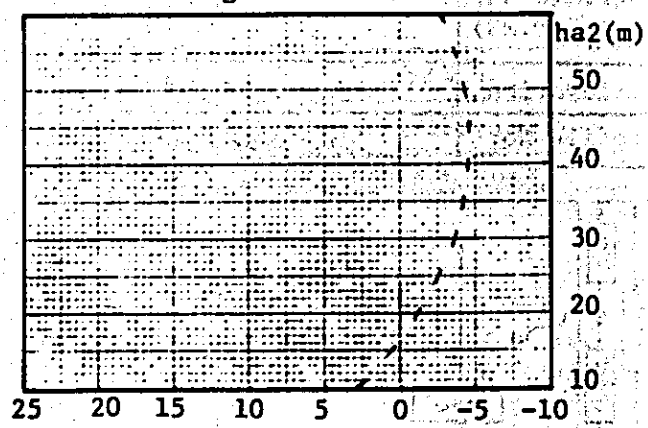
$K^{99.9}$	1.000	
K^{50}	1.333	***
$K^{0.1}$	3.000	***
ha1′ (m)	50.0	***
ha2′ (m)	45.0	***
$Lr^{99.9}$ (dB)	-4.4	***
Lr^{50} (dB)	-4.6	***
$Lr^{0.1}$ (dB)	-3.2	***
ha1′ (m)		
ha1′ (m)		
$Lr^{99.9}$ (dB)		
Lr^{50} (dB)		
$Lr^{0.1}$ (dB)		

ha1 determined	50 (m)
ha2 determined	45 (m)

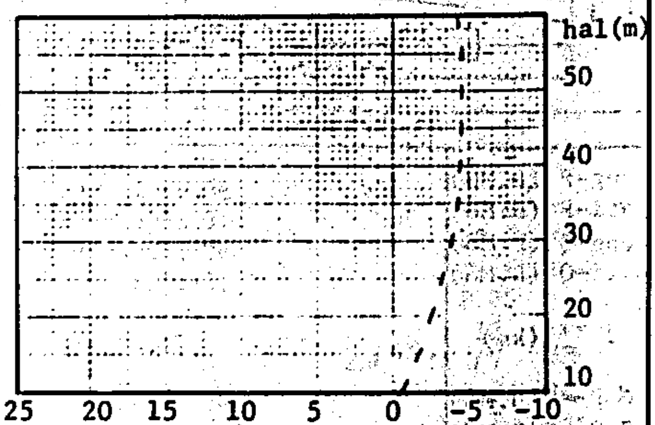
Reflection Loss (011A-2/3)

ha1′ (m)	50.0	***
Lr60m(dB)	-2.7	***
55	-3.7	***
50	-4.3	***
45	-4.6	***
40	-4.5	***
35	-4.2	***
30	-3.5	***
25	-2.5	***
20	-1.1	***
15	0.6	***
10	2.9	***
ha2′ (m)	45.0	***
Lr60m(dB)	-4.2	***
55	-4.5	***
50	-4.6	***
45	-4.6	***
40	-4.4	***
35	-4.2	***
30	-3.8	***
25	-3.2	***
20	-2.5	***
15	-1.7	***
10	-0.7	***

Height Pattern



Lr Pattern at Q (dB, ha1′ = 50 m)



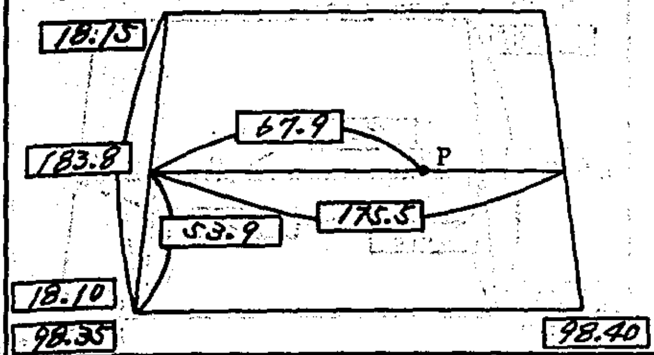
Lr Pattern at P (dB, ha2′ = 45 m)

PROPAGATION PATH DATA

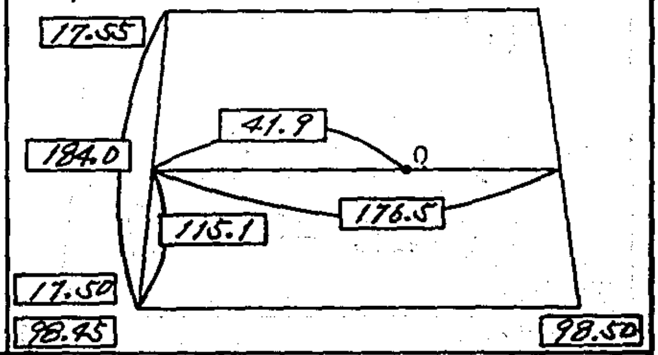
Path No. 5313-17

Site P	Site Q
Hot	Doi Pae Po Mak

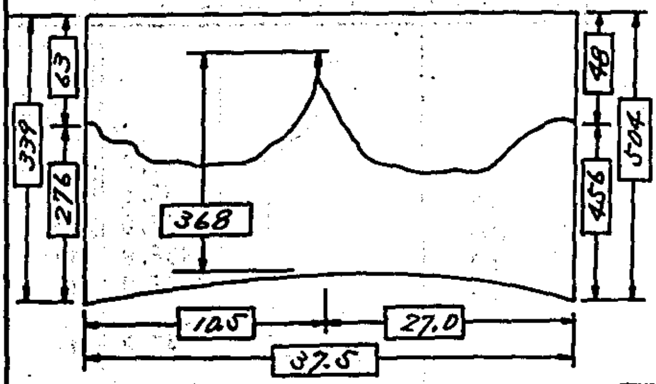
Map No. 4745 III



Map No. 4744 I



Long-1 (D.MS)	98.3500 ***	Long-1 (D.MS)	98.4500 ***
Long-2 (D.MS)	98.4000 ***	Long-2 (D.MS)	98.5000 ***
Lati-1 (D.MS)	18.1000 ***	Lati-1 (D.MS)	17.5000 ***
Lati-2 (D.MS)	18.1500 ***	Lati-2 (D.MS)	17.5500 ***
X 1-2 (mm)	175.5 ***	X 1-2 (mm)	176.5 ***
X 1-0 (mm)	67.9 ***	X 1-0 (mm)	41.9 ***
Y 1-2 (mm)	183.8 ***	Y 1-2 (mm)	184.0 ***
Y 1-0 (mm)	53.9 ***	Y 1-0 (mm)	115.1 ***
Long. (D.MS)	98.3656 ***	Long. (D.MS)	98.4611 ***
Lati. (D.MS)	18.1128 ***	Lati. (D.MS)	17.5308 ***
G.Elevation	276 (m)	G.Elevation	456 (m)
Profile No.	5-5313-17	Type of Path	L/S (no reflection)



Antenna Height & Diffraction Loss

d (km)	37.5 ***
d1 (km)	10.5 ***
hm (m)	368.0 ***
hg1 (m)	276.0 ***
hg2 (m)	456.0 ***
ha1 (m)	58.0 ***
ha1 (m)	63.0 ***
ha2 (m)	48.0 ***
(k = 4/3)	
hp (m)	368.5 ***
Rs (m)	58.2 ***
Cs (m)	0.5 ***
U	0.01 ***
M	Ld^{50} = 8 dB
(k = 1)	
U	
M	

Path Distance & Azimuth

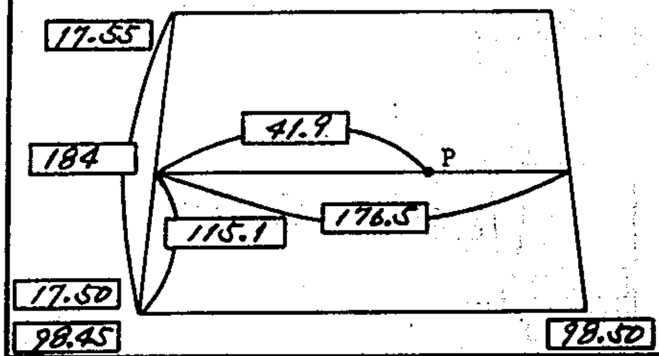
Long-P (D.MS)	98.3656 ***
Lati-P (D.MS)	18.1128 ***
Long-Q (D.MS)	98.4611 ***
Lati-Q (D.MS)	17.5308 ***
d (km)	37.5 ***
α P→Q (D.MS)	154.1241 ***
α Q→P (D.MS)	334.1532 ***

PROPAGATION PATH DATA

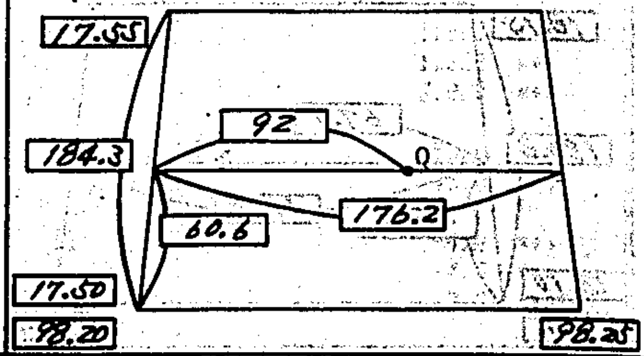
Path No. 5313-18

Site P	Site Q
Doi Pae Po Mak	Kao Huai Bon

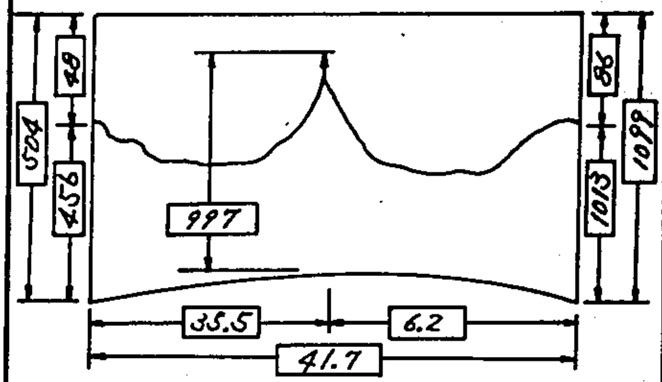
Map No. *4744 I*



Map No. *4644 I*



Long-1(D.MS)	98.4500 ***	Long-1(D.MS)	98.2000 ***
Long-2(D.MS)	98.5000 ***	Long-2(D.MS)	98.2500 ***
Lati-1(D.MS)	17.5000 ***	Lati-1(D.MS)	17.5000 ***
Lati-2(D.MS)	17.5500 ***	Lati-2(D.MS)	17.5500 ***
X 1-2(mm)	176.5 ***	X 1-2(mm)	176.2 ***
X 1-0(mm)	41.9 ***	X 1-0(mm)	92.0 ***
Y 1-2(mm)	184.0 ***	Y 1-2(mm)	184.3 ***
Y 1-0(mm)	115.1 ***	Y 1-0(mm)	60.6 ***
Long. (D.MS)	98.4611 ***	Long. (D.MS)	98.2237 ***
Lati. (D.MS)	17.5308 ***	Lati. (D.MS)	17.5139 ***
G.Elevation	*456* (m)	G.Elevation	*1013* (m)
Profile No.	*5-5313-18*	Type of Path	L/S (no reflection)



Path Distance & Azimuth

Long-P (D.MS)	98.4611 ***
Lati-P (D.MS)	17.5308 ***
Long-Q (D.MS)	98.2237 ***
Lati-Q (D.MS)	17.5139 ***
d (km)	41.7 ***
α P→Q(D.MS)	266.1760 ***
α Q→P(D.MS)	86.1048 ***

Antenna Height & Diffraction Loss

d (km)	41.7 ***
d1 (km)	35.5 ***
hm (m)	997.0 ***
hg1 (m)	456.0 ***
hg2 (m)	1013.0 ***
ha1 (m)	43.0 ***
ha1 (m)	48.0 ***
ha2 (m)	86.0 ***
(k = 4/3)	
hp (m)	997.6 ***
Rs (m)	41.9 ***
Cs (m)	0.6 ***
U	0.01 ***
M	*Ld 50 10 dB*
(k = 1)	
U	
M	

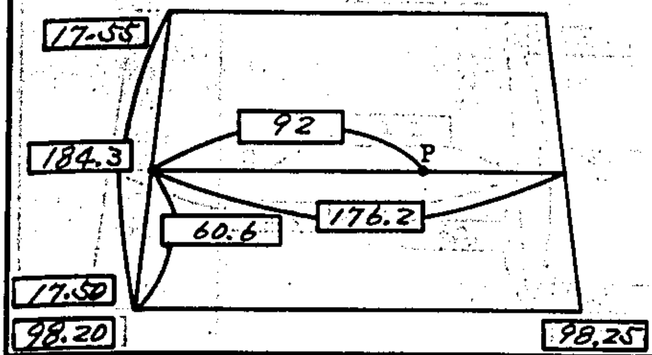
PROPAGATION PATH DATA

Path No. 5313-19

Site P Kao Huai Bon — **Site Q** Omkoi

Site P

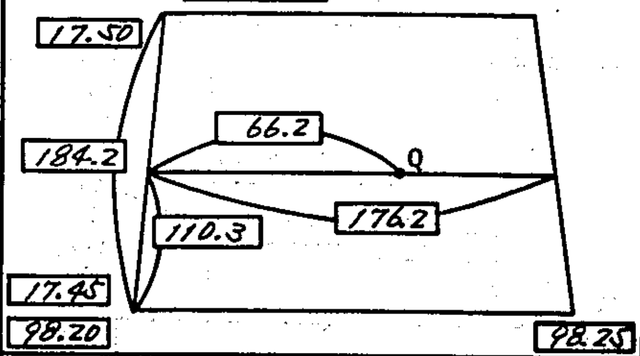
Map No. 4644 I



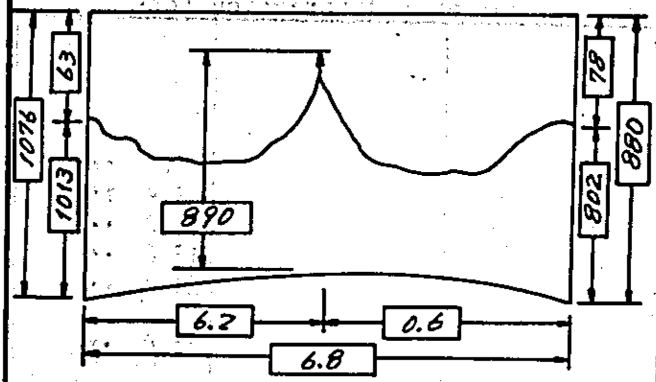
Long-1(D.MS)	98.2000 ***
Long-2(D.MS)	98.2500 ***
Lati-1(D.MS)	17.5000 ***
Lati-2(D.MS)	17.5500 ***
X 1-2 (mm)	176.2 ***
X 1-0 (mm)	92.0 ***
Y 1-2 (mm)	184.3 ***
Y 1-0 (mm)	60.6 ***
Long. (D.MS)	98.2237 ***
Lati. (D.MS)	17.5139 ***
G.Elevation	1013 (m)
Profile No.	5-5313-19

Site Q

Map No. 4644 I



Long-1(D.MS)	98.2000 ***
Long-2(D.MS)	98.2500 ***
Lati-1(D.MS)	17.4500 ***
Lati-2(D.MS)	17.5000 ***
X 1-2 (mm)	176.2 ***
X 1-0 (mm)	66.2 ***
Y 1-2 (mm)	184.2 ***
Y 1-0 (mm)	110.3 ***
Long. (D.MS)	98.2153 ***
Lati. (D.MS)	17.4760 ***
G.Elevation	802 (m)
Type of Path	L/S (~~no~~ reflection)



Path Distance & Azimuth

Long-P (D.MS)	98.2237 ***
Lati-P (D.MS)	17.5139 ***
Long-Q (D.MS)	98.2153 ***
Lati-Q (D.MS)	17.4760 ***
d (km)	6.8 ***
∡P→Q (D.MS)	190.5236 ***
∡Q→P (D.MS)	10.5222 ***

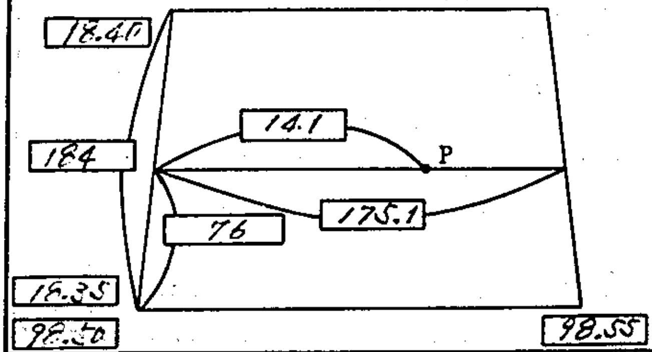
Antenna Height & Diffraction Loss

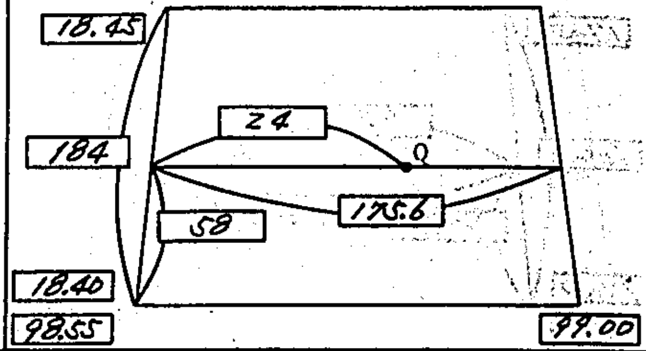
d (km)	6.8 ***
dl (km)	6.2 ***
hm (m)	890.0 ***
hg1 (m)	1013.0 ***
hg2 (m)	802.0 ***
ha1 (m)	68.0 ***
ha1 (m)	63.0 ***
ha2 (m)	78.0 ***
(k = 4/3)	
hp (m)	897.1 ***
Rs (m)	13.5 ***
Cs (m)	7.1 ***
U	0.53 ***
M	Ld^{50} 3 dB
(k = 1)	
U	
M	

PROPAGATION PATH DATA

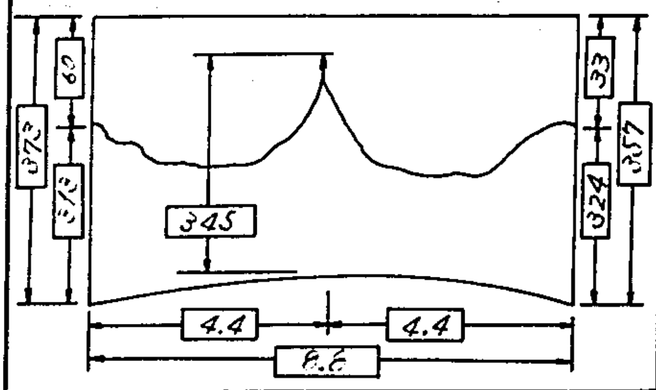
Path No. 5313-20

Site P	Site Q
San Patong	Hang Dong
Map No. 4746 II	Map No. 4746 II





Long-1(D.MS)	98.5000 ***	Long-1(D.MS)	98.5500 ***
Long-2(D.MS)	98.5500 ***	Long-2(D.MS)	99.0000 ***
Lati-1(D.MS)	18.3500 ***	Lati-1(D.MS)	18.4000 ***
Lati-2(D.MS)	18.4000 ***	Lati-2(D.MS)	18.4500 ***
X 1-2(mm)	175.1 ***	X 1-2(mm)	175.6 ***
X 1-0(mm)	141.0 ***	X 1-0(mm)	24. ***
Y 1-2(mm)	184.0 ***	Y 1-2(mm)	184.0 ***
Y 1-0(mm)	76.0 ***	Y 1-0(mm)	58.0 ***
Long. (D.MS)	98.5402 ***	Long. (D.MS)	98.5541 ***
Lati. (D.MS)	18.3704 ***	Lati. (D.MS)	18.4135 ***
G.Elevation	313 (m)	G.Elevation	324 (m)
Profile No.	C-5313-20	Type of Path	L/S (~~no~~ reflection)



Path Distance & Azimuth

Long-P (D.MS)	98.5402 ***
Lati-P (D.MS)	18.3704 ***
Long-Q (D.MS)	98.5541 ***
Lati-Q (D.MS)	18.4135 ***
d (km)	8.8 ***
α P→Q(D.MS)	19.1732 ***
α Q→P(D.MS)	199.1910 ***

Antenna Height & Diffraction Loss

d (km)	8.8 ***
dl (km)	4.4 ***
hm (m)	345.0 ***
hg1 (m)	313.0 ***
hg2 (m)	324.0 ***
hal (m)	55.0 ***
hal (m)	60.0 ***
ha2 (m)	33.0 ***
(k = 4/3)	
hp (m)	363.9 ***
Rs (m)	27.7 ***
Cs (m)	18.9 ***
U	0.70 ***
M	21. ***
(k = 1)	Ld^{50} = 0 dB
U	0.68 ***
M	22. ***
	$Ld^{99.9}$ = 0 dB

PROPAGATION PATH DATA

Path No. 5313-20

Site P: San Patong — Site Q: Hang Dong

Reflection Area (011A-1/3)

f (MHz)	900.00	***
K	1.333	***
hg1 (m)	313.0	***
hg2 (m)	324.2	***
d (km)	6.8	***
ha1′ (m)	60.0	***
ha2′ (m)	33.0	***
hr′ (m)	322.6	***
hr (m)	321.0	***
d1 (m)	5.2	***
d2 (m)	3.6	***
ψ (D.MS)	0.3323	***
T1 (km)	2.7	***
Dv	0.98	***
ρc	0.9	***
Φr (deg)	180.0	***
Lr min (dB)	-5.6	***
Lr max (dB)	20.0	***

Variation of Reflection Loss (011A-3/3)

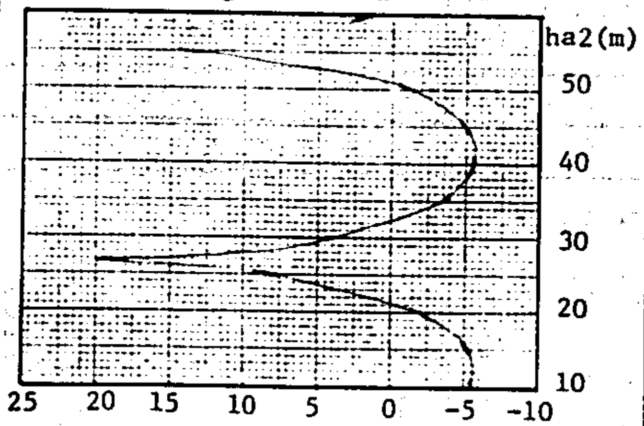
$K^{99.9}$	1.000	***
K^{50}	1.333	***
$K^{0.1}$	3.000	***
ha1′ (m)	60.0	***
ha2′ (m)	33.0	***
$Lr^{99.9}$ (dB)	-0.5	***
Lr^{50} (dB)	-1.4	***
$Lr^{0.1}$ (dB)	-2.5	***
ha1′ (m)		
ha1′ (m)		
$Lr^{99.9}$ (dB)		
Lr^{50} (dB)		
$Lr^{0.1}$ (dB)		

ha1 determined	60 (m)
ha2 determined	33 (m)

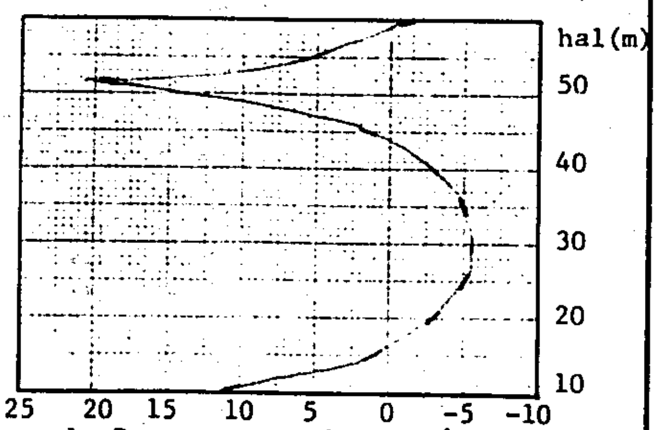
Reflection Loss (011A-2/3)

ha1′ (m)	60.0	***
Lr60m (dB)		
55	1.5	***
50	14.2	***
45	-1.0	***
40	-4.9	***
35	-5.5	***
30	-3.3	***
25	3.9	***
20	6.2	***
15	-2.1	***
10	-5.2	***
	-5.4	***
ha2′ (m)	33.0	***
Lr60m (dB)		
55	-1.4	***
50	5.3	***
45	14.1	***
40	1.4	***
35	-3.0	***
30	-5.0	***
25	-5.5	***
20	-5.0	***
15	-3.0	***
10	1.0	***
	11.2	***

Height Pattern



Lr Pattern at Q (dB, ha1′ = 60 m)



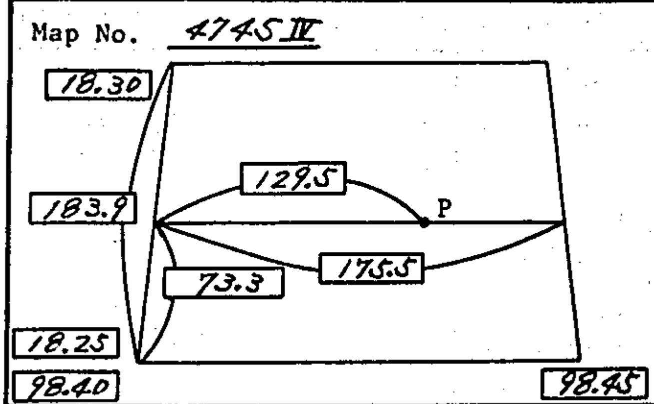
Lr Pattern at P (dB, ha2′ = 33 m)

PROPAGATION PATH DATA

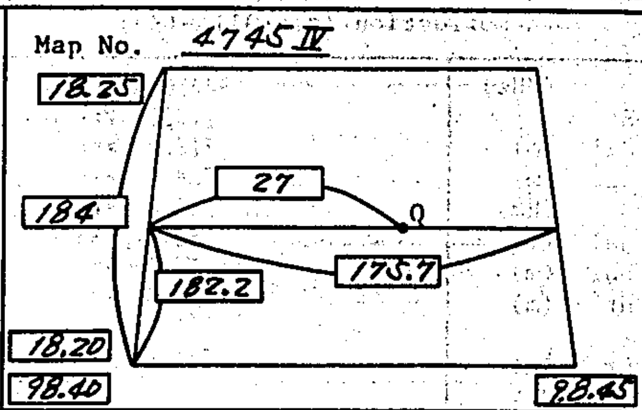
Path No. 5313-21

Site P	Site Q
Ban Nong Hai	Chom Thong

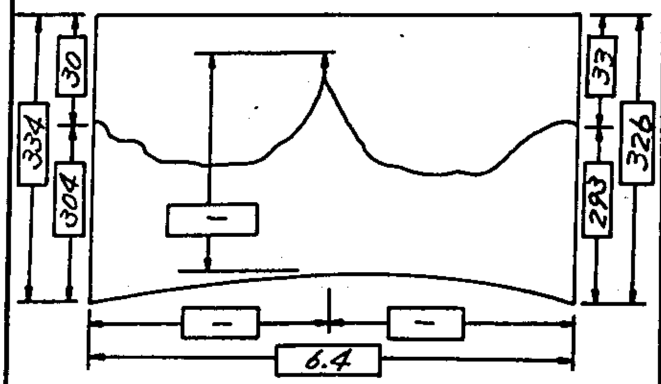
Map No. *4745 IV*



Map No. *4745 IV*



Long-1(D.MS)	98.4000 ***	Long-1(D.MS)	98.4000 ***
Long-2(D.MS)	98.4500 ***	Long-2(D.MS)	98.4500 ***
Lati-1(D.MS)	18.2500 ***	Lati-1(D.MS)	18.2000 ***
Lati-2(D.MS)	18.3000 ***	Lati-2(D.MS)	18.2500 ***
X 1-2(mm)	175.5 ***	X 1-2(mm)	175.7 ***
X 1-0(mm)	129.5 ***	X 1-0(mm)	27.0 ***
Y 1-2(mm)	183.9 ***	Y 1-2(mm)	184.0 ***
Y 1-0(mm)	73.3 ***	Y 1-0(mm)	182.2 ***
Long. (D.MS)	98.4341 ***	Long. (D.MS)	98.4046 ***
Lati. (D.MS)	18.2660 ***	Lati. (D.MS)	18.2457 ***
G.Elevation	304 (m)	G.Elevation	293 (m)
Profile No.	5-5313-21	Type of Path	L/S (~~no~~ reflection)



Path Distance & Azimuth

Long-P (D.MS)	98.4341 ***
Lati-P (D.MS)	18.2660 ***
Long-Q (D.MS)	98.4046 ***
Lati-Q (D.MS)	18.2457 ***
d (km)	6.4 ***
α P→Q(D.MS)	233.4725 ***
α Q→P(D.MS)	53.4630 ***

Antenna Height & Diffraction Loss

No Obstacles

d (km)	
d1 (km)	
hm (m)	
hg1 (m)	
hg2 (m)	
ha1 (m)	
ha1 (m)	
ha2 (m)	
(k = 4/3)	
hp (m)	
Rs (m)	
Cs (m)	
U	
M	
(k = 1)	
U	
M	

PROPAGATION PATH DATA

Path No. 5313-21

Site P: Ban Nong Hai ——— Site Q: Chom Thong

Reflection Area(011A-1/3)

f (MHz)	900.00 ***
K	1.333 ***
hg1 (m)	304.0 ***
hg2 (m)	293.0 ***
d (km)	6.4 ***
ha1′ (m)	30.0 ***
ha2′ (m)	33.0 ***
hr′ (m)	280.0 ***
hr (m)	
d1 (m)	3.5 ***
d2 (m)	3.0 ***
ψ (D.MS)	0.5307 ***
T1 (km)	1.5 ***
Dv	0.99 ***
ρe	0.9 ***
Φr (deg)	180.0 ***
Lr min(dB)	-5.6 ***
Lr max(dB)	20.0 ***

Variation of Reflection Loss(011A-3/3)

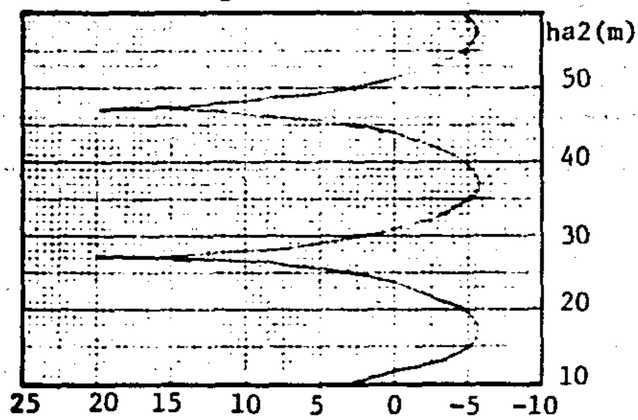
$K^{99.9}$	1.000 ***
K^{50}	1.333 ***
$K^{0.1}$	3.000 ***
ha1′ (m)	30.0 ***
ha2′ (m)	33.0 ***
$Lr^{99.9}$ (dB)	-2.7 ***
Lr^{50} (dB)	-3.2 ***
$Lr^{0.1}$ (dB)	-3.8 ***
ha1′ (m)	
ha1′ (m)	
$Lr^{99.9}$ (dB)	
Lr^{50} (dB)	
$Lr^{0.1}$ (dB)	

ha1 determined	30 (m)
ha2 determined	33 (m)

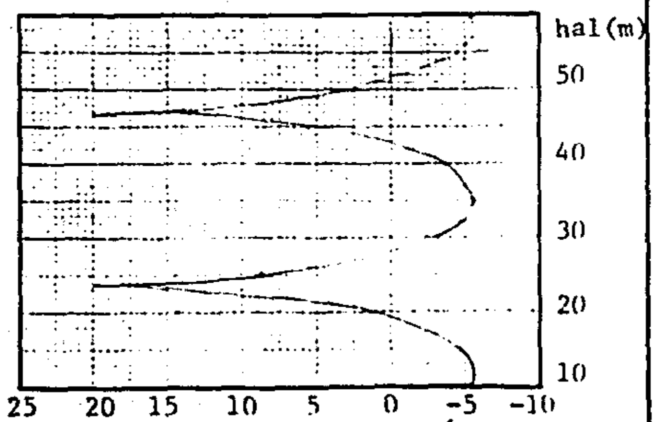
Reflection Loss(011A-2/3)

ha1′ (m)	30.0 ***
Lr60m(dB)	-4.9 ***
55	-4.9 ***
50	2.8 ***
45	2.6 ***
40	-4.9 ***
35	-4.9 ***
30	2.6 ***
25	2.6 ***
20	-4.9 ***
15	-4.9 ***
10	2.5 ***
ha2′ (m)	33.0 ***
Lr60m(dB)	-5.4 ***
55	-4.5 ***
50	2.5 ***
45	5.7 ***
40	-3.7 ***
35	-5.6 ***
30	-3.2 ***
25	8.7 ***
20	1.1 ***
15	-4.8 ***
10	-5.3 ***

Height Pattern



Lr Pattern at Q (dB, ha1′ = 30 m)



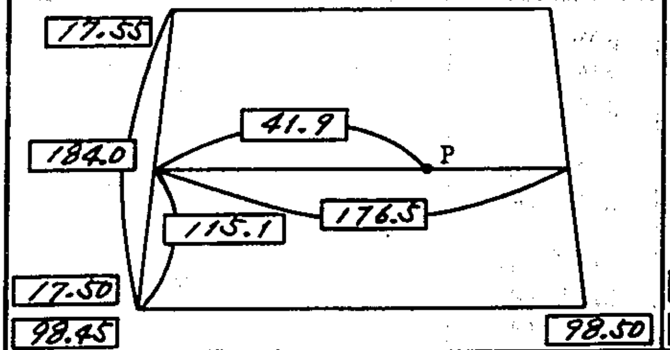
Lr Pattern at P (dB, ha2′ = 33 m)

PROPAGATION PATH DATA

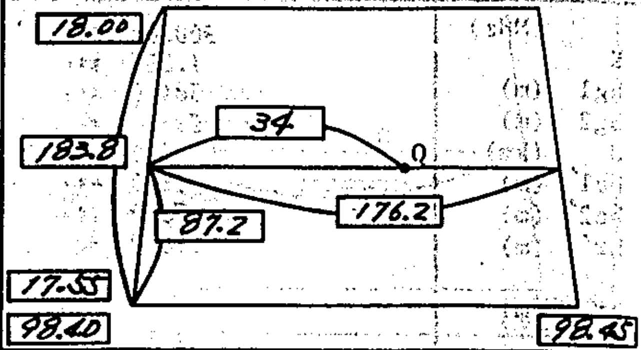
Path No. 5313-22

Site P	Site Q
Doi Pae Po Mak	Doi Tao

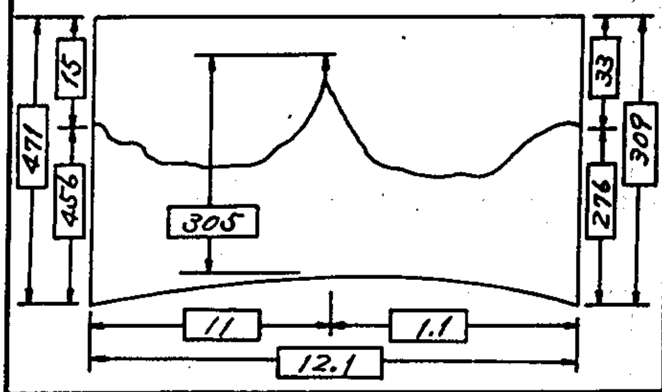
Map No. 4744 I



Map No. 4744 II



	Site P		Site Q
Long-1 (D.MS)	98.4500 ***	Long-1 (D.MS)	98.4000 ***
Long-2 (D.MS)	98.5000 ***	Long-2 (D.MS)	98.4500 ***
Lati-1 (D.MS)	17.5000 ***	Lati-1 (D.MS)	17.5500 ***
Lati-2 (D.MS)	17.5500 ***	Lati-2 (D.MS)	18.0000 ***
X 1-2 (mm)	176.5 ***	X 1-2 (mm)	176.2 ***
X 1-0 (mm)	41.9 ***	X 1-0 (mm)	34.0 ***
Y 1-2 (mm)	184.0 ***	Y 1-2 (mm)	183.8 ***
Y 1-0 (mm)	115.1 ***	Y 1-0 (mm)	87.2 ***
Long. (D.MS)	98.4611 ***	Long. (D.MS)	98.4058 ***
Lati. (D.MS)	17.5308 ***	Lati. (D.MS)	17.5722 ***
G.Elevation	456 (m)	G.Elevation	276 (m)
Profile No.	5-5313-22	Type of Path	L/S (~~no~~ reflection)



Path Distance & Azimuth

Long-P (D.MS)	98.4611 ***
Lati-P (D.MS)	17.5308 ***
Long-Q (D.MS)	98.4058 ***
Lati-Q (D.MS)	17.5722 ***
d (km)	12.1 ***
α P→Q (D.MS)	310.2045 ***
α Q→P (D.MS)	130.1909 ***

Antenna Height & Diffraction Loss

d (km)	12.1 ***
d1 (km)	11.0 ***
hm (m)	305.0 ***
hg1 (m)	456.0 ***
hg2 (m)	276.0 ***
hal (m)	20.0 ***
hal (m)	15.0 ***
ha2 (m)	33.0 ***
(k = 4/3)	
hp (m)	323.0 ***
Rs (m)	18.3 ***
Cs (m)	18.0 ***
U	0.99 ***
M	60. ***
(k = 1)	Ld^{50} = 0 dB
U	0.97 ***
M	64. ***
	$Ld^{99.9}$ = 0 dB

PROPAGATION PATH DATA

Path No. 5313-22

Site P: Doi Pae Po Mak — Site Q: Doi Tao

Reflection Area (011A-1/3)

f (MHz)	900.00	***
K	1.333	***
hg1 (m)	456.0	***
hg2 (m)	276.0	***
d (km)	12.1	***
ha1′ (m)	15.0	***
ha2′ (m)	33.0	***
hr′ (m)	280.0	***
hr (m)		
d1 (m)	10.5	***
d2 (m)	1.6	***
ψ (D.MS)	1.0036	***
T1 (km)	1.2	***
Dv	0.95	***
ρe	0.6	***
Φr (deg)	180.0	***
Lr min (dB)	-5.1	***
Lr max (dB)	14.0	***

Variation of Reflection Loss (011A-3/3)

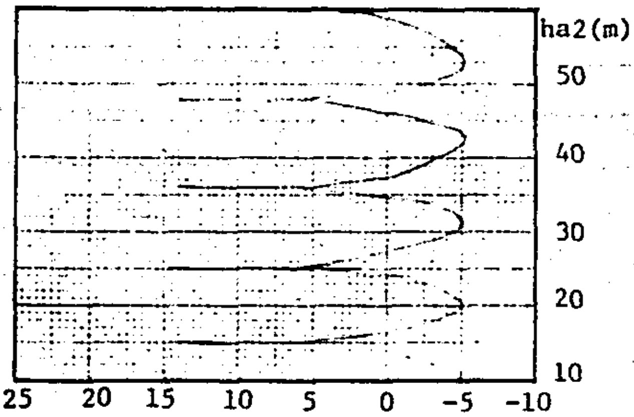
$K^{99.9}$	1.000	***
K^{50}	1.333	***
$K^{0.1}$	3.000	***
ha1′ (m)	15.0	***
ha2′ (m)	33.0	***
$Lr^{99.9}$ (dB)	-4.6	***
Lr^{50} (dB)	-4.3	***
$Lr^{0.1}$ (dB)	-3.3	***
ha1′ (m)		
ha1′ (m)		
$Lr^{99.9}$ (dB)		
Lr^{50} (dB)		
$Lr^{0.1}$ (dB)		

ha1 determined	15 (m)
ha2 determined	33 (m)

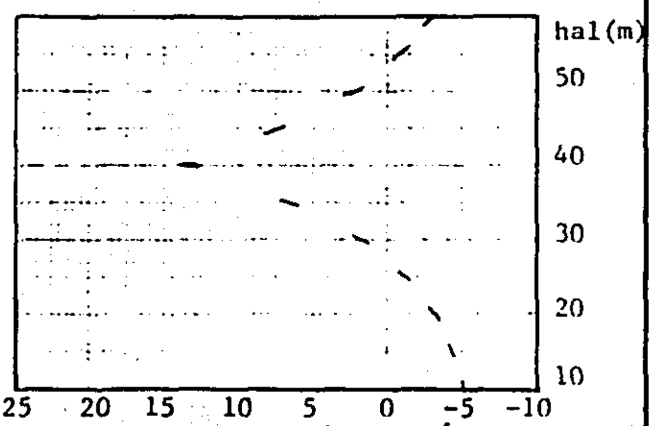
Reflection Loss (011A-2/3)

ha1′ (m)	15.0	***
Lr 60m (dB)	3.3	***
55	-4.0	***
50	-0.6	***
45	-2.4	***
40	-2.9	***
35	0.3	***
30	-4.3	***
25	5.3	***
20	-5.0	***
15	14.0	***
10	-5.0	***
ha2′ (m)	33.0	***
Lr 60m (dB)	-3.0	***
55	-1.0	***
50	2.1	***
45	7.3	***
40	14.0	***
35	6.7	***
30	1.8	***
25	-1.2	***
20	-3.1	***
15	-4.3	***
10	-4.9	***

Height Pattern



Lr Pattern at Q (dB, ha1′ = 15 m)



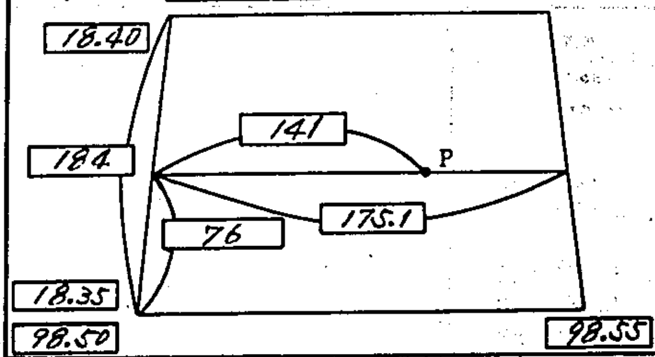
Lr Pattern at P (dB, ha2′ = 33 m)

PROPAGATION PATH DATA

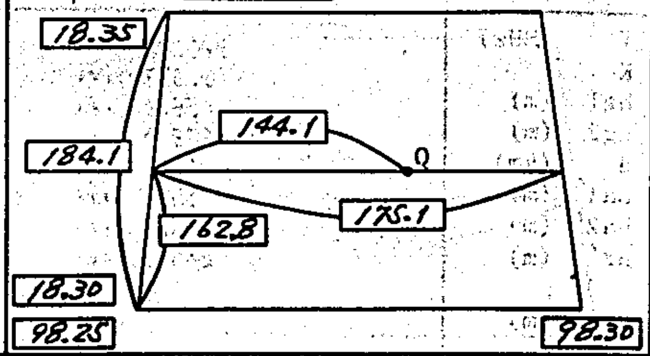
Path. No. 5313-23

Site P	Site Q
San Patong	Doi Inthanon

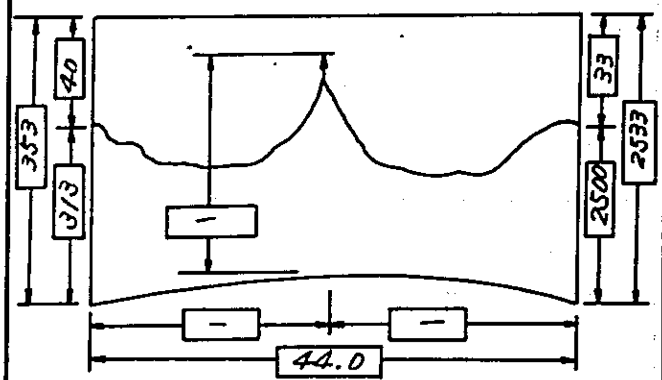
Map No. *4746 II*



Map No. *4646 II*



Site P		Site Q	
Long-1(D.MS)	98.5000 ***	Long-1(D.MS)	98.2500 ***
Long-2(D.MS)	98.5500 ***	Long-2(D.MS)	98.3000 ***
Lati-1(D.MS)	18.3500 ***	Lati-1(D.MS)	18.3000 ***
Lati-2(D.MS)	18.4000 ***	Lati-2(D.MS)	18.3500 ***
X 1-2(mm)	175.1 ***	X 1-2(mm)	175.1 ***
X 1-0(mm)	141.0 ***	X 1-0(mm)	144.1 ***
Y 1-2(mm)	184.0 ***	Y 1-2(mm)	184.1 ***
Y 1-0(mm)	76.0 ***	Y 1-0(mm)	162.8 ***
Long. (D.MS)	98.5402 ***	Long. (D.MS)	98.2907 ***
Lati. (D.MS)	18.3704 ***	Lati. (D.MS)	18.3425 ***
G.Elevation	313 (m)	G.Elevation	2500 (m)
Profile No.	5-5313-23	Type of Path	L/S (~~no~~ reflection)



Path Distance & Azimuth

Long-P (D.MS)	98.5402 ***
Lati-P (D.MS)	18.3704 ***
Long-Q (D.MS)	98.2907 ***
Lati-Q (D.MS)	18.3425 ***
d (km)	44.0 ***
α P→Q(D.MS)	263.4255 ***
α Q→P(D.MS)	83.3501 ***

Antenna Height & Diffraction Loss

No Obstacles

d (km)	
d1 (km)	
hm (m)	
hg1 (m)	
hg2 (m)	
ha1 (m)	
ha1 (m)	
ha2 (m)	
(k = 4/3)	
hp (m)	
Rs (m)	
Cs (m)	
U	
M	
(k = 1)	
U	
M	

PROPAGATION PATH DATA

Path No. 5313-23

Site P: San Patong —— Site Q: Doi Inthanon

Reflection Area(011A-1/3)

f (MHz)	900.00	***
K	1.333	***
hg1 (m)	313.0	***
hg2 (m)	2500.0	***
d (km)	44.0	***
ha1´ (m)	40.0	***
ha2´ (m)	33.0	***
hr´ (m)	317.0	***
hr (m)		
d1 (m)	0.7	***
d2 (m)	43.3	***
ψ (D.MS)	2.4726	***
T1 (km)	0.3	***
Dv	1.00	***
ρ_e	0.8	***
Φ_r (deg)	179.0	***
Lr min(dB)	-5.1	***
Lr max(dB)	14.0	***

Reflection Loss(011A-2/3)

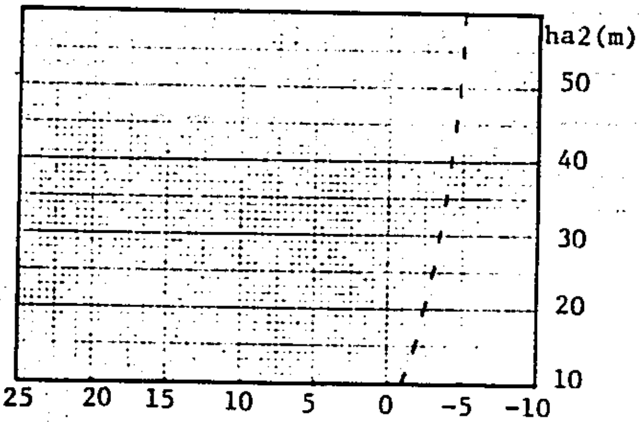
ha1´ (m)	40.0	***
Lr60m(dB)	-5.0	***
55	-4.9	***
50	-4.7	***
45	-4.5	***
40	-4.2	***
35	-3.9	***
30	-3.5	***
25	-3.0	***
20	-2.5	***
15	-1.8	***
10	-1.0	***
ha2´ (m)	33.0	***
Lr60m(dB)	7.0	***
55	-4.3	***
50	-0.5	***
45	-1.8	***
40	-3.7	***
35	3.9	***
30	-5.0	***
25	12.8	***
20	-4.8	***
15	1.5	***
10	-2.9	***

Variation of Reflection Loss(011A-3/3)

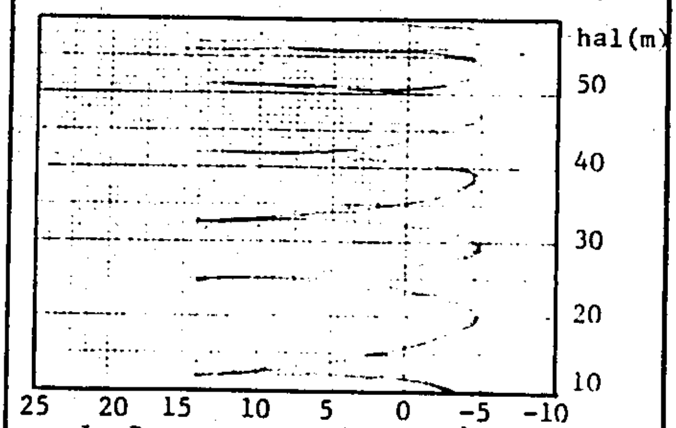
$K^{99.9}$	1.000	***
K^{50}	1.333	***
$K^{0.1}$	3.000	***
ha1´ (m)	40.0	***
ha2´ (m)	33.0	***
$Lr^{99.9}$ (dB)	1.9	***
Lr^{50} (dB)	-3.7	***
$Lr^{0.1}$ (dB)	-4.4	***
ha1´ (m)		
ha1´ (m)		
$Lr^{99.9}$ (dB)		
Lr^{50} (dB)		
$Lr^{0.1}$ (dB)		

ha1 determined	40 (m)
ha2 determined	33 (m)

Height Pattern



Lr Pattern at Q (dB, ha1´ = 40 m)



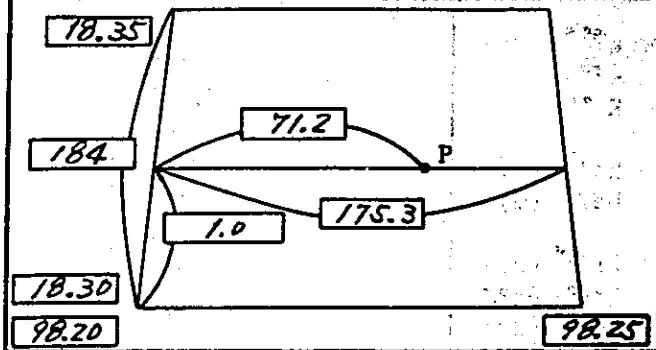
Lr Pattern at P (dB, ha2´ = 33 m)

PROPAGATION PATH DATA

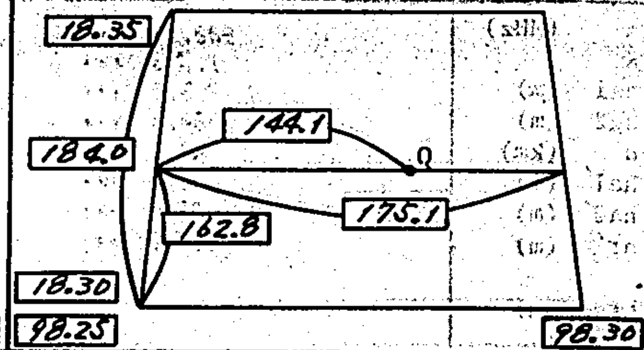
Path No. 5313-24

Site P	Mae Chaen	Site Q	Doi Inthanon

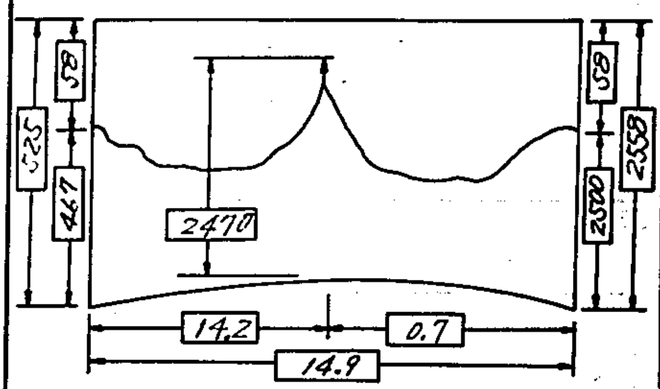
Map No. 4646 II



Map No. 4646 II



Long-1 (D.MS)	98.2000 ***	Long-1 (D.MS)	98.2500 ***
Long-2 (D.MS)	98.2500 ***	Long-2 (D.MS)	98.3000 ***
Lati-1 (D.MS)	18.3000 ***	Lati-1 (D.MS)	18.3000 ***
Lati-2 (D.MS)	18.3500 ***	Lati-2 (D.MS)	18.3500 ***
X 1-2 (mm)	175.3 ***	X 1-2 (mm)	175.1 ***
X 1-0 (mm)	71.2 ***	X 1-0 (mm)	144.1 ***
Y 1-2 (mm)	184.0 ***	Y 1-2 (mm)	184.0 ***
Y 1-0 (mm)	1.0 ***	Y 1-0 (mm)	162.8 ***
Long. (D.MS)	98.2202 ***	Long. (D.MS)	98.2907 ***
Lati. (D.MS)	18.3002 ***	Lati. (D.MS)	18.3425 ***
G.Elevation	467 (m)	G.Elevation	2500 (m)
Profile No.	5-5313-24	Type of Path	L/S (no reflection)



Path Distance & Azimuth

Long-P (D.MS)	98.2202 ***
Lati-P (D.MS)	18.3002 ***
Long-Q (D.MS)	98.2907 ***
Lati-Q (D.MS)	18.3425 ***
d (km)	14.9 ***
α P→Q (D.MS)	56.5549 ***
α Q→P (D.MS)	236.5903 ***

Antenna Height & Diffraction Loss

d (km)	14.9 ***
d1 (km)	14.2 ***
hm (m)	2470.0 ***
hg1 (m)	467.0 ***
hg2 (m)	2500.0 ***
ha1 (m)	
ha1 (m)	58.0 ***
ha2 (m)	58.0 ***
(k = 4/3)	
hp (m)	
Rs (m)	2461.9 ***
Cs (m)	14.9 ***
U	-8.1 ***
M	-0.54 ***
(k = 1)	21. *** Ld 50 = 11 dB
U	
M	-0.56 ***
	21. *** Ld 99.9 = 11 dB

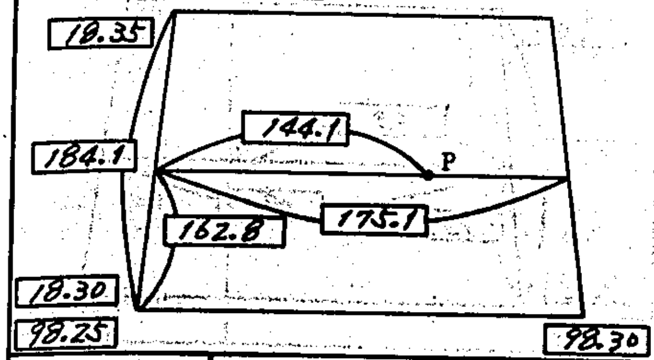
PROPAGATION PATH DATA

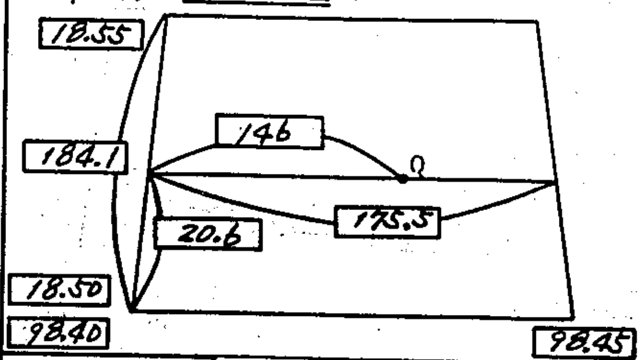
Path No. 5313-25

Site P: Doi Inthanon

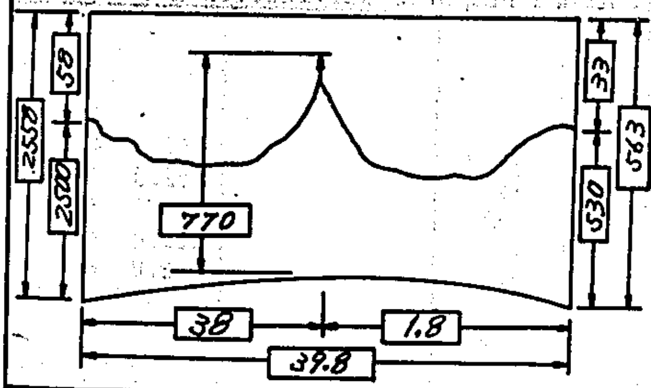
Site Q: Sa Moeng

Site P		Site Q	
Map No.	4646 II	Map No.	4747 IV





Site P		Site Q	
Long-1 (D.MS)	98.2500 ***	Long-1 (D.MS)	98.4000 ***
Long-2 (D.MS)	98.3000 ***	Long-2 (D.MS)	98.4500 ***
Lati-1 (D.MS)	18.3000 ***	Lati-1 (D.MS)	18.5000 ***
Lati-2 (D.MS)	18.3500 ***	Lati-2 (D.MS)	18.5500 ***
X 1-2 (mm)	175.1 ***	X 1-2 (mm)	175.5 ***
X 1-0 (mm)	144.1 ***	X 1-0 (mm)	146.0 ***
Y 1-2 (mm)	184.1 ***	Y 1-2 (mm)	184.1 ***
Y 1-0 (mm)	162.8 ***	Y 1-0 (mm)	20.6 ***
Long. (D.MS)	98.2907 ***	Long. (D.MS)	98.4410 ***
Lati. (D.MS)	18.3425 ***	Lati. (D.MS)	18.5034 ***
G.Elevation	2500 (m)	G.Elevation	530 (m)
Profile No.	5-5313-25	Type of Path	Mountain Diffraction



Path Distance & Azimuth

Long-P (D.MS)	98.2907 ***
Lati-P (D.MS)	18.3425 ***
Long-Q (D.MS)	98.4410 ***
Lati-Q (D.MS)	18.5034 ***
d (km)	39.8 ***
α P→Q (D.MS)	41.3434 ***
α Q→P (D.MS)	221.3922 ***

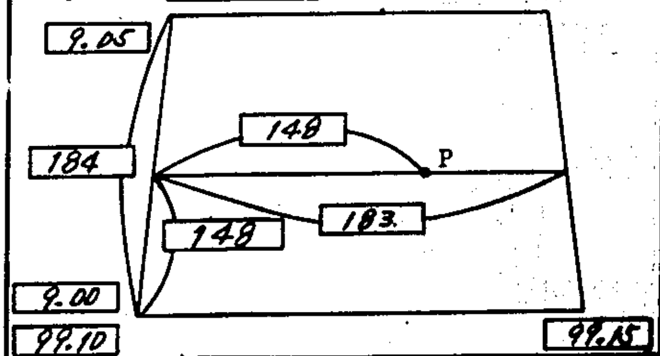
Antenna Height & Diffraction Loss

d (km)	39.8 **
d1 (km)	38.0 **
hm (m)	770.0 **
hg1 (m)	2500.0 **
hg2 (m)	530.0 **
ha1 (m)	
ha1 (m)	58.0 **
ha2 (m)	33.0 ***
(k = 4/3)	
hp (m)	649.2 ***
Rs (m)	23.9 ***
Cs (m)	-120.8 ***
U	-5.05 ***
M	40. ***
(k = 1)	Ld 50 = 46 dB
U	-5.10 ***
M	40. ***
	Ld 99.9 = 46 dB

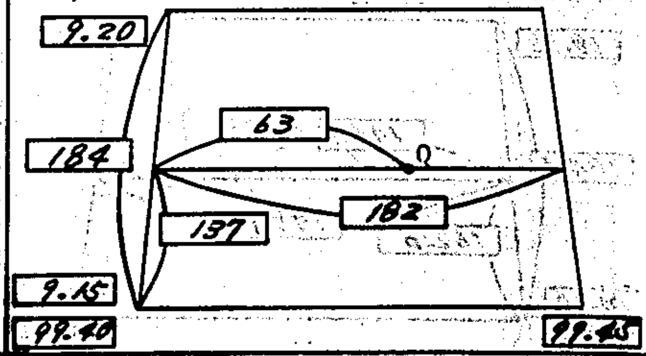
PROPAGATION PATH DATA

Path No.	7711-1
Site P	Phun Phin (Radio)
Site Q	Don Sak

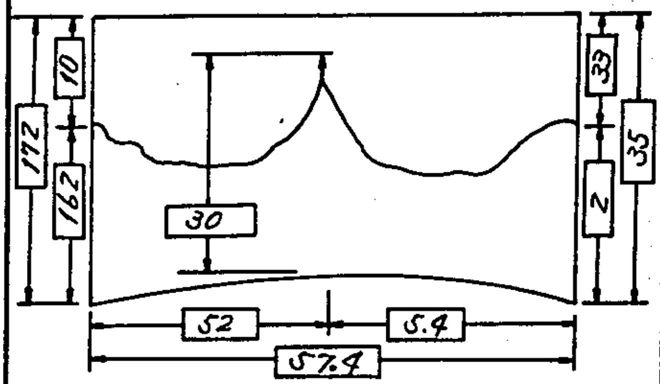
Map No. 4827 III



Map No. 4938 IV



Site P		Site Q	
Long-1(D.MS)	99.1000 ***	Long-1(D.MS)	99.4000 ***
Long-2(D.MS)	99.1500 ***	Long-2(D.MS)	99.4500 ***
Lati-1(D.MS)	9.0000 ***	Lati-1(D.MS)	9.1500 ***
Lati-2(D.MS)	9.0500 ***	Lati-2(D.MS)	9.2000 ***
X 1-2(mm)	183.0 ***	X 1-2(mm)	192.0 ***
X 1-0(mm)	145.0 ***	X 1-0(mm)	63.0 ***
Y 1-2(mm)	184.0 ***	Y 1-2(mm)	184.0 ***
Y 1-0(mm)	148.0 ***	Y 1-0(mm)	137.0 ***
Long. (D.MS)	99.1403 ***	Long. (D.MS)	99.4144 ***
Lati. (D.MS)	9.0401 ***	Lati. (D.MS)	9.1843 ***
G.Elevation	162 (m)	G.Elevation	2 (m)
Profile No.	S-7711-1	Type of Path	L/S ([illegible] reflection)



Path Distance & Azimuth

Long-P (D.MS)	99.1403 ***
Lati-P (D.MS)	9.0401 ***
Long-Q (D.MS)	99.4144 ***
Lati-Q (D.MS)	9.1843 ***
d (km)	57.4 ***
α P→Q(D.MS)	61.5042 ***
α Q→P(D.MS)	241.5505 ***

Antenna Height & Diffraction Loss

d (km)	57.4 ***
dl (km)	52.0 ***
hm (m)	30.0 ***
hg1 (m)	162.0 ***
hg2 (m)	2.0 ***
hal (m)	
ha1 (m)	10.0 ***
ha2 (m)	33.0 ***
(k = 4/3)	
hp (m)	31.3 ***
Rs (m)	40.4 ***
Cs (m)	1.3 ***
U	0.03 ***
M	54. ***
	Ld^{50} = 7 dB
(k = 1)	
U	-0.10 ***
M	58 ***
	$Ld^{99.9}$ = 8 dB

PROPAGATION PATH DATA

Path No. 7711-1

Site P: Phun Phin (Radio) —— Site Q: Don Sak

Reflection Area (011A-1/3)

f (MHz)	900.00	***
K	1.333	***
hg1 (m)	162.0	***
hg2 (m)	2.0	***
d (km)	57.4	***
ha1′ (m)	10.0	***
ha2′ (m)	33.0	***
hr′ (m)	3.0	***
hr (m)		
d1 (m)	43.1	***
d2 (m)	14.4	***
ψ (D.MS)	0.0447	***
T1 (km)	43.1	***
Dv	0.60	***
ρ_e	0.5	***
Φ_r (deg)	180.0	***
Lr min(dB)	-3.5	***
Lr max(dB)	6.0	***

Variation of Reflection Loss (011A-3/3)

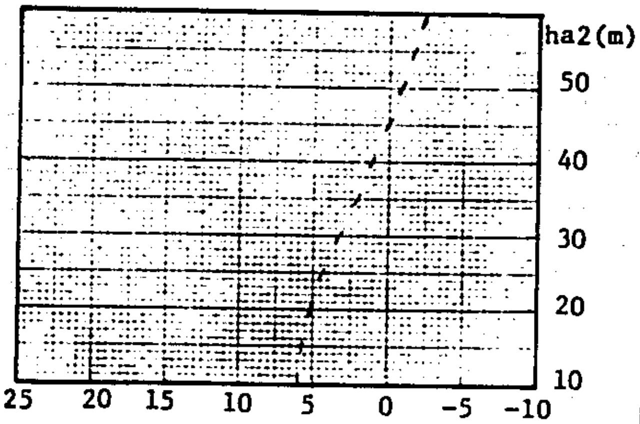
$K^{99.9}$	1.000	***
K^{50}	1.333	***
$K^{0.1}$	3.000	***
ha1′ (m)	10.0	***
ha2′ (m)	33.0	***
$Lr^{99.9}$ (dB)	5.4	***
Lr^{50} (dB)	2.7	***
$Lr^{0.1}$ (dB)	-2.5	***
ha1′ (m)		
ha1′ (m)		
$Lr^{99.9}$ (dB)		
Lr^{50} (dB)		
$Lr^{0.1}$ (dB)		

ha1 determined	10 (m)
ha2 determined	33 (m)

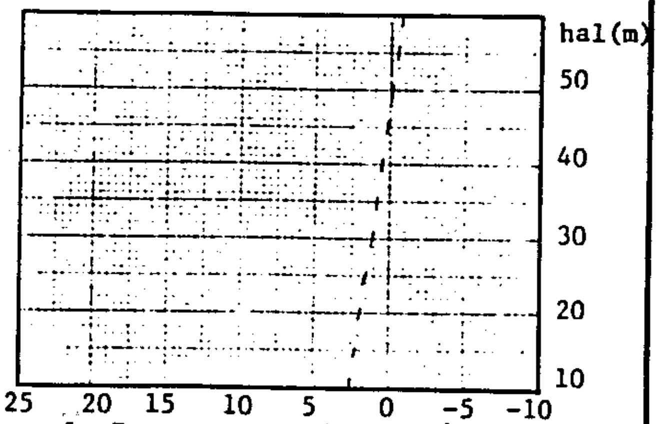
Reflection Loss (011A-2/3)

ha1′ (m)	10.0	***
Lr60m(dB)	-2.3	***
55	-1.6	***
50	-0.8	***
45	0.1	***
40	1.1	***
35	2.2	***
30	3.3	***
25	4.4	***
20	5.2	***
15	5.7	***
10	6.6	***
ha2′ (m)	33.0	***
Lr60m(dB)	-0.8	***
55	-0.5	***
50	-0.1	***
45	0.2	***
40	0.5	***
35	0.9	***
30	1.2	***
25	1.6	***
20	1.9	***
15	2.3	***
10	2.7	***

Height Pattern



Lr Pattern at Q (dB, ha1′= m)



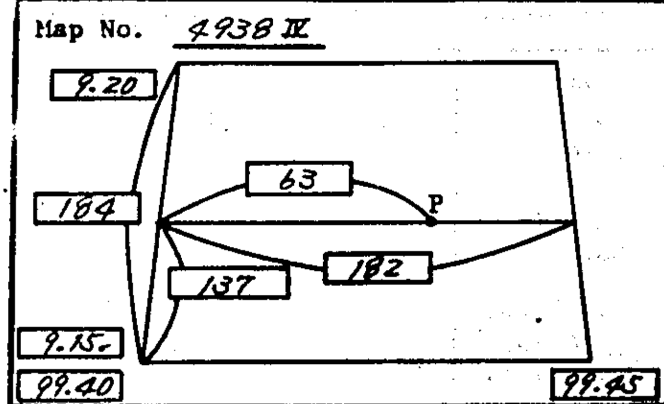
Lr Pattern at P (dB, ha2′= m)

PROPAGATION PATH DATA

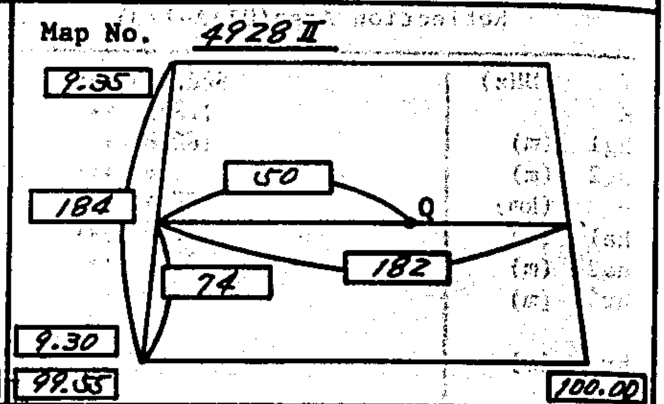
Path No. 7711-2

Site P	Site Q
Don Sak	Ko Samui

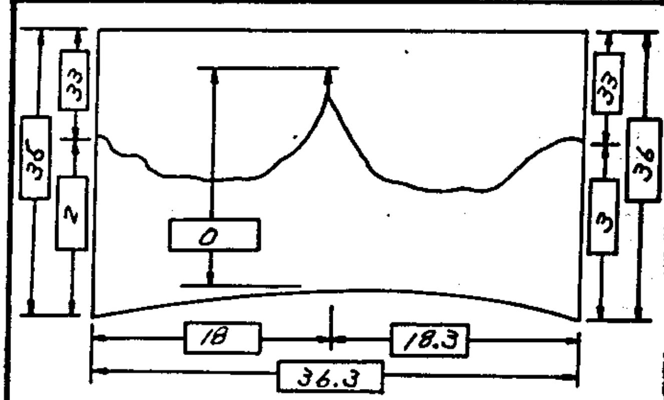
Map No. 4938 IV



Map No. 4928 II



Site P		Site Q	
Long-1 (D.MS)	99.4600 ***	Long-1 (D.MS)	99.5500 ***
Long-2 (D.MS)	99.4500 ***	Long-2 (D.MS)	100.0000 ***
Lati-1 (D.MS)	9.1500 ***	Lati-1 (D.MS)	9.3000 ***
Lati-2 (D.MS)	9.2000 ***	Lati-2 (D.MS)	9.3500 ***
X 1-2 (mm)	182.0 ***	X 1-2 (mm)	182.0 ***
X 1-0 (mm)	63.0 ***	X 1-0 (mm)	50.0 ***
Y 1-2 (mm)	184.0 ***	Y 1-2 (mm)	184.0 ***
Y 1-0 (mm)	137.0 ***	Y 1-0 (mm)	74.0 ***
Long. (D.MS)	99.4144 ***	Long. (D.MS)	99.5622 ***
Lati. (D.MS)	9.1843 ***	Lati. (D.MS)	9.3201 ***
G.Elevation	2 (m)	G.Elevation	3 (m)
Profile No.	5-7711-2	Type of Path	L/S (~~no~~ reflection)



Path Distance & Azimuth

Long-P (D.MS)	99.4144 ***
Lati-P (D.MS)	9.1843 ***
Long-Q (D.MS)	99.5622 ***
Lati-Q (D.MS)	9.3201 ***
d (km)	36.3 ***
α P→Q (D.MS)	47.3322 ***
α Q→P (D.MS)	227.3545 ***

Antenna Height & Diffraction Loss

d (km)	36.3 ***
d1 (km)	18.0 ***
hm (m)	0.0 ***
hg1 (m)	2.0 ***
hg2 (m)	3.0 ***
ha1 (m)	33.0 ***
ha1 (m)	33.0 ***
ha2 (m)	33.0 ***
(k = 4/3)	
hp (m)	16.1 ***
Rs (m)	55.0 ***
Cs (m)	16.1 ***
U	0.29 ***
M	38. ***
	Ld50 = 3 dB
(k = 1)	
U	0.18 ***
M	41. ***
	Ld99.9 = 4 dB

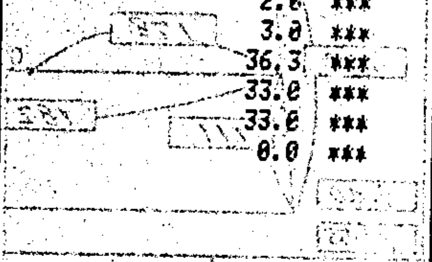
PROPAGATION PATH DATA

Path No. 7711-2

Site P: Don Sak — Site Q: Ko Samui

Reflection Area (011A-1/3)

f (MHz)	900.00	***
K	1.333	***
hg1 (m)	2.0	***
hg2 (m)	3.0	***
d (km)	36.3	***
ha1′ (m)	33.0	***
ha2′ (m)	33.0	***
hr′ (m)	0.0	***
hr (m)		
d1 (m)	18.2	***
d2 (m)	18.2	***
ψ (D.MS)	0.0257	***
T1 (km)	64.0	***
Dv	0.54	***
ρ_e	0.5	***
Φr (deg)	180.0	***
Lr min(dB)	-3.5	***
Lr max(dB)	6.0	***



Variation of Reflection Loss (011A-3/3)

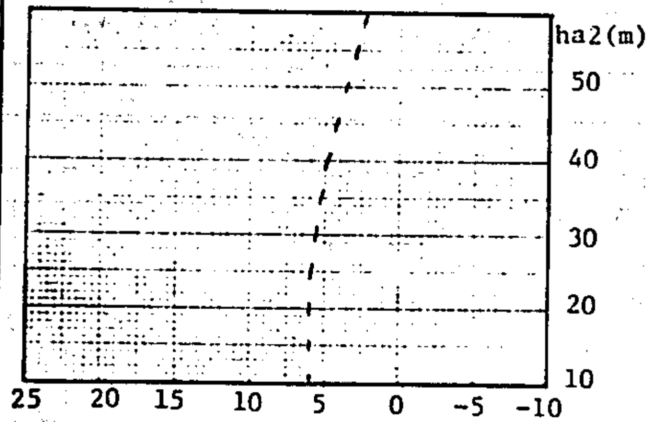
$K^{99.9}$	1.000	***
K^{50}	1.333	***
$K^{0.1}$	3.000	***
ha1′ (m)	33.0	***
ha2′ (m)	33.0	***
$Lr^{99.9}$ (dB)	5.9	***
Lr^{50} (dB)	5.4	***
$Lr^{0.1}$ (dB)	2.9	***
ha1′ (m)		
ha1′ (m)		
$Lr^{99.9}$ (dB)		
Lr^{50} (dB)		
$Lr^{0.1}$ (dB)		

ha1 determined	33 (m)
ha2 determined	33 (m)

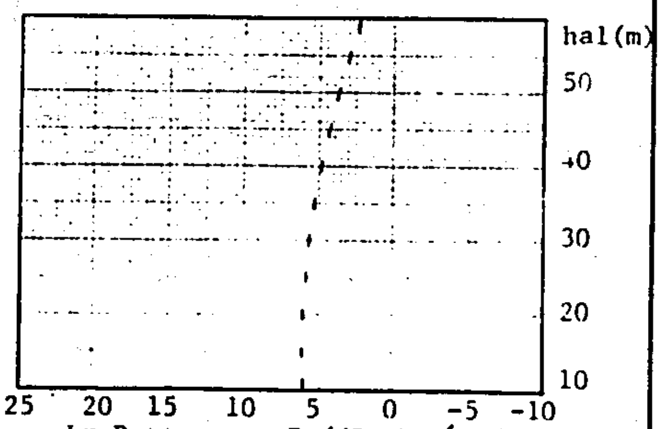
Reflection Loss (011A-2/3)

ha1′ (m)	33.0	***
Lr60m(dB)		
55	2.4	***
50	3.1	***
45	3.7	***
40	4.3	***
35	4.9	***
30	5.3	***
25	5.6	***
20	5.8	***
15	6.0	***
10	6.0	***
	6.0	***
ha2′ (m)	33.0	***
Lr60m(dB)		
55	2.4	***
50	3.0	***
45	3.7	***
40	4.3	***
35	4.9	***
30	5.3	***
25	5.6	***
20	5.8	***
15	6.0	***
10	6.0	***
	6.0	***

Height Pattern



Lr Pattern at Q (dB, ha1′ = m)



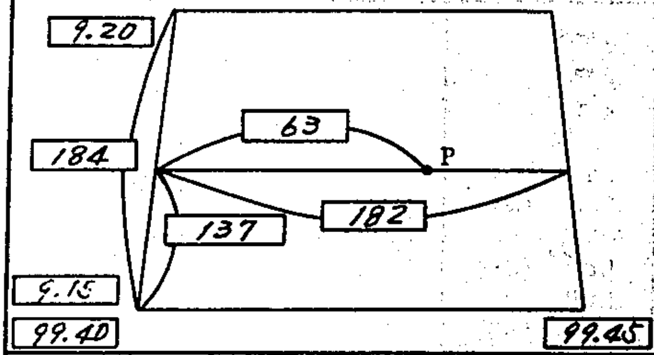
Lr Pattern at P (dB, ha2′ = m)

PROPAGATION PATH DATA

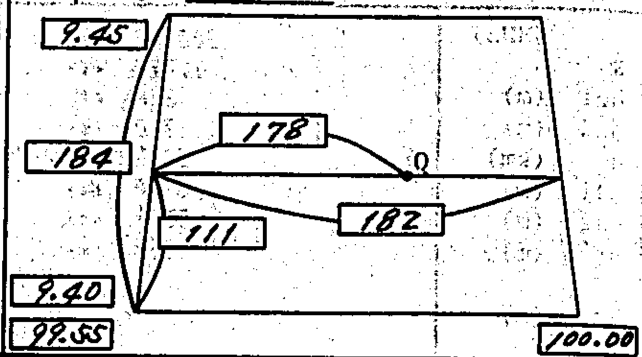
Path No. 7711-3

Site P	Site Q
Don Sak	Ko Phangan

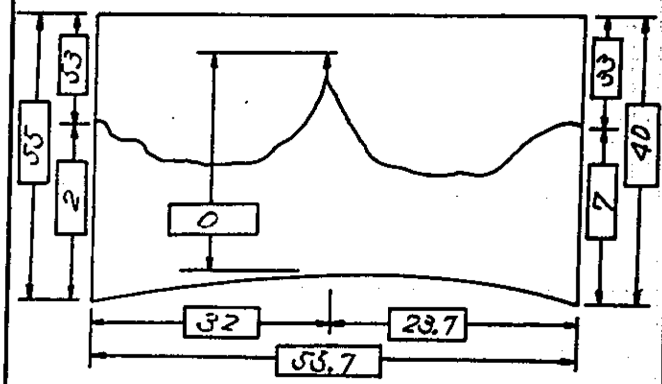
Map No. 4938 IV



Map No. 4928 II



Long-1(D.MS)	99.4000 ***	Long-1(D.MS)	99.5500 ***
Long-2(D.MS)	99.4500 ***	Long-2(D.MS)	100.0000 ***
Lati-1(D.MS)	9.1500 ***	Lati-1(D.MS)	9.4000 ***
Lati-2(D.MS)	9.2000 ***	Lati-2(D.MS)	9.4500 ***
X 1-2(mm)	182.0 ***	X 1-2(mm)	182.0 ***
X 1-0(mm)	63.0 ***	X 1-0(mm)	178.0 ***
Y 1-2(mm)	184.0 ***	Y 1-2(mm)	184.0 ***
Y 1-0(mm)	137.0 ***	Y 1-0(mm)	111.0 ***
Long. (D.MS)	99.4144 ***	Long. (D.MS)	99.5953 ***
Lati. (D.MS)	9.1843 ***	Lati. (D.MS)	9.4301 ***
G.Elevation	2 (m)	G.Elevation	7 (m)
Profile No.	S-7711-3	Type of Path	L/S (no reflection)



Path Distance & Azimuth

Long-P (D.MS)	99.4144 ***
Lati-P (D.MS)	9.1843 ***
Long-Q (D.MS)	99.5953 ***
Lati-Q (D.MS)	9.4301 ***
d (km)	55.7 ***
α P→Q(D.MS)	36.3309 ***
α Q→P(D.MS)	216.3608 ***

Antenna Height & Diffraction Loss

d (km)	55.7 ***
d1 (km)	32.0 ***
hm (m)	0.0 ***
hg1 (m)	2.0 ***
hg2 (m)	7.0 ***
hal (m)	53.0 ***
hal (m)	53.0 ***
ha2 (m)	33.0 ***
(k = 4/3)	
hp (m)	1.7 ***
Rs (m)	67.4 ***
Cs (m)	1.7 ***
U	0.03 ***
M	51. ***
Ld50 =	7 dB
(k = 1)	
U	-0.20 ***
M	55. ***
Ld99.9 =	9 dB

PROPAGATION PATH DATA

Path No. 7711-3

Site P	Site Q
Don Sak	Ko Phangan

Reflection Area(011A-1/3)

f (MHz)	900.00	***
K	1.333	***
hg1 (m)	2.0	***
hg2 (m)	2.0	***
d (km)	7.0	***
ha1′ (m)	55.7	***
ha2′ (m)	53.0	***
hr′ (m)	33.0	***
	0.0	***
hr (m)		
d1 (m)	[illegible].5	***
d2 (m)	25.2	***
ψ (D.MS)	0.0002	***
T1 (km)	5692.1	***
Dv	0.06	***
ρc	0.2	***
Φr (deg)	180.6	***
Lr min(dB)	-1.6	***
Lr max(dB)	1.5	***

Variation of Reflection Loss(011A-3/3)

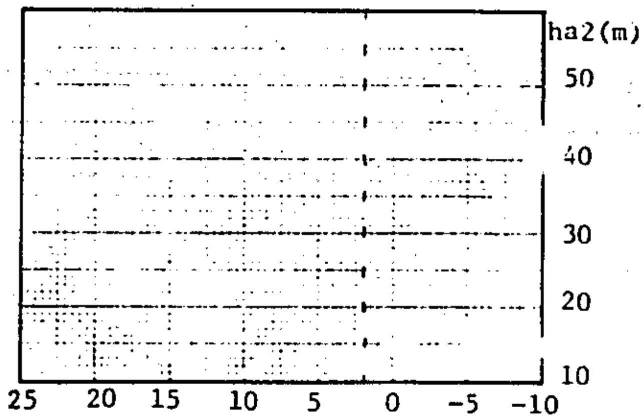
$K^{99.9}$	1.000	***
K^{50}	1.333	***
$K^{0.1}$	3.000	***
ha1′ (m)	53.0	***
ha2′ (m)	33.0	***
$Lr^{99.9}$ (dB)	1.9	***
Lr^{50} (dB)	1.9	***
$Lr^{0.1}$ (dB)	1.6	***
ha1′ (m)		
ha1′ (m)		
$Lr^{99.9}$ (dB)		
Lr^{50} (dB)		
$Lr^{0.1}$ (dB)		

ha1 determined	53 (m)
ha2 determined	33 (m)

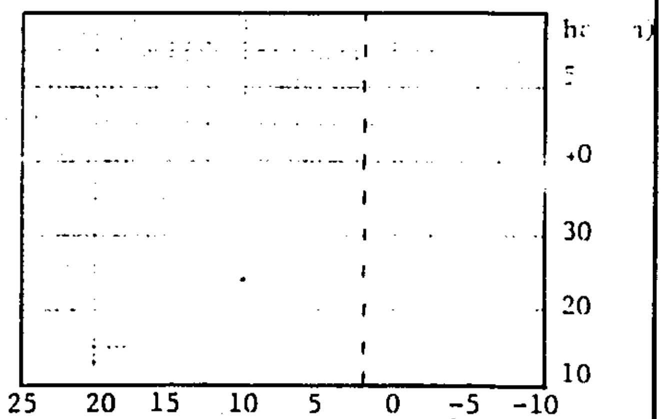
Reflection Loss(011A-2/3)

ha1′ (m)	53.0	***
Lr60m(dB)	1.9	***
55	1.9	***
50	1.9	***
45	1.9	***
40	1.9	***
35	1.9	***
30	1.9	***
25	1.9	***
20	1.9	***
15	1.9	***
10	1.9	***
ha2′ (m)	33.0	***
Lr60m(dB)	1.9	***
55	1.9	***
50	1.9	***
45	1.9	***
40	1.9	***
35	1.9	***
30	1.9	***
25	1.9	***
20	1.9	***
15	1.9	***
10	1.8	***

Height Pattern



Lr Pattern at Q (dB, ha1′ = 55 m)

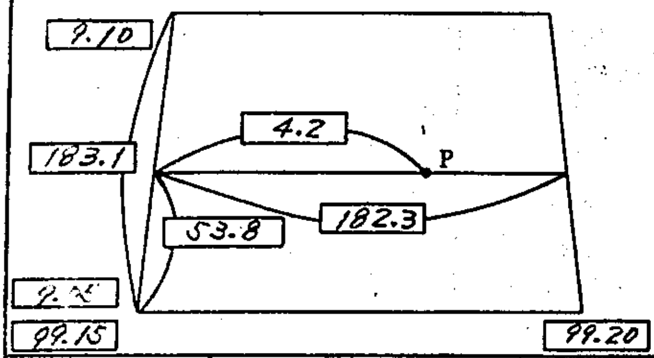


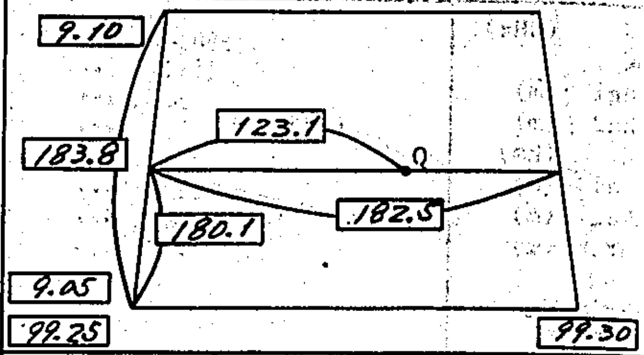
Lr Pattern at P (dB, ha2′ = 33 m)

PROPAGATION PATH DATA

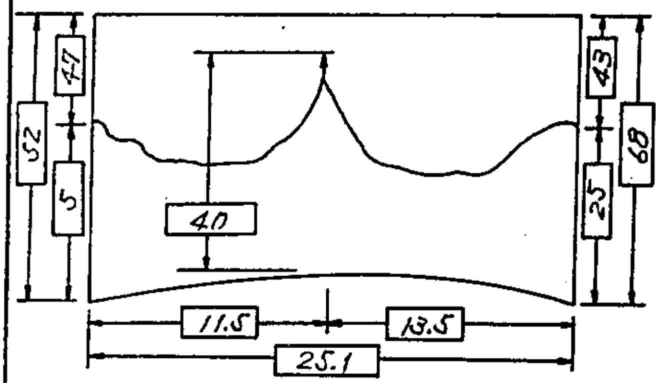
Path No. 7711-4

Site P	Site Q
Phun Phin (Tex)	Kanchanadit
Map No. 4827 II	Map No. 4827 II





Long-1(D.MS)	99.1500 ***	Long-1(D.MS)	99.2500 ***
Long-2(D.MS)	99.2000 ***	Long-2(D.MS)	99.3000 ***
Lati-1(D.MS)	9.0500 ***	Lati-1(D.MS)	9.0500 ***
Lati-2(D.MS)	9.1000 ***	Lati-2(D.MS)	9.1000 ***
X 1-2(mm)	182.3 ***	X 1-2(mm)	182.5 ***
X 1-0(mm)	4.2 ***	X 1-0(mm)	123.1 ***
Y 1-2(mm)	183.1 ***	Y 1-2(mm)	183.8 ***
Y 1-0(mm)	53.8 ***	Y 1-0(mm)	180.1 ***
Long. (D.MS)	99.1507 ***	Long. (D.MS)	99.2823 ***
Lati. (D.MS)	9.0628 ***	Lati. (D.MS)	9.0954 ***
G.Elevation	5 (m)	G.Elevation	25 (m)
Profile No.	5-7711-4	Type of Path	L/S (~~no~~ reflection)



Path Distance & Azimuth

Long-P (D.MS)	99.1507 ***
Lati-P (D.MS)	9.0625 ***
Long-Q (D.MS)	99.2823 ***
Lati-Q (D.MS)	9.0954 ***
d (km)	25.1 ***
α P→Q(D.MS)	75.2322 ***
α Q→P(D.MS)	255.2527 ***

Antenna Height & Diffraction Loss

d (km)	25.1 ***
d1 (km)	1.1 ***
hm (m)	50.0 ***
hg1 (m)	5.0 ***
hg2 (m)	25.0 ***
ha1 (m)	
ha1 (m)	47.0 ***
ha2 (m)	43.0 ***
(k = 4/3)	
hp (m)	51.1 ***
Rs (m)	18.7 ***
Cs (m)	1.1 ***
U	0.06 ***
M	9. ***
	Ld^{50} = 10 dB
(k = 1)	
U	0.83 ***
M	9. ***
	$Ld^{99.9}$ = 12 dB

PROPAGATION PATH DATA

Path No. 7711-4

Site P	Site Q
Phun Phin (Tex)	Kanchanadit

Reflection Area(011A-1/3)

F (MHz)	900.00	***
K	1.333	***
hg1 (m)	5.0	***
hg2 (m)	25.0	***
d (km)	25.1	***
ha1′ (m)	47.0	***
ha2′ (m)	43.0	***
hr′ (m)	10.0	***
hr (m)		
d1 (m)	11.0	***
d2 (m)	14.1	***
ψ (D.MS)	0.1056	***
T1 (km)	14.3	***
Dv	0.63	***
ρ_e	0.7	***
Φr (deg)	180.0	***
Lr min(dB)	-4.6	***
Lr max(dB)	10.5	***

Variation of Reflection Loss(011A-3/3)

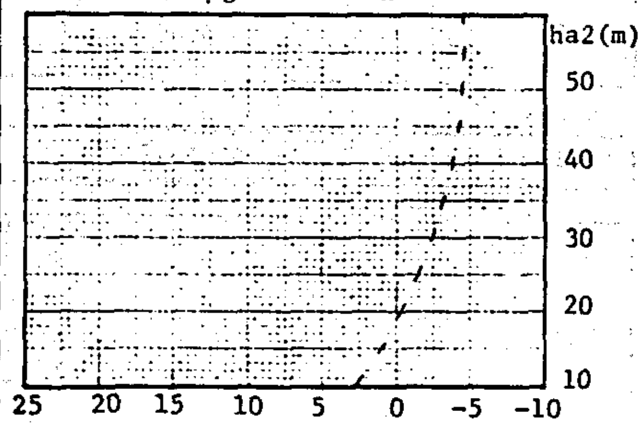
$K^{99.9}$	1.000	***
K^{50}	1.333	***
$K^{0.1}$	3.000	***
ha1′ (m)	47.0	***
ha2′ (m)	43.0	***
$Lr^{99.9}$ (dB)	-3.3	***
Lr^{50} (dB)	-4.1	***
$Lr^{0.1}$ (dB)	-4.6	***
ha1′ (m)		
ha1′ (m)		
$Lr^{99.9}$ (dB)		
Lr^{50} (dB)		
$Lr^{0.1}$ (dB)		

ha1 determined	47 (m)
ha2 determined	43 (m)

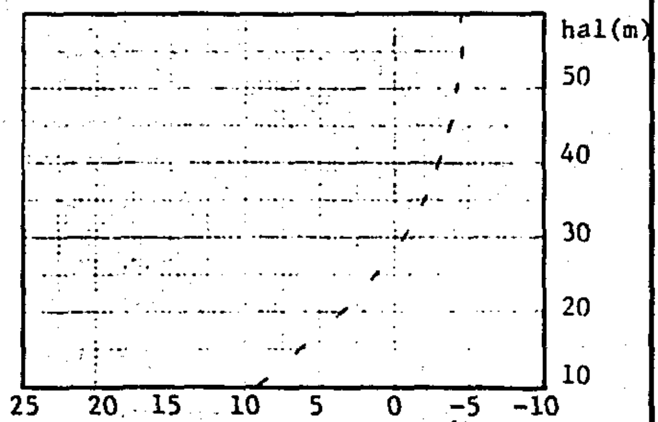
Reflection Loss(011A-2/3)

ha1′ (m)	47.0	***
Lr60m(dB)	-4.6	***
55	-4.6	***
50	-4.5	***
45	-4.2	***
40	-3.8	***
35	-3.2	***
30	-2.4	***
25	-1.5	***
20	-0.3	***
15	1.1	***
10	2.7	***
ha2′ (m)	43.0	***
Lr60m(dB)	-4.6	***
55	-4.6	***
50	-4.3	***
45	-3.8	***
40	-3.0	***
35	-1.9	***
30	-0.5	***
25	1.4	***
20	3.7	***
15	6.5	***
10	9.3	***

Height Pattern



Lr Pattern at Q (dB, ha1′ = 47 m)



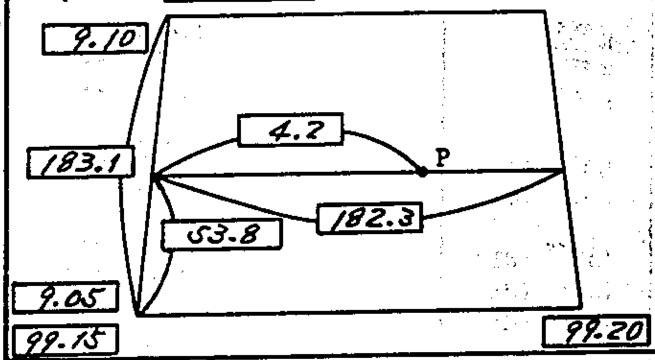
Lr Pattern at P (dB, ha2′ = 43 m)

PROPAGATION PATH DATA

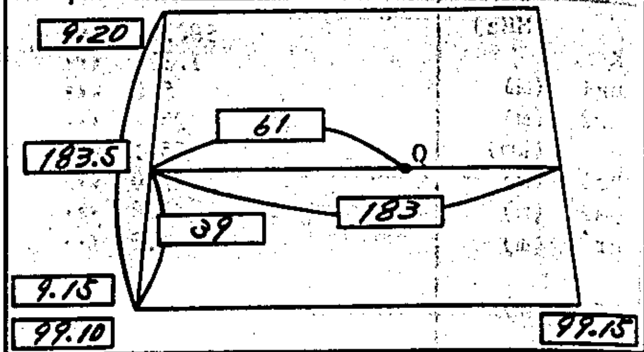
Path No. 7711-5

Site P	Site Q
Phun Phin (Tex)	Tha Chang

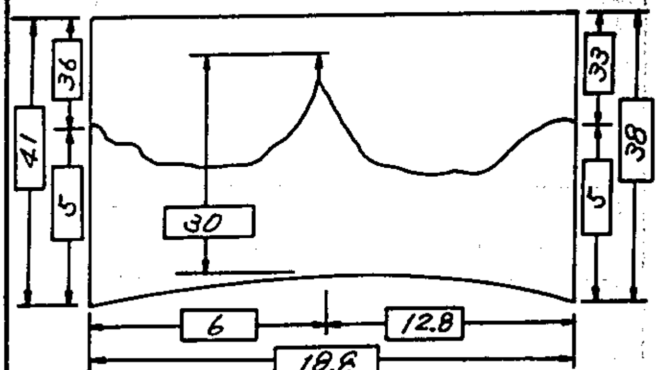
Map No. 4827 II



Map No. 4827 IV



Long-1 (D.MS)	99.1500 ***	Long-1 (D.MS)	99.1000 ***
Long-2 (D.MS)	99.2000 ***	Long-2 (D.MS)	99.1500 ***
Lati-1 (D.MS)	9.0500 ***	Lati-1 (D.MS)	9.1500 ***
Lati-2 (D.MS)	9.1000 ***	Lati-2 (D.MS)	9.2000 ***
X 1-2 (mm)	182.3 ***	X 1-2 (mm)	183.0 ***
X 1-0 (mm)	4.2 ***	X 1-0 (mm)	61.0 ***
Y 1-2 (mm)	183.1 ***	Y 1-2 (mm)	183.5 ***
Y 1-0 (mm)	53.9 ***	Y 1-0 (mm)	39.0 ***
Long. (D.MS)	99.1507 ***	Long. (D.MS)	99.1140 ***
Lati. (D.MS)	9.0628 ***	Lati. (D.MS)	9.1604 ***
G.Elevation	5 (m)	G.Elevation	5 (m)
Profile No.	5-7711-5	Type of Path	L/S (~~no~~ reflection)



Path Distance & Azimuth

Long-P (D.MS)	99.1507 ***
Lati-P (D.MS)	9.0628 ***
Long-Q (D.MS)	99.1140 ***
Lati-Q (D.MS)	9.1604 ***
d (km)	18.8 ***
α P→Q (D.MS)	340.2055 ***
α Q→P (D.MS)	160.2022 ***

Antenna Height & Diffraction Loss

d (km)	18.8 ***
d1 (km)	6.0 ***
hm (m)	30.0 ***
hg1 (m)	5.0 ***
hg2 (m)	5.0 ***
ha1 (m)	
ha1 (m)	36.0 ***
ha2 (m)	33.0 ***
(k = 4/3)	
hp (m)	35.5 ***
Rs (m)	36.9 ***
Cs (m)	5.5 ***
U	0.15 ***
M	10. ***
	Ld^{50} = 9 dB
(k = 1)	
U	0.11 ***
M	11. ***
	$Ld^{99.9}$ = 11 dB

PROPAGATION PATH DATA

Path No. 7711-5

Site P	Site Q
Phun Phin (Tex)	Tha Chang

Reflection Area(011A-1/3)

f (MHz)	900.00	***
K	1.333	***
hg1 (m)	5.0	***
hg2 (m)	5.0	***
d (km)	18.8	***
ha1′ (m)	36.0	***
ha2′ (m)	33.0	***
hr′ (m)	2.0	***
hr (m)		
d1 (m)	9.7	***
d2 (m)	9.1	***
ψ (D.MS)	0.1152	***
T1 (km)	11.5	***
Dv	0.87	***
ρe	0.6	***
Φr (deg)	180.0	***
Lr min(dB)	-5.1	***
Lr max(dB)	14.0	***

Variation of Reflection Loss(011A-3/3)

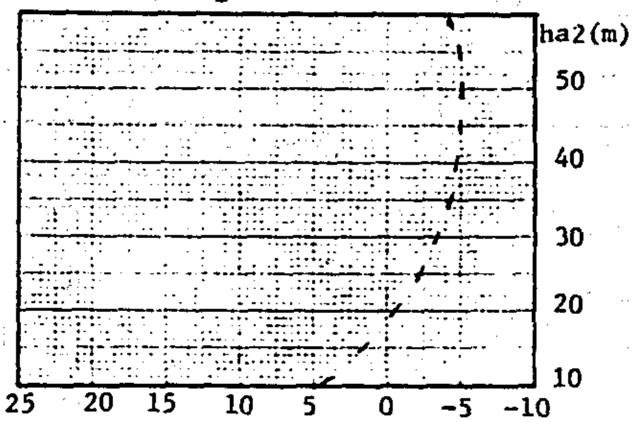
$K^{99.9}$	1.000	***
K^{50}	1.333	***
$K^{0.1}$	3.000	***
ha1′ (m)	36.0	***
ha2′ (m)	33.0	***
$Lr^{99.9}$ (dB)	-3.3	***
Lr^{50} (dB)	-3.9	***
$Lr^{0.1}$ (dB)	-4.6	***
ha1′ (m)		
ha1′ (m)		
$Lr^{99.9}$ (dB)		
Lr^{50} (dB)		
$Lr^{0.1}$ (dB)		

ha1 determined	36 (m)
ha2 determined	33 (m)

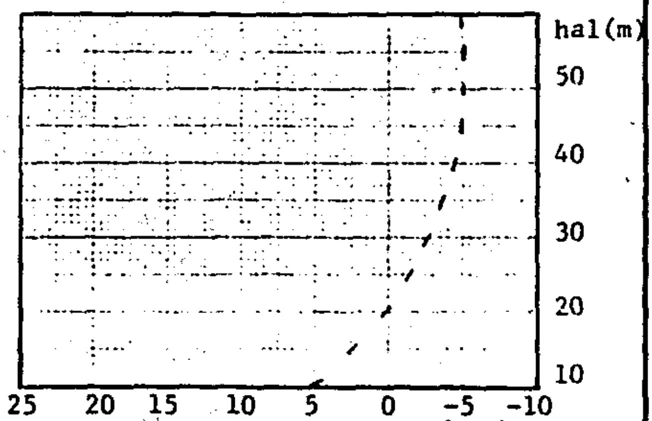
Reflection Loss(011A-2/3)

ha1′ (m)	36.0	***
Lr60m(dB)	-4.3	***
55	-4.9	***
50	-5.1	***
45	-5.6	***
40	-4.7	***
35	-4.2	***
30	-3.3	***
25	-2.1	***
20	-0.5	***
15	1.6	***
10	4.4	***
ha2′ (m)	33.0	***
Lr60m(dB)	-4.8	***
55	-5.1	***
50	-5.1	***
45	-4.9	***
40	-4.4	***
35	-3.7	***
30	-2.7	***
25	-1.4	***
20	0.2	***
15	2.4	***
10	5.3	***

Height Pattern



Lr Pattern at Q (dB, ha1′ = 36 m)



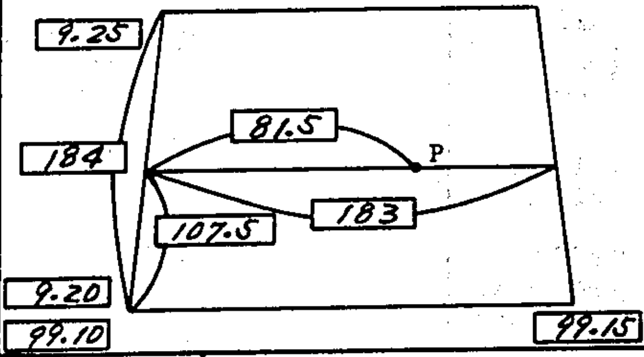
Lr Pattern at P (dB, ha2′ = 33 m)

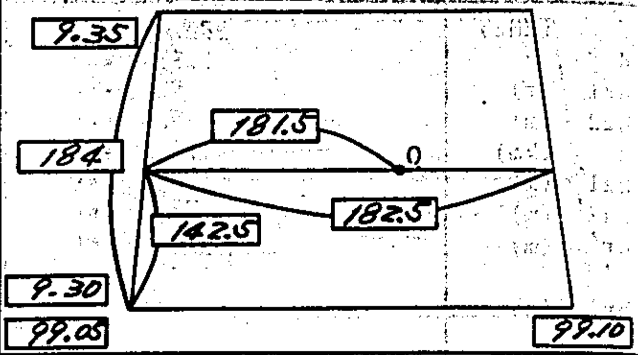
PROPAGATION PATH DATA

Path No. 7711-6

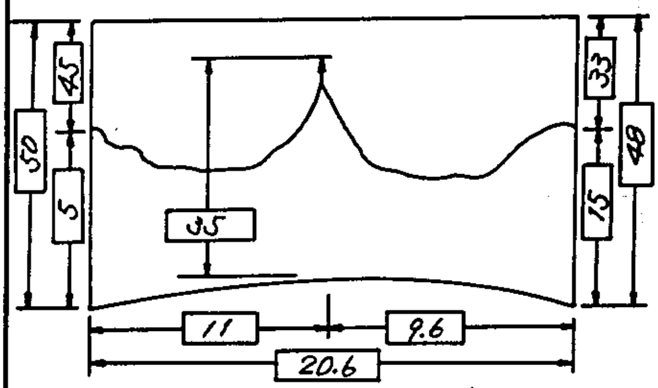
Site P	Site Q
Chai Ya	Tha Chana

Map No. 4827 IV	Map No. 4828 III





Long-1 (D.MS)	99.1000 **	Long-1 (D.MS)	99.0500 ***
Long-2 (D.MS)	99.1500 **	Long-2 (D.MS)	99.1000 ***
Lati-1 (D.MS)	9.2000 **	Lati-1 (D.MS)	9.3000 ***
Lati-2 (D.MS)	9.2500 **	Lati-2 (D.MS)	9.3500 ***
X 1-2 (mm)	183.0 ***	X 1-2 (mm)	182.5 ***
X 1-0 (mm)	81.5 ***	X 1-0 (mm)	181.5 ***
Y 1-2 (mm)	184.0 ***	Y 1-2 (mm)	184.0 ***
Y 1-0 (mm)	107.5 ***	Y 1-0 (mm)	142.5 ***
Long. (D.MS)	99.1214 ***	Long. (D.MS)	99.0958 ***
Lati. (D.MS)	9.2255 ***	Lati. (D.MS)	9.3352 ***
G.Elevation	5 (m)	G.Elevation	15 (m)
Profile No.	5-7711-6	Type of Path	L/S (~~no~~ reflection)



Path Distance & Azimuth

Long-P (D.MS)	99.1214 ***
Lati-P (D.MS)	9.2255 ***
Long-Q (D.MS)	99.0958 ***
Lati-Q (D.MS)	9.3352 ***
d (km)	20.6 ***
α P→Q (D.MS)	348.2718 ***
α Q→P (D.MS)	168.2645 ***

Antenna Height & Diffraction Loss

d (km)		20.6 ***
dl (km)		11.0 ***
hm (m)		35.0 ***
hg1 (m)		5.0 ***
hg2 (m)		15.0 ***
ha1 (m)		48.0 ***
ha1 (m)		45.0 ***
ha2 (m)		33.0 ***
(k = 4/3)		
hp (m)		42.7 ***
Rs (m)		41.3 ***
Cs (m)		7.7 ***
U		0.19 ***
M		15. ***
(k = 1)	Ld^{50} =	7 dB
U		0.14 ***
M		16. ***
	$Ld^{99.9}$ =	10 dB

PROPAGATION PATH DATA

Path No. 7711-6

Site P Chai Ya —— Site Q Tha Chana

Reflection Area(011A-1/3)

f (MHz)	900.00 ***
K	1.333 ***
hg1 (m)	5.0 ***
hg2 (m)	15.0 ***
d (km)	20.6 ***
ha1′ (m)	45.0 ***
ha2′ (m)	33.0 ***
hr′ (m)	10.0 ***
hr (m)	
d1 (m)	10.6 ***
d2 (m)	10.0 ***
ψ (D.MS)	0.1046 ***
T1 (km)	13.2 ***
Dv	0.85 ***
ρ_e	0.8 ***
Φr (deg)	180.0 ***
Lr min(dB)	-5.1 ***
Lr max(dB)	14.0 ***

Variation of Reflection Loss(011A-3/3)

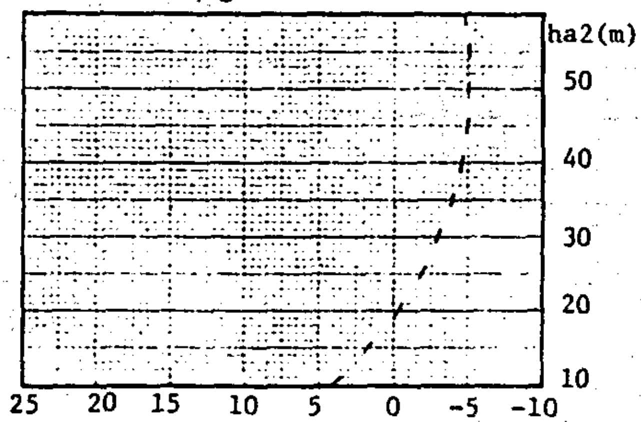
$K^{99.9}$	1.000 ***
K^{50}	1.333 ***
$K^{0.1}$	3.000 ***
ha1′ (m)	45.0 ***
ha2′ (m)	33.0 ***
$Lr^{99.9}$ (dB)	-2.7 ***
Lr^{50} (dB)	-3.5 ***
$Lr^{0.1}$ (dB)	-4.5 ***
ha1′ (m)	
ha1′ (m)	
$Lr^{99.9}$ (dB)	
Lr^{50} (dB)	
$Lr^{0.1}$ (dB)	

ha1 determined	45 (m)
ha2 determined	33 (m)

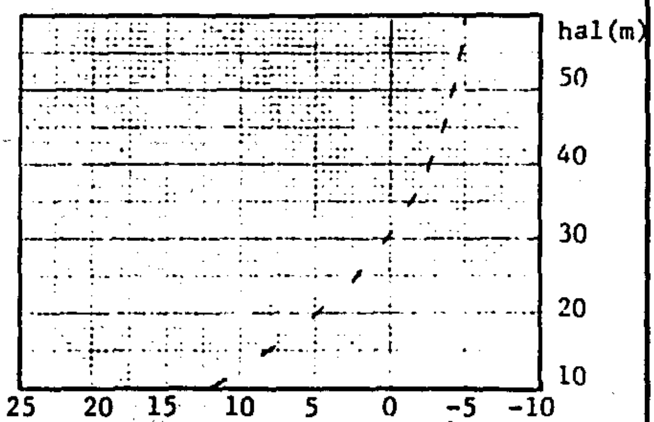
Reflection Loss(011A-2/3)

ha1′ (m)	45.0 ***
Lr60m(dB)	-4.8 ***
55	-5.1 ***
50	-5.1 ***
45	-4.9 ***
40	-4.5 ***
35	-3.9 ***
30	-2.9 ***
25	-1.8 ***
20	-0.2 ***
15	1.8 ***
10	4.4 ***
ha2′ (m)	33.0 ***
Lr60m(dB)	-5.0 ***
55	-4.7 ***
50	-4.2 ***
45	-3.5 ***
40	-2.6 ***
35	-1.3 ***
30	0.3 ***
25	2.3 ***
20	4.9 ***
15	8.3 ***
10	12.1 ***

Height Pattern



Lr Pattern at Q (dB, ha1′ = 45 m)

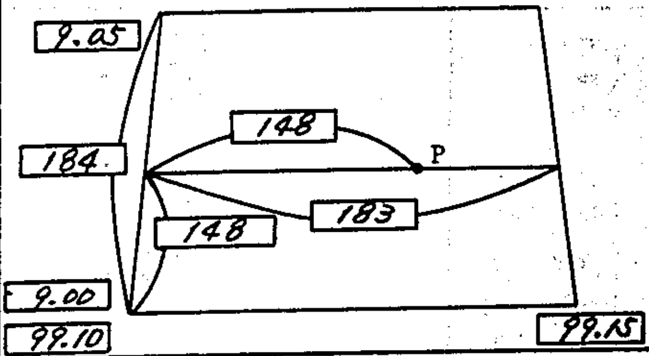


Lr Pattern at P (dB, ha2′ = 33 m)

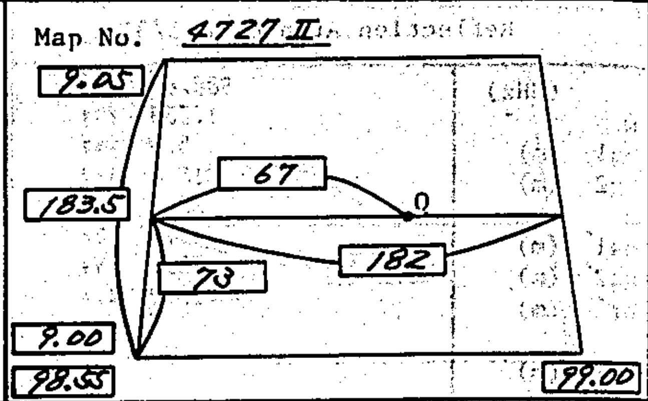
PROPAGATION PATH DATA	Path No. 7711-7

Site P	Site Q
Phun Phin (Radio)	Khiri Ratthanikhom

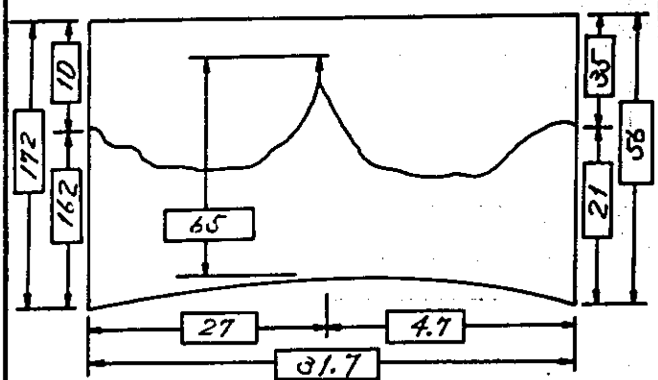
Map No. 4837 III



Map No. 4727 II



Long-1 (D.MS)	99.1000 ***	Long-1 (D.MS)	98.5500 ***
Long-2 (D.MS)	99.1500 ***	Long-2 (D.MS)	99.0000 ***
Lati-1 (D.MS)	9.0000 ***	Lati-1 (D.MS)	9.0000 ***
Lati-2 (D.MS)	9.0500 ***	Lati-2 (D.MS)	9.0500 ***
X 1-2 (mm)	183.0 ***	X 1-2 (mm)	182.0 ***
X 1-0 (mm)	148.0 ***	X 1-0 (mm)	67.0 ***
Y 1-2 (mm)	184.0 ***	Y 1-2 (mm)	183.5 ***
Y 1-0 (mm)	148.0 ***	Y 1-0 (mm)	73.0 ***
Long. (D.MS)	99.1403 ***	Long. (D.MS)	98.5650 ***
Lati. (D.MS)	9.0401 ***	Lati. (D.MS)	9.0159 ***
G.Elevation	162 (m)	G.Elevation	21 (m)
Profile No.	S-7711-7	Type of Path	L/S (~~no~~ reflection)



Path Distance & Azimuth

Long-P (D.MS)	99.1403 ***
Lati-P (D.MS)	9.0401 ***
Long-Q (D.MS)	98.5650 ***
Lati-Q (D.MS)	9.0159 ***
d (km)	31.7 ***
α P→Q (D.MS)	263.1438 ***
α Q→P (D.MS)	83.1155 ***

Antenna Height & Diffraction Loss

d (km)	31.7 ***
dl (km)	27.0 ***
hm (m)	65.0 ***
hg1 (m)	162.0 ***
hg2 (m)	21.0 ***
ha1 (m)	
ha1 (m)	10.0 ***
ha2 (m)	35.0 ***
(k = 4/3)	
hp (m)	65.7 ***
Rs (m)	36.5 ***
Cs (m)	0.7 ***
U	0.02 ***
M	Ld^{50} = 6 dB
(k = 1)	
U	
M	

8-PROPAGATION PATH DATA

Path No. 7711-7

Site P: Phun Phin (Radio) ——— Site Q: Khiri Ratthanikhom

Reflection Area(011A-1/3)

f (MHz)	900.00	***
K	1.333	***
hg1 (m)	162.0	***
hg2 (m)	21.0	***
d (km)	31.7	***
ha1′ (m)	10.0	***
ha2′ (m)	35.0	***
hr′ (m)	20.0	***
hr (m)		
d1 (m)	24.6	***
d2 (m)	7.1	***
ψ (D.MS)	0.1613	***
T1 (km)	9.1	***
Dv	0.99	***
ρe	0.7	***
Φr (deg)	180.0	***
Lr min(dB)	-4.6	***
Lr max(dB)	10.5	***

Variation of Reflection Loss(011A-3/3)

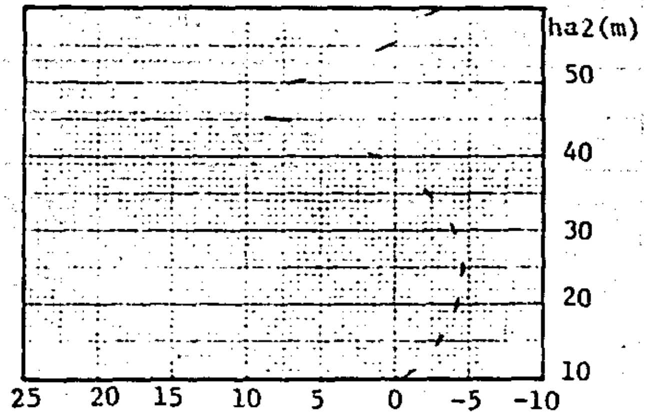
$K^{99.9}$	1.000	***
K^{50}	1.333	***
$K^{0.1}$	3.000	***
ha1′ (m)	10.0	***
ha2′ (m)	35.0	***
$Lr^{99.9}$ (dB)	-3.6	***
Lr^{50} (dB)	-2.3	***
$Lr^{0.1}$ (dB)	4.1	***
ha1′ (m)		
ha1′ (m)		
$Lr^{99.9}$ (dB)		
Lr^{50} (dB)		
$Lr^{0.1}$ (dB)		

ha1 determined	10 (m)
ha2 determined	35 (m)

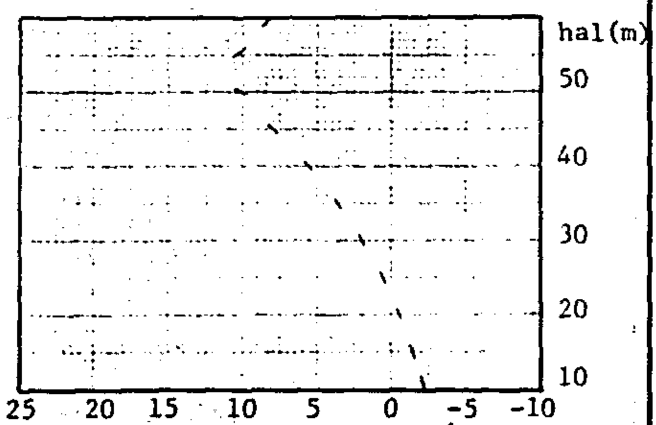
Reflection Loss(011A-2/3)

ha1′ (m)	10.0	***
Lr60m(dB)	-2.8	***
55	0.5	***
50	6.9	***
45	8.1	***
40	1.2	***
35	-2.3	***
30	-4.0	***
25	-4.6	***
20	-4.2	***
15	-2.9	***
10	-0.4	***
ha2′ (m)	35.0	***
Lr60m(dB)	8.3	***
55	10.2	***
50	10.9	***
45	8.8	***
40	5.6	***
35	3.6	***
30	1.9	***
25	0.6	***
20	-0.6	***
15	-1.5	***
10	-2.3	***

Height Pattern



Lr Pattern at Q (dB, ha1′ = 10 m)



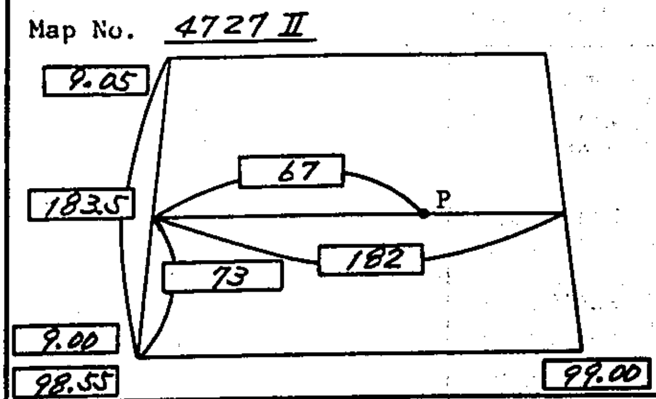
Lr Pattern at P (dB, ha2′ = 35 m)

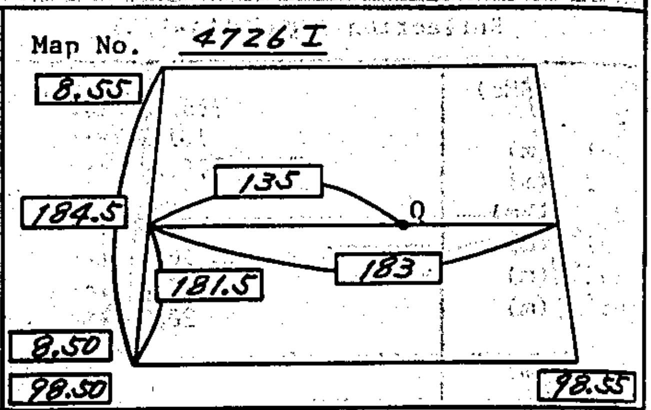
PROPAGATION PATH DATA

Path No. 7711-8

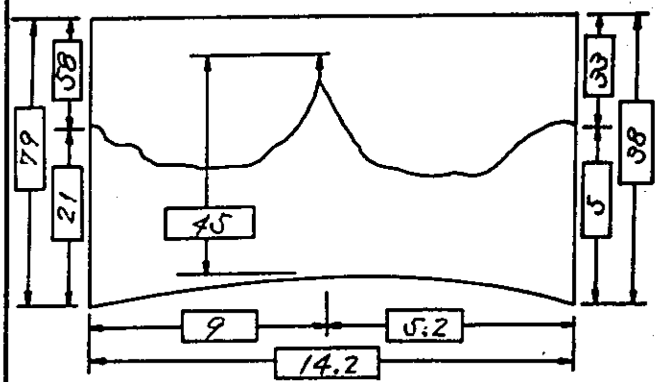
Site P: Khiri Ratthanikhom — Site Q: Ban Takhun

Site P	Site Q
Map No. 4727 II	Map No. 4726 I





Long-1(D.MS)	98.5500 ***	Long-1(D.MS)	98.5000 ***
Long-2(D.MS)	99.0000 ***	Long-2(D.MS)	98.5500 ***
Lati-1(D.MS)	9.0000 ***	Lati-1(D.MS)	8.5000 ***
Lati-2(D.MS)	9.0500 ***	Lati-2(D.MS)	8.5500 ***
X 1-2(mm)	182.0 ***	X 1-2(mm)	183.0 ***
X 1-0(mm)	67.0 ***	X 1-0(mm)	135.0 ***
Y 1-2(mm)	183.5 ***	Y 1-2(mm)	184.5 ***
Y 1-0(mm)	73.0 ***	Y 1-0(mm)	181.5 ***
Long. (D.MS)	98.5650 ***	Long. (D.MS)	98.5341 ***
Lati. (D.MS)	9.0159 ***	Lati. (D.MS)	8.5455 ***
G.Elevation	21 (m)	G.Elevation	5 (m)
Profile No.	5-7711-8	Type of Path	L/S (~~no~~ reflection)



Path Distance & Azimuth

Long-P (D.MS)	98.5650 ***
Lati-P (D.MS)	9.0159 ***
Long-Q (D.MS)	98.5341 ***
Lati-Q (D.MS)	8.5455 ***
d (km)	14.2 ***
α P→Q(D.MS)	203.5435 ***
α Q→P(D.MS)	23.5406 ***

Antenna Height & Diffraction Loss

d (km)	14.2 ***
d1 (km)	9.0 ***
hm (m)	45.0 ***
hg1 (m)	21.0 ***
hg2 (m)	5.0 ***
ha1 (m)	53.0 ***
ha1 (m)	58.0 ***
ha2 (m)	33.0 ***
(k = 4/3)	
hp (m)	50.3 ***
Rs (m)	33.1 ***
Cs (m)	5.3 ***
U	0.15 ***
M	Ld 50 = 12 dB
(k = 1)	
U	
M	

PROPAGATION PATH DATA

Path No. 7711-8

Site P	Site Q
Khiri Ratthanikhom	Ban Takhun

Reflection Area (011A-1/3)

f (MHz)	900.00 ***
K	1.333 ***
hg1 (m)	21.0 ***
hg2 (m)	5.0 ***
d (km)	14.2 ***
ha1' (m)	58.0 ***
ha2' (m)	33.0 ***
hr' (m)	10.0 ***
hr (m)	
d1 (m)	10.0 ***
d2 (m)	4.2 ***
ψ (D.MS)	0.2144 ***
T1 (km)	5.0 ***
Dv	0.95 ***
ρe	0.6 ***
Φr (deg)	180.0 ***
Lr min(dB)	-4.1 ***
Lr max(dB)	8.0 ***

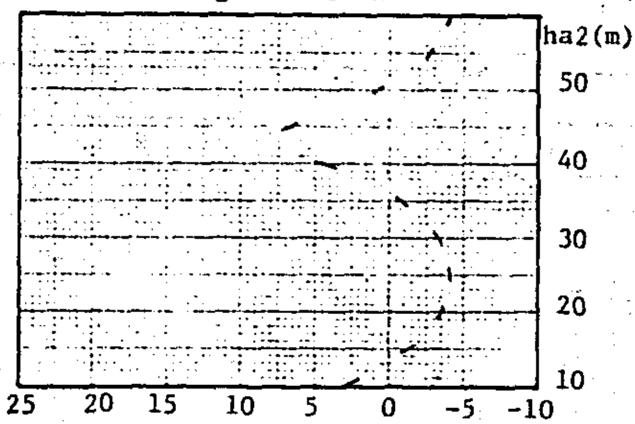
Variation of Reflection Loss (011A-3/3)

$K^{99.9}$	1.000 ***
K^{50}	1.333 ***
$K^{0.1}$	3.000 ***
ha1' (m)	58.0 ***
ha2' (m)	33.0 ***
$Lr^{99.9}$ (dB)	-2.6 ***
Lr^{50} (dB)	-2.0 ***
$Lr^{0.1}$ (dB)	-0.0 ***
ha1' (m)	
ha1' (m)	
$Lr^{99.9}$ (dB)	
Lr^{50} (dB)	
$Lr^{0.1}$ (dB)	
ha1 determined	58 (m)
ha2 determined	33 (m)

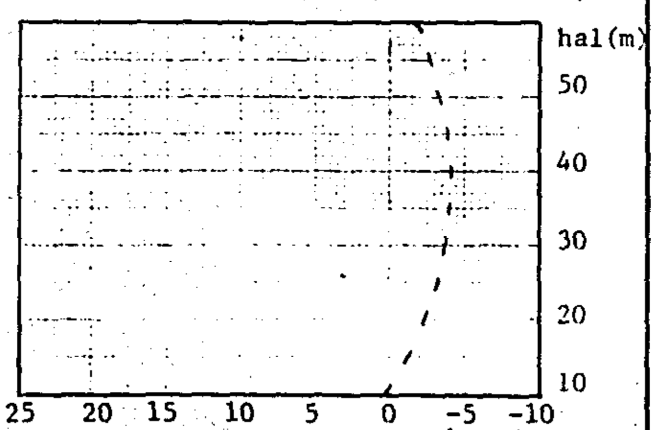
Reflection Loss (011A-2/3)

ha1' (m)	58.0 ***
Lr60m(dB)	-4.0 ***
55	-2.7 ***
50	0.8 ***
45	6.9 ***
40	4.4 ***
35	-0.8 ***
30	-3.3 ***
25	-4.1 ***
20	-3.5 ***
15	-1.3 ***
10	3.0 ***
ha2' (m)	33.0 ***
Lr60m(dB)	-1.5 ***
55	-2.6 ***
50	-3.4 ***
45	-3.9 ***
40	-4.1 ***
35	-4.0 ***
30	-3.7 ***
25	-3.2 ***
20	-2.3 ***
15	-1.2 ***
10	0.3 ***

Height Pattern



Lr Pattern at Q (dB, ha1' = 58 m)



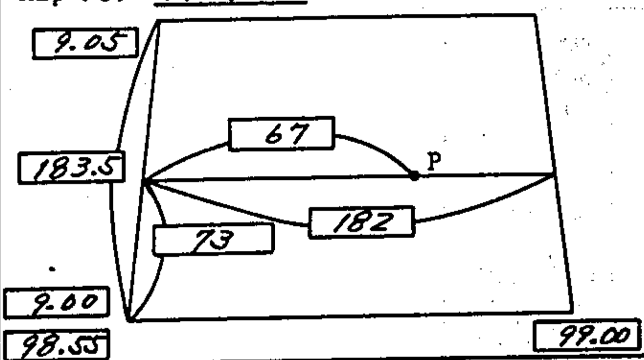
Lr Pattern at P (dB, ha2' = 33 m)

PROPAGATION PATH DATA

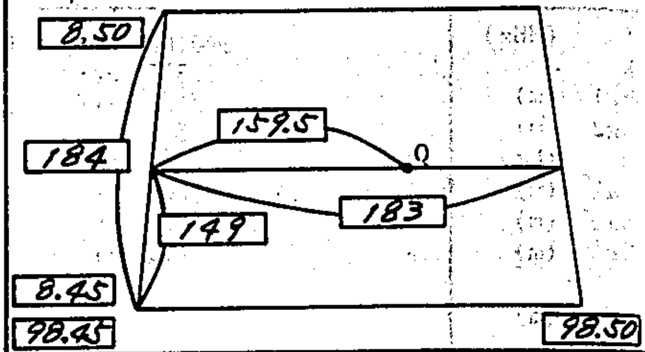
Path No. 7711-9

Site P	Site Q
Khiri Ratthanikhom	Phanom

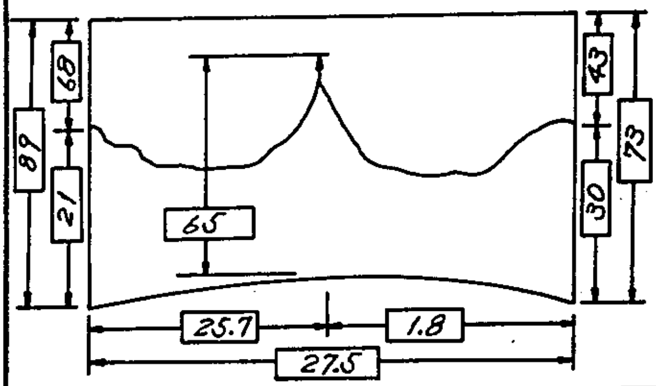
Map No. 4727 II



Map No. 4726 I



Long-1(D.MS)	98.5500 ***	Long-1(D.MS)	98.4500 ***
Long-2(D.MS)	99.0000 ***	Long-2(D.MS)	98.5000 ***
Lati-1(D.MS)	9.0000 ***	Lati-1(D.MS)	8.4500 ***
Lati-2(D.MS)	9.0500 ***	Lati-2(D.MS)	8.5000 ***
X 1-2(mm)	182.0 ***	X 1-2(mm)	183.0 ***
X 1-0(mm)	67.0 ***	X 1-0(mm)	159.5 ***
Y 1-2(mm)	183.5 ***	Y 1-2(mm)	184.0 ***
Y 1-0(mm)	73.0 ***	Y 1-0(mm)	149.0 ***
Long. (D.MS)	98.5650 ***	Long. (D.MS)	98.4921 ***
Lati. (D.MS)	9.0159 ***	Lati. (D.MS)	8.4903 ***
G.Elevation	21 (m)	G.Elevation	30 (m)
Profile No.	5-7711-9	Type of Path	L/S (~~no~~ reflection)



Path Distance & Azimuth

Long-P (D.MS)	98.5650 ***
Lati-P (D.MS)	9.0159 ***
Long-Q (D.MS)	98.4921 ***
Lati-Q (D.MS)	8.4903 ***
d (km)	27.5 ***
α P→Q(D.MS)	209.5433 ***
α Q→P(D.MS)	29.5323 ***

Antenna Height & Diffraction Loss

d (km)	27.5 ***
dl (km)	25.7 ***
hm (m)	65.0 ***
hg1 (m)	21.0 ***
hg2 (m)	30.0 ***
ha1 (m)	58.0 ***
ha1 (m)	58.0 ***
ha2 (m)	43.0 ***
(k = 4/3)	
hp (m)	71.3 ***
Rs (m)	23.7 ***
Cs (m)	6.3 ***
U	0.27 ***
M	16. ***
	Ld 50 = 6 dB
(k = 1)	
U	0.27 ***
M	17. ***
	Ld 99.9 = 7 dB

PROPAGATION PATH DATA

Path No. 7711-9

Site P		Site Q
Khiri Ratthanikhom	——	Phanom

Reflection Area(011A-1/3)

f (MHz)	300.00 ***
K	1.333 ***
hg1 (m)	21.0 ***
hg2 (m)	30.0 ***
d (km)	27.5 ***
ha1′ (m)	68.0 ***
ha2′ (m)	43.0 ***
hr′ (m)	10.0 ***
hr (m)	
d1 (m)	15.0 ***
d2 (m)	12.5 ***
ψ (D.MS)	0.1501 ***
T1 (km)	10.9 ***
Dv	0.86 ***
ρ_e	0.6 ***
Φr (deg)	180.0 ***
Lr min(dB)	-4.1 ***
Lr max(dB)	8.0 ***

Variation of Reflection Loss(011A-3/3)

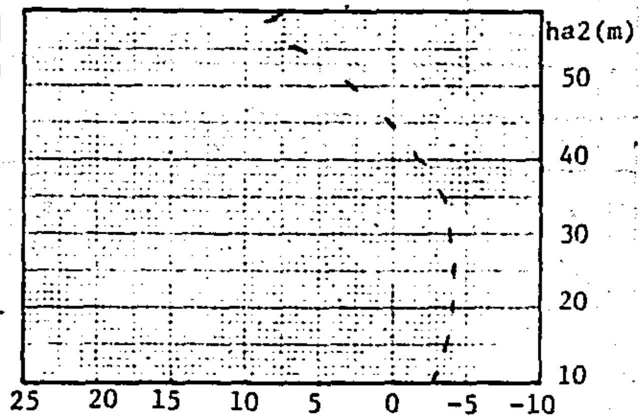
$K^{99.9}$	1.000 ***
K^{50}	1.333 ***
$K^{0.1}$	3.000 ***
ha1′ (m)	68.0 ***
ha2′ (m)	43.0 ***
$Lr^{99.9}$ (dB)	-2.7 ***
Lr^{50} (dB)	-0.8 ***
$Lr^{0.1}$ (dB)	6.1 ***
ha1′ (m)	
ha1′ (m)	
$Lr^{99.9}$ (dB)	
Lr^{50} (dB)	
$Lr^{0.1}$ (dB)	

ha1 determined	68 (m)
ha2 determined	43 (m)

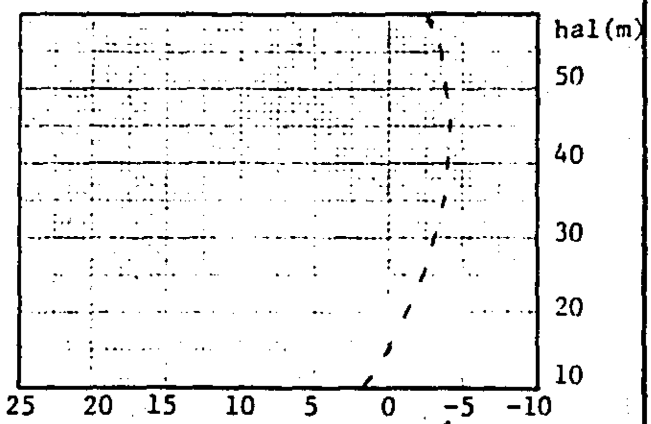
Reflection Loss(011A-2/3)

ha1′ (m)	68.0 ***
Lr60m(dB)	7.7 ***
55	6.4 ***
50	2.8 ***
45	0.1 ***
40	-1.5 ***
35	-3.0 ***
30	-3.8 ***
25	-4.1 ***
20	-4.0 ***
15	-3.6 ***
10	-2.3 ***
ha2′ (m)	43.0 ***
Lr60m(dB)	-2.7 ***
55	-3.5 ***
50	-3.9 ***
45	-4.1 ***
40	-4.0 ***
35	-3.7 ***
30	-3.1 ***
25	-2.3 ***
20	-1.2 ***
15	0.1 ***
10	1.7 ***

Height Pattern



Lr Pattern at Q (dB, ha1′ = 68 m)

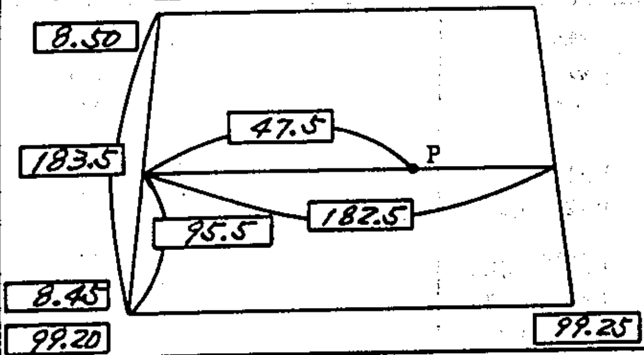


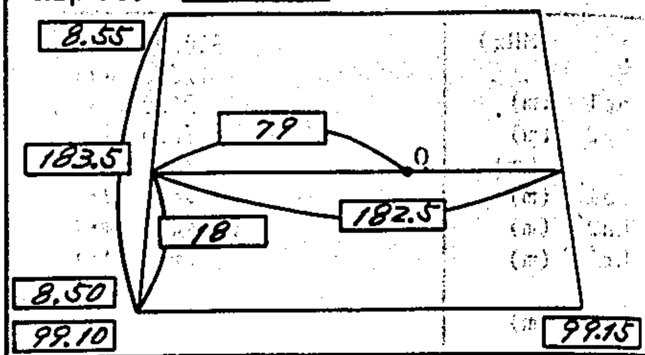
Lr Pattern at P (dB, ha2′ = 43 m)

PROPAGATION PATH DATA

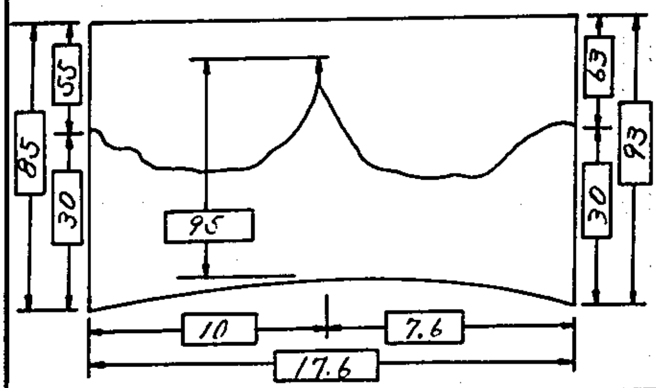
Path No. 7711-10

Site P	Site Q
Ban Na San	Khian Sa
Map No. 4826 I	Map No. 4826 IV





Long-1(D.MS)	99.2000 ***	Long-1(D.MS)	99.1000 ***
Long-2(D.MS)	95.2500 ***	Long-2(D.MS)	95.1500 ***
Lati-1(D.MS)	8.4500 ***	Lati-1(D.MS)	8.5000 ***
Lati-2(D.MS)	8.5000 ***	Lati-2(D.MS)	8.5500 ***
X 1-2(mm)	182.5 ***	X 1-2(mm)	182.5 ***
X 1-0(mm)	47.5 ***	X 1-0(mm)	79.0 ***
Y 1-2(mm)	183.5 ***	Y 1-2(mm)	163.5 ***
Y 1-0(mm)	95.5 ***	Y 1-0(mm)	18.0 ***
Long. (D.MS)	99.2118 ***	Long. (D.MS)	99.1210 ***
Lati. (D.MS)	8.4736 ***	Lati. (D.MS)	8.5829 ***
G.Elevation	30 (m)	G.Elevation	30 (m)
Profile No.	5-7711-10	Type of Path	Mountain Diffraction



Path Distance & Azimuth

Long-P (D.MS)	99.2118 ***
Lati-P (D.MS)	8.4736 ***
Long-Q (D.MS)	99.1210 ***
Lati-Q (D.MS)	8.5829 ***
d (km)	17.6 ***
α P→Q(D.MS)	287.3230 ***
α Q→P(D.MS)	107.3797 ***

Antenna Height & Diffraction Loss

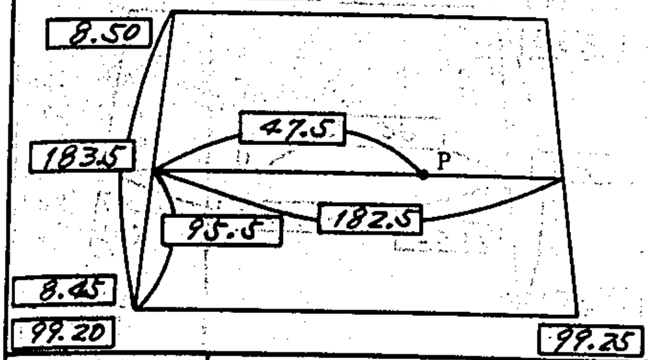
d (km)	17.6 ***
d1 (km)	10.0 ***
hm (m)	95.0 ***
hg1 (m)	30.0 ***
hg2 (m)	30.0 ***
ha1 (m)	
ha1 (m)	55.0 ***
ha2 (m)	63.0 ***
(k = 4/3)	
hp (m)	85.0 ***
Rs (m)	37.9 ***
Cs (m)	-9.9 ***
U	-0.26 ***
M	-6. ***
	Ld^{50} = 9 dB
(k = 1)	
U	-0.30 ***
M	-6. ***
	$Ld^{99.9}$ = 10 dB

PROPAGATION PATH DATA

Path No. 7711-11

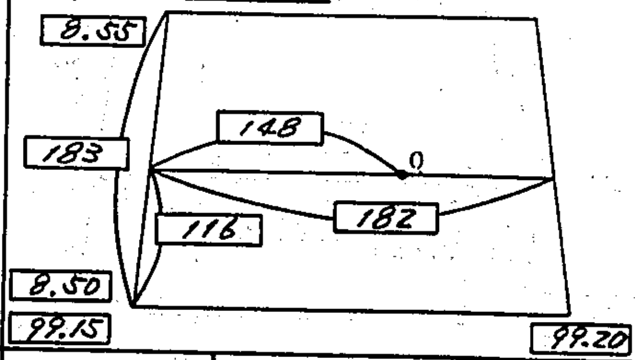
Site P	Site Q
Ban Na San	Ban Na Doem

Map No. 4826 I

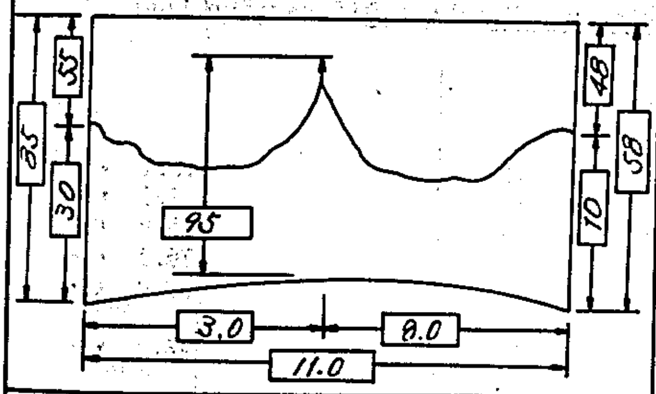


Long-1(D.MS)	99.2000 ***
Long-2(D.MS)	99.2500 ***
Lati-1(D.MS)	8.4500 ***
Lati-2(D.MS)	8.5000 ***
X 1-2(mm)	182.5 ***
X 1-0(mm)	47.5 ***
Y 1-2(mm)	183.5 ***
Y 1-0(mm)	95.5 ***
Long. (D.MS)	99.2118 ***
Lati. (D.MS)	8.4736 ***
G.Elevation	30 (m)
Profile No.	5-7711-11

Map No. 4826 I



Long-1(D.MS)	99.1500 ***
Long-2(D.MS)	99.2000 ***
Lati-1(D.MS)	8.5000 ***
Lati-2(D.MS)	8.5500 ***
X 1-2(mm)	182.0 ***
X 1-0(mm)	148.0 ***
Y 1-2(mm)	163.0 ***
Y 1-0(mm)	116.0 ***
Long. (D.MS)	99.1904 ***
Lati. (D.MS)	8.5310 ***
G.Elevation	10 (m)
Type of Path	**Mountain Diffraction**



Path Distance & Azimuth

Long-P (D.MS)	99.2118 ***
Lati-P (D.MS)	8.4736 ***
Long-Q (D.MS)	99.1904 ***
Lati-Q (D.MS)	8.5310 ***
d (km)	11.0 ***
α P→Q(D.MS)	336.1356 ***
α Q→P(D.MS)	158.1[illegible] ***

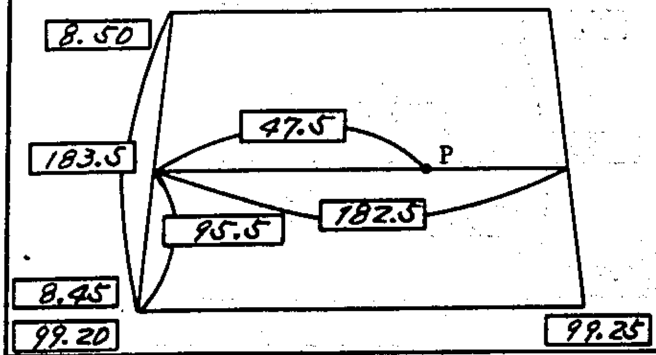
Antenna Height & Diffraction Loss

d (km)	11.0 ***
d1 (km)	3.0 ***
hm (m)	95.0 ***
hg1 (m)	30.0 ***
hg2 (m)	10.0 ***
ha1 (m)	58.0 ***
ha1 (m)	[illegible] ***
ha2 (m)	48.0 ***
(k = 1)	
hp (m)	76.2
Rs (m)	27.0 ***
Cs (m)	-18.9 ***
U	-[illegible].70 ***
M	-23. ***
	Ld 50 = 15 dB
(k = 1)	
U	-0.71 ***
M	-25. ***
	Ld 99.9 = 17 dB

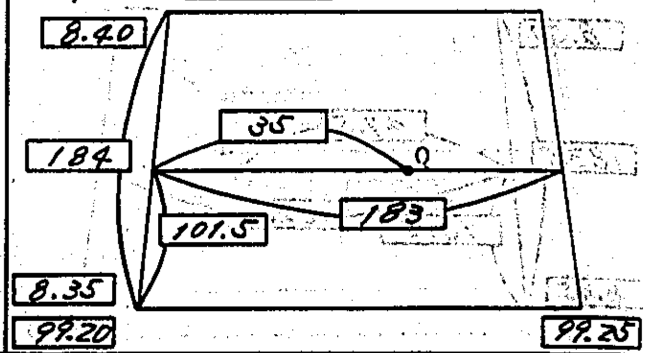
PROPAGATION PATH DATA	Path No. 7711-12

Site P	Ban Na San	Site Q	Wiang Sa

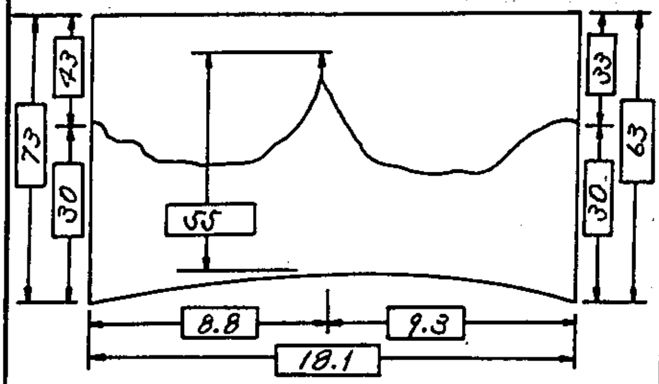
Map No. 4826 I



Map No. 4826 II



Long-1(D.MS) Long-2(D.MS) Lati-1(D.MS) Lati-2(D.MS)	99.2000 *** 99.2500 *** 8.4500 *** 8.5000 ***	Long-1(D.MS) Long-2(D.MS) Lati-1(D.MS) Lati-2(D.MS)	99.2000 *** 99.2500 *** 8.3500 *** 8.4000 ***
X 1-2(mm) X 1-0(mm) Y 1-2(mm) Y 1-0(mm)	182.5 *** 47.5 *** 183.5 *** 95.5 ***	X 1-2(mm) X 1-0(mm) Y 1-2(mm) Y 1-0(mm)	183.0 *** 35.0 *** 184.0 *** 101.5 ***
Long. (D.MS) Lati. (D.MS)	99.2118 *** 8.4736 ***	Long. (D.MS) Lati. (D.MS)	99.2057 *** 8.3745 ***
G.Elevation	30 (m)	G.Elevation	30 (m)
Profile No.	S-7711-12	Type of Path	L/S (~~no~~ reflection)



Path Distance & Azimuth		Antenna Height & Diffraction Loss	
Long-P (D.MS) Lati-P (D.MS) Long-Q (D.MS) Lati-Q (D.MS)	99.2118 *** 8.4736 *** 99.2057 *** 8.3745 ***	d (km) d1 (km) hm (m) hg1 (m) hg2 (m)	18.1 *** 8.8 *** 55.0 *** 30.0 *** 30.0 ***
d (km)	18.1 ***	ha1 (m)	46.0 ***
α P→Q(D.MS) α Q→P(D.MS)	181.5953 *** 1.5950 ***	ha1 (m) ha2 (m) (k = 4/3) hp (m) Rs (m) Cs (m) U M (k = 1) U M	43.0 *** 33.0 *** 63.3 *** 38.8 *** 8.3 *** 0.21 *** 14.0 *** Ld^{50} = 11 dB (0.17) *** (15.0) *** $Ld^{99.9}$ = 13 dB

PROPAGATION PATH DATA

Path No.	7711-12
Site P	Ban Na San
Site Q	Wiang Sa

Reflection Area(011A-1/3)

f (MHz)	900.00	***
K	1.333	***
hg1 (m)	30.0	***
hg2 (m)	30.0	***
d (km)	18.1	***
ha1′ (m)	43.0	***
ha2′ (m)	33.0	***
hr′ (m)	28.0	***
hr (m)	29.0	***
d1 (m)	10.0	***
d2 (m)	8.1	***
ψ (D.MS)	0.1302	***
T1 (km)	10.2	***
Dv	0.88	***
ρ_e	0.7	***
Φr (deg)	180.0	***
Lr min(dB)	-4.6	***
Lr max(dB)	10.5	***

Variation of Reflection Loss(011A-3/3)

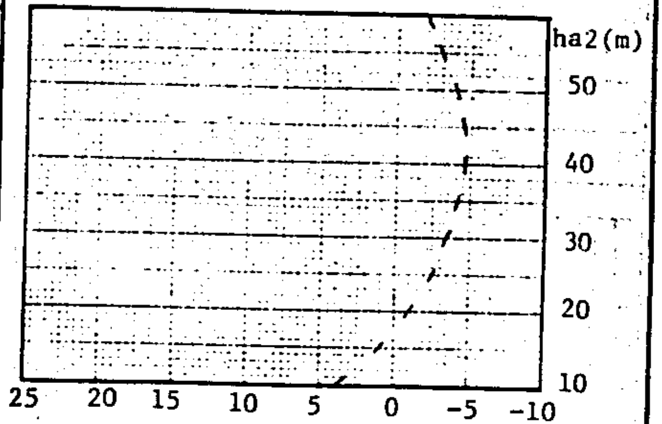
$K^{99.9}$	1.000	***
K^{50}	1.333	***
$K^{0.1}$	3.000	***
ha1′ (m)	43.0	***
ha2′ (m)	33.0	***
$Lr^{99.9}$ (dB)	-3.6	***
Lr^{50} (dB)	-4.0	***
$Lr^{0.1}$ (dB)	-4.5	***
ha1′ (m)		
ha1′ (m)		
$Lr^{99.9}$ (dB)		
Lr^{50} (dB)		
$Lr^{0.1}$ (dB)		

ha1 determined	43 (m)
ha2 determined	33 (m)

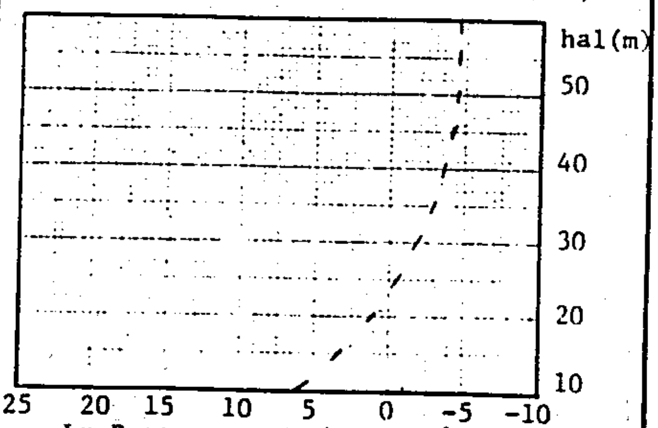
Reflection Loss(011A-2/3)

ha1′ (m)	43.0	***
Lr60m(dB)	-2.1	***
55	-3.4	***
50	-4.2	***
45	-4.6	***
40	-4.5	***
35	-4.2	***
30	-3.5	***
25	-2.5	***
20	-0.9	***
15	1.2	***
10	4.6	***
ha2′ (m)	33.0	***
Lr60m(dB)	-4.5	***
55	-4.6	***
50	-4.5	***
45	-4.2	***
40	-3.7	***
35	-2.9	***
30	-1.8	***
25	-0.5	***
20	1.3	***
15	3.5	***
10	6.1	***

Height Pattern



Lr Pattern at Q (dB, ha1′= 43 m)

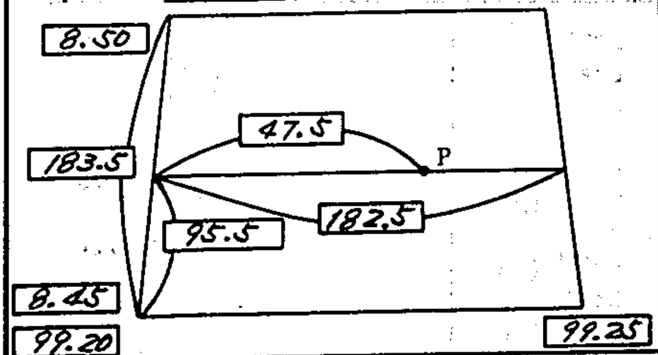


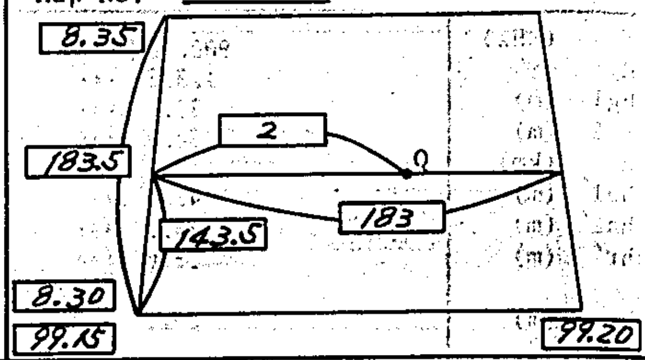
Lr Pattern at P (dB, ha2′= 33 m)

PROPAGATION PATH DATA	Path No. 7711-13

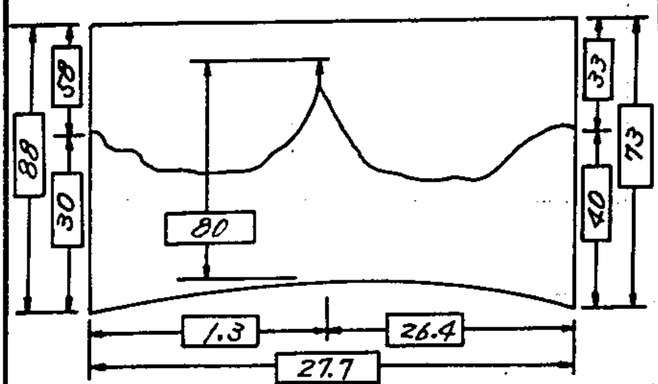
Site P	Site Q
Ban Na San	Prasaeng

Map No. 4826 I	Map No. 4826 II





Site P		Site Q	
Long-1 (D.MS)	99.2000 ***	Long-1 (D.MS)	99.1500 ***
Long-2 (D.MS)	99.2500 ***	Long-2 (D.MS)	99.2000 ***
Lati-1 (D.MS)	8.4500 ***	Lati-1 (D.MS)	8.3000 ***
Lati-2 (D.MS)	8.5000 ***	Lati-2 (D.MS)	8.3500 ***
X 1-2 (mm)	182.5 ***	X 1-2 (mm)	183.0 ***
X 1-0 (mm)	47.5 ***	X 1-0 (mm)	2.0 ***
Y 1-2 (mm)	183.5 ***	Y 1-2 (mm)	183.5 ***
Y 1-0 (mm)	95.5 ***	Y 1-0 (mm)	143.5 ***
Long. (D.MS)	99.2118 ***	Long. (D.MS)	99.1503 ***
Lati. (D.MS)	8.4736 ***	Lati. (D.MS)	8.3355 ***
G.Elevation	30 (m)	G.Elevation	40 (m)
Profile No.	S-7711-13	Type of Path	L/S (~~no~~ reflection)



Path Distance & Azimuth

Long-P (D.MS)	99.2118 ***
Lati-P (D.MS)	8.4736 ***
Long-Q (D.MS)	99.1503 ***
Lati-Q (D.MS)	8.3355 ***
d (km)	27.7 ***
α P→Q (D.MS)	204.2529 **
α Q→P (D.MS)	24.2433 *

Antenna Height & Diffraction Loss

d	(km)	27.7 ***
d1	(km)	1.3 ***
hm	(m)	80.0 ***
hg1	(m)	30.0 ***
hg2	(m)	40.0 ***
ha1	(m)	53.0 ***
ha1	(m)	53.0 ***
ha2	(m)	33.0 ***
(k = 4/3)		
hp	(m)	85.3 ***
Rs	(m)	20.3 ***
Cs	(m)	5.3 ***
U		0.26 ***
M		Ld^{50} = 13 dB
(k = 1)		
U		
M		

PROPAGATION PATH DATA

Path No.	7711-13

Site P	Ban Na San	Site Q	Prasaeng

Reflection Area(011A-1/3)

f (MHz)	900.00	***
K	1.333	***
hg1 (m)	30.0	***
hg2 (m)	40.0	***
d (km)	27.7	***
ha1′ (m)	58.0	***
ha2′ (m)	33.0	***
hr′ (m)	25.0	***
hr (m)		
d1 (m)	15.4	***
d2 (m)	12.3	***
ψ (D.MS)	0.1059	***
T1 (km)	14.5	***
Dv	0.82	***
ρc	0.7	***
Φr (deg)	180.0	***
Lr min(dB)	-4.6	***
Lr max(dB)	10.5	***

Variation of Reflection Loss(011A-3/3)

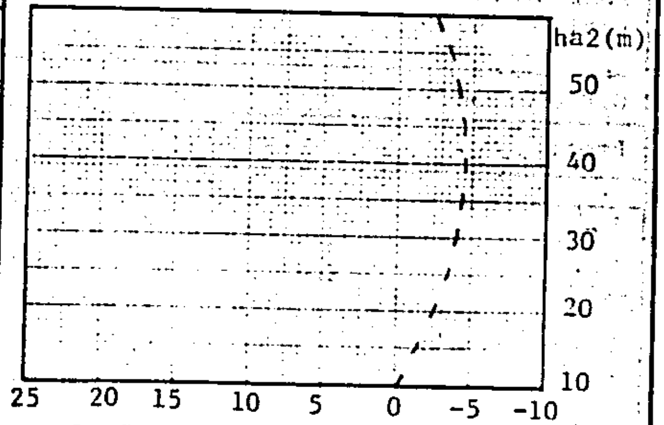
$K^{99.9}$	1.000	***
K^{50}	1.333	***
$K^{0.1}$	3.000	***
ha1′ (m)	58.0	***
ha2′ (m)	33.0	***
$Lr^{99.9}$ (dB)	-3.6	***
Lr^{50} (dB)	-4.3	***
$Lr^{0.1}$ (dB)	-4.5	***
ha1′ (m)		
ha1′ (m)		
$Lr^{99.9}$ (dB)		
Lr^{50} (dB)		
$Lr^{0.1}$ (dB)		

ha1 determined	58 (m)
ha2 determined	33 (m)

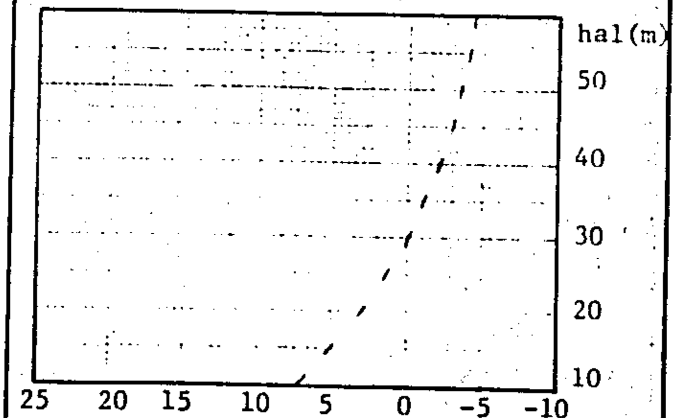
Reflection Loss(011A-2/3)

ha1′ (m)	58.0	***
Lr60m(dB)	-2.5	***
55	-3.5	***
50	-4.2	***
45	-4.5	***
40	-4.6	***
35	-4.4	***
30	-4.0	***
25	-3.4	***
20	-2.5	***
15	-1.3	***
10	0.3	***
ha2′ (m)	33.0	***
Lr60m(dB)	-4.4	***
55	-4.1	***
50	-3.6	***
45	-3.0	***
40	-2.2	***
35	-1.2	***
30	2.532274118-02	***
25	1.5	***
20	3.1	***
15	5.1	***
10	7.2	***

Height Pattern



Lr Pattern at Q (dB, ha1′ = 58 m)

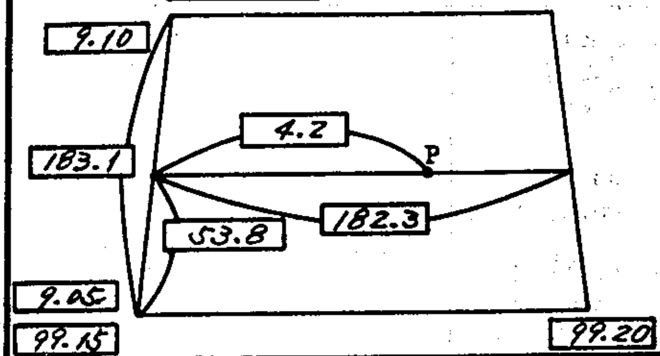


Lr Pattern at P (dB, ha2′ = 33 m)

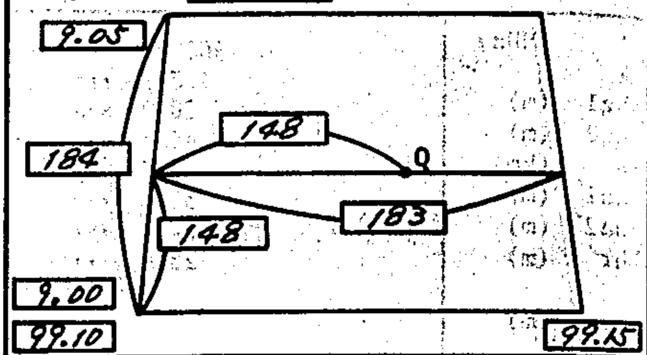
PROPAGATION PATH DATA

Path No.	7711-14		
Site P	Phun Phin (Tex)	Site Q	Phun Phin (Radio)

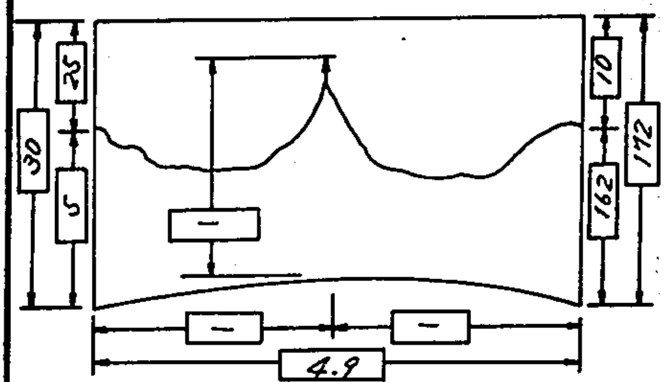
Map No. *4827 II*



Map No. *4827 III*



Site P		Site Q	
Long-1 (D.MS)	99.1500 ***	Long-1 (D.MS)	99.1000 ***
Long-2 (D.MS)	99.2000 ***	Long-2 (D.MS)	99.1500 ***
Lati-1 (D.MS)	9.0500 ***	Lati-1 (D.MS)	9.0000 ***
Lati-2 (D.MS)	9.1000 ***	Lati-2 (D.MS)	9.0500 ***
X 1-2 (mm)	182.3 ***	X 1-2 (mm)	183.0 ***
X 1-0 (mm)	4.2 ***	X 1-0 (mm)	148.0 ***
Y 1-2 (mm)	183.1 ***	Y 1-2 (mm)	184.0 ***
Y 1-0 (mm)	53.8 ***	Y 1-0 (mm)	148.0 ***
Long. (D.MS)	99.1507 ***	Long. (D.MS)	99.1403 ***
Lati. (D.MS)	9.0628 ***	Lati. (D.MS)	9.0401 ***
G.Elevation	*5* (m)	G.Elevation	*162* (m)
Profile No.	*5-7711-14*	Type of Path	L/S (~~no~~ reflection)



Path Distance & Azimuth

Long-P (D.MS)	99.1507 ***
Lati-P (D.MS)	9.0628 ***
Long-Q (D.MS)	99.1403 ***
Lati-Q (D.MS)	9.0401 ***
d (km)	4.3 ***
∢ P→Q (D.MS)	203.3103 ***
∢ Q→P (D.MS)	23.3053 ***

Antenna Height & Diffraction Loss

d (km)	*No Obstacles*
d1 (km)	
hm (m)	
hg1 (m)	
hg2 (m)	
ha1 (m)	
ha1 (m)	
ha2 (m)	
(k = /)	
hp (m)	
Rs (m)	
Cs (m)	
U	
M	
(k = 1)	
U	
M	

PROPAGATION PATH DATA

Path No. 7711-14

Site P	Site Q
Phun Phin (Tex)	Phun Phin (Radio)

Reflection Area(011A-1/3)

f (MHz)	900.00 ***
K	1.333 ***
hg1 (m)	5.0 ***
hg2 (m)	162.0 ***
d (km)	4.9 ***
ha1′ (m)	25.0 ***
ha2′ (m)	10.0 ***
hr′ (m)	7.0 ***
hr (m)	
d1 (m)	0.6 ***
d2 (m)	4.3 ***
ψ (D.MS)	2.1101 ***
T1 (km)	0.3 ***
Dv	1.00 ***
ρ_e	0.7 ***
Φr (deg)	178.0 ***
Lr min(dB)	-4.6 ***
Lr max(dB)	10.5 ***

Variation of Reflection Loss(011A-3/3)

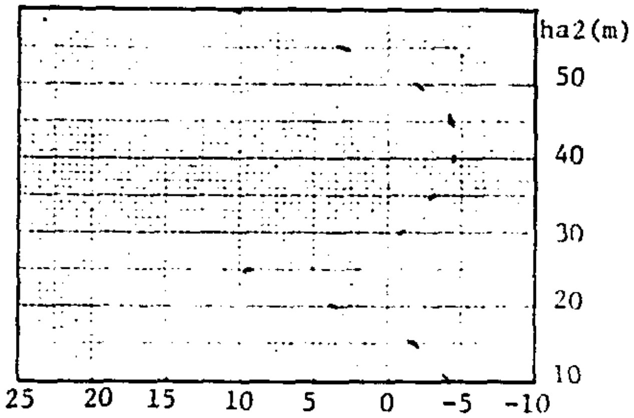
$K^{99.9}$	1.000 ***
K^{50}	1.333 ***
$K^{0.1}$	3.0[illegible] ***
ha1′ (m)	25.0 ***
ha2′ (m)	10.0 ***
$Lr^{99.9}$ (dB)	-4.2 ***
Lr^{50} (dB)	-4.1 ***
$Lr^{0.1}$ (dB)	-3.9 ***
ha1′ (m)	
ha1′ (m)	
$Lr^{99.9}$ (dB)	
Lr^{50} (dB)	
$Lr^{0.1}$ (dB)	

ha1 determined	25 (m)
ha2 determined	10 (m)

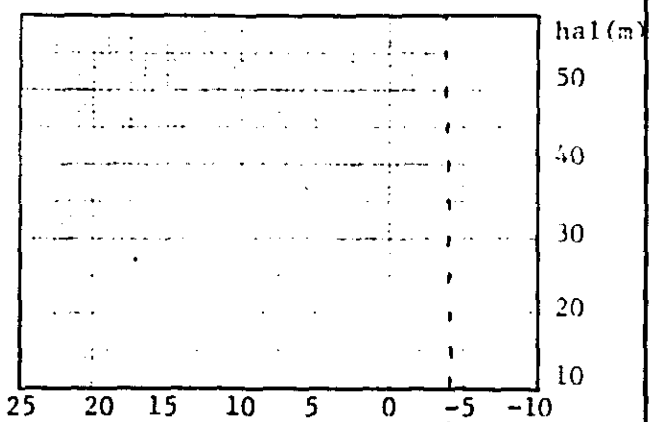
Reflection Loss(011A-2/3)

ha1′ (m)	25.0 ***
Lr60m(dB)	10.2 ***
55	2.9 ***
50	-2.2 ***
45	-4.3 ***
40	-4.5 ***
35	-3.8 ***
30	0.9 ***
25	5.5 ***
20	3.7 ***
15	-1.6 ***
10	-4.1 ***
ha2′ (m)	10.0 ***
Lr60m(dB)	-3.6 ***
55	-3.3 ***
50	-3.9 ***
45	-4.0 ***
40	-4.2 ***
35	-4.1 ***
30	-4.1 ***
25	-4.1 ***
20	-4.2 ***
15	-4.2 ***
10	-4.2 ***

Height Pattern



Lr Pattern at Q (dB, ha1′ = 25 m)



Lr Pattern at P (dB, ha2′ = 10 m)

14. System Performance Calculation

Contents of System Performance calculation

-24	Mae Chaem	- Doi Inthanon	14 - 50
-25	Doi Inthanon	- Da Moeng	51

(Phun Phin area)

7711-1	Phun Phin(R)	- Don Sak	52
-2	Don Sak	- Ko Samui	53
-3	Don Sak	- Ko Phangan	54
-4	Phun Phin(Tex)	- Kanchanadit	55
-5	Phun Phin(Tex)	- Tha Chang	56
-6	Chai Ya	- Tha Chana	57
-7	Khiri Ratthanikhom	- Phun Phin(R)	58
-8	Khiri Ratthanikhom	- Ban Takhun	59
-9	Khiri Ratthanikhom	- Phanom	60
-10	Ban Na San	- Khian Sa	61
-11	Ban Na San	- Ban Na Doem	62
-12	Ban Na San	- Wiang Sa	63
-13	Ban Na San	- Prasaeng	64
-14	Phun Phin(Tex)	- Phun Phin(R)	65

UHF SYSTEM PERFORMANCE CALCULATION

(900 MHz, ~~24 ch~~/120 ch, 5 W/~~100 W~~)

Path No. 3516-1

Station P	Ayutthaya	T.~~R~~	Station Q	Nakhon Luang	T.~~R~~

Path Type: L/S (~~no~~ reflection), ~~Mt. Diffraction~~			P	Q
Antenna Height	ha	m	38	38
Antenna Type & Size (~~Yagi~~, Parabolic)		mϕ	1.8	1.8
Antenna Gain	Ga	dBi	21	21
Feeder Type			H20	H20
Feeder Length	lf	m	48	48
Feeder Loss(ha + 10) x ΔLf	Lf	dB	2.5	2.5
Antenna Height at P	ha1	m	38.0 ***	
Antenna Height at Q	ha2	m	38.0 ***	
Path Loss				
Path Distance	d	km	12.7 ***	
Free Space Propagation Loss	Lo	dB	113.6 ***	
Additional Propagation Loss(50%)	La	dB	10.0 ***	
Total Propagation Loss(50%)	Lp	dB	123.6 ***	
Required Antenna Gain	Ga	dB	39.6 ***	
Antenna Gain at P	Ga1	dBi	21.0 ***	
Antenna Gain at Q	Ga2	dBi	21.0 ***	
Branching Loss	Lb	dB	5.0	
Feeder Loss at P	Lf1	dB	2.5 ***	
Feeder Loss at Q	Lf2	dB	2.5 ***	
Net Loss(50%)	Ln	dB	91.6 ***	
Median Noise(50%)				
Figure of Merit	Fm	dB	160.0	
Signal/Thermal Noise	S/Nta	dB	68.4 ***	
Thermal Noise	Nta	pWOp	145.0 ***	
Equipment Thermal Noise	Nte	pWOp	100.0	
Intermodulation Noise	Nim	pWOp	200.0	
Interference Noise	Nif	pWOp	240.0	
Radio Link Noise	Npr	pWOp	685.0 ***	
Carrier Multiplex Noise	Npm	pWOp	460.0 ***	
Total Noise	Np	pWOp	1145.0 ***	
Signal/Total Noise(≥ 57/50 dB)	S/Np	dB	59.4 ***	
Short Period Noise(99.9%)				
Fading Depth	Af	dB	11.0 ***	
Signal/Thermal Noise	S/Nta	dB	57.4 ***	
Thermal Noise	Nta	pWOp	1820.0 ***	
Radio Link Noise	Npr	pWOp	2360.0 ***	
Total Noise	Np	pWOp	2820.0 ***	
Signal/Total Noise	S/Np	dB	55.5 **	
Fading Margin				
Tx Output Power	Pt	dBm	37.0	
Rx Input Level(50%)	Pri	dBm	-54.6 **	
Threshold Level	Pth	dBm	-90.0	
Margin to Threshold(50%)(≥ 33 dB)	Mth	dB	35.4 **	

Program No.
- 120 ch, 5W : T301
- 24 ch, 5W : T302
- 24 ch, 100W : T303

Mux Noise(pWOp)
- 460 SG/380 G
- 310 GC/230 R

Antenna Gain (dBi)		
14 ele.	Yagi	15
1.2 mØ	Para.	18
1.8	"	21
2.4	"	23.5
3.0	"	26
4.2	"	28.5
6.0	"	32
8.0	"	34.5

Feeder Loss(dB/m)	
RG-17 /U	0.14
H13	0.091
H20	0.052
A20	0.048
A39	0.026

UHF SYSTEM PERFORMANCE CALCULATION
(900 MHz, ~~24 ch~~/120 ch, 5 W/~~100 W~~)

Path No. 3516-2

Station P	Nakhon Luang	T ~~R~~	Station Q	Ban Phraek	T ~~R~~

Path Type: L/S (~~no~~ reflection), ~~Mt. Diffraction~~			P	Q
Antenna Height	ha	m	33	33
Antenna Type & Size (~~Yagi,~~ Parabolic)		mØ	1.2	1.2
Antenna Gain	Ga	dBi	18	18
Feeder Type			H20	H20
Feeder Length	lf	m	43	43
Feeder Loss(ha + 10) x ΔLf	Lf	dB	2.2	2.2

Antenna Height at P	ha1	m	33.0 ***
Antenna Height at Q	ha2	m	33.0 ***
Path Loss			
Path Distance	d	km	20.3 ***
Free Space Propagation Loss	Lo	dB	117.6 ***
Additional Propagation Loss(50%)	La	dB	0.0 ***
Total Propagation Loss(50%)	Lp	dB	117.6 ***
Required Antenna Gain	Ga	dB	33.1 ***
Antenna Gain at P	Ga1	dBi	18.0 ***
Antenna Gain at Q	Ga2	dBi	18.0 ***
Branching Loss	Lb	dB	5.0
Feeder Loss at P	Lf1	dB	2.2 ***
Feeder Loss at Q	Lf2	dB	2.2 ***
Net Loss(50%)	Ln	dB	91.1 ***
Median Noise(50%)			
Figure of Merit	Fm	dB	160.0
Signal/Thermal Noise	S/Nta	dB	68.9 ***
Thermal Noise	Nta	pWOp	129.0 ***
Equipment Thermal Noise	Nte	pWOp	100.0
Intermodulation Noise	Nim	pWOp	200.0
Interference Noise	Nif	pWOp	240.0
Radio Link Noise	Npr	pWOp	669.0 ***
Carrier Multiplex Noise	Npm	pWOp	310.0 ***
Total Noise	Np	pWOp	979.0 ***
Signal/Total Noise(≥ 57/50 dB)	S/Np	dB	60.1 ***
Short Period Noise(99.9%)			
Fading Depth	Af	dB	13.0 ***
Signal/Thermal Noise	S/Nta	dB	55.9 ***
Thermal Noise	Nta	pWOp	2570.0 ***
Radio Link Noise	Npr	pWOp	3110.0 ***
Total Noise	Np	pWOp	3420.0 ***
Signal/Total Noise	S/Np	dB	54.7 ***
Fading Margin			
Tx Output Power	Pt	dBm	37.0
Rx Input Level(50%)	Pri	dBm	-54.1 ***
Threshold Level	Pth	dBm	-90.0
Margin to Threshold(50%)(≥ 33 dB)	Mth	dB	35.9 ***

Program No.
- 120 ch, 5W : T301
- 24 ch, 5W : T302
- 24 ch, 100W : T303

Mux Noise(pWOp)
- 460 SG/380 G
- 310 GC/230 R

Antenna Gain (dBi)		
14 ele.	Yagi	15
1.2 mØ	Para.	18
1.8	"	21
2.4	"	23.5
3.0	"	26
4.2	"	28.5
6.0	"	32
8.0	"	34.5

Feeder Loss(dB/m)	
RG-17 /U	0.14
H13	0.091
H20	0.052
A20	0.048
A39	0.026

UHF SYSTEM PERFORMANCE CALCULATION

(900 MHz, ~~24 ch~~/120 ch, 5 W/~~100 W~~)

Path No. 3516-3

Station P	Nakhon Luang	T.~~R~~	Station Q	Maharat	T.~~R~~

Path Type: L/S (~~no~~ reflection), ~~Mt. Diffraction~~

			P	Q
Antenna Height	ha	m	33	33
Antenna Type & Size (Yagi, Parabolic)		Ele, mØ	14	1.2
Antenna Gain	Ga	dBi	15	18
Feeder Type			H20	H20
Feeder Length	lf	m	43	43
Feeder Loss(ha + 10) x ΔLf	Lf	dB	2.2	2.2

Antenna Height at P	ha1	m	33.0 ***
Antenna Height at Q	ha2	m	33.0 ***
Path Loss			
Path Distance	d	km	11.4 ***
Free Space Propagation Loss	Lo	dB	112.6 ***
Additional Propagation Loss(50%)	La	dB	4.0 ***
Total Propagation Loss(50%)	Lp	dB	116.6 ***
Required Antenna Gain	Ga	dB	32.1 ***
Antenna Gain at P	Ga1	dBi	15.0 ***
Antenna Gain at Q	Ga2	dBi	18.0 ***
Branching Loss	Lb	dB	5.0
Feeder Loss at P	Lf1	dB	2.2 ***
Feeder Loss at Q	Lf2	dB	2.2 ***
Net Loss(50%)	Ln	dB	93.1 ***
Median Noise(50%)			
Figure of Merit	Fm	dB	166.0
Signal/Thermal Noise	S/Nta	dB	66.5 ***
Thermal Noise	Nta	pWOp	204.6 ***
Equipment Thermal Noise	Nte	pWOp	100.0
Intermodulation Noise	Nim	pWOp	200.0
Interference Noise	Nif	pWOp	240.0
Radio Link Noise	Npr	pWOp	744.0 ***
Carrier Multiplex Noise	Npm	pWOp	310.0 ***
Total Noise	Np	pWOp	1054.0 ***
Signal/Total Noise(≥ 57/50 dB)	S/Np	dB	59.8 ***
Short Period Noise(99.9%)			
Fading Depth	Af	dB	11.0 ***
Signal/Thermal Noise	S/Nta	dB	55.9 ***
Thermal Noise	Nta	pWOp	2570.0 ***
Radio Link Noise	Npr	pWOp	3110.0 ***
Total Noise	Np	pWOp	3420.0 ***
Signal/Total Noise	S/Np	dB	54.7 ***
Fading Margin			
Tx Output Power	Pt	dBm	37.0
Rx Input Level(50%)	Pri	dBm	-56.1 ***
Threshold Level	Pth	dBm	-90.0
Margin to Threshold(50%)(≥ 33 dB)	Mth	dB	33.9 ***

Program No.

120 ch, 5W	:	T301
24 ch, 5W	:	T302
24 ch, 100W	:	T303

Mux Noise(pWOp)

460 SG/380 G

310 GC/230 R

Antenna Gain (dBi)		
14 ele.	Yagi	15
1.2 mØ	Para.	18
1.8	"	21
2.4	"	23.5
3.0	"	26
4.2	"	28.5
6.0	"	32
8.0	"	34.5

Feeder Loss(dB/m)	
RG-17 /U	0.14
H13	0.091
H20	0.052
A20	0.048
A39	0.026

UHF SYSTEM PERFORMANCE CALCULATION

(900 MHz, ~~24 ch~~/120 ch, 5 W/~~100 W~~)

Path No. 3516-4

Station P	Ayutthaya	T.~~R~~	Station Q	U-Thai	T.~~R~~

Path Type: L/S (~~no~~ reflection), ~~Mt. Diffraction~~			P	Q
Antenna Height	ha	m	43	33
Antenna Type & Size (~~Yagi~~,Parabolic)		mØ	1.8	1.8
Antenna Gain	Ga	dBi	21	21
Feeder Type			H20	H20
Feeder Length	lf	m	53	43
Feeder Loss(ha + 10) x ΔLf	Lf	dB	2.8	2.2

Antenna Height at P	ha1	m	43.0 ***
Antenna Height at Q	ha2	m	33.0 ***
Path Loss			
Path Distance	d	km	10.9 ***
Free Space Propagation Loss	Lo	dB	112.2 ***
Additional Propagation Loss(50%)	La	dB	12.0 ***
Total Propagation Loss(50%)	Lp	dB	124.2 ***
Required Antenna Gain	Ga	dB	40.2 ***
Antenna Gain at P	Ga1	dBi	21.0 ***
Antenna Gain at Q	Ga2	dBi	21.0 ***
Branching Loss	Lb	dB	5.0
Feeder Loss at P	Lf1	dB	2.8 ***
Feeder Loss at Q	Lf2	dB	2.2 ***
Net Loss(50%)	Ln	dB	92.2 ***
Median Noise(50%)			
Figure of Merit	Fm	dB	160.0
Signal/Thermal Noise	S/Nta	dB	67.8 ***
Thermal Noise	Nta	pWOp	166.0 ***
Equipment Thermal Noise	Nte	pWOp	100.0
Intermodulation Noise	Nim	pWOp	200.0
Interference Noise	Nif	pWOp	240.0
Radio Link Noise	Npr	pWOp	706.0
Carrier Multiplex Noise	Npm	pWOp	460.0 ***
Total Noise	Np	pWOp	1166.0 ***
Signal/Total Noise(≥ 57/50 dB)	S/Np	dB	59.3 ***
Short Period Noise(99.9%)			
Fading Depth	Af	dB	10.0 ***
Signal/Thermal Noise	S/Nta	dB	57.8 ***
Thermal Noise	Nta	pWOp	1660.0 ***
Radio Link Noise	Npr	pWOp	2200.0 ***
Total Noise	Np	pWOp	2660.0 ***
Signal/Total Noise	S/Np	dB	55.8 ***
Fading Margin			
Tx Output Power	Pt	dBm	37.0
Rx Input Level(50%)	Pri	dBm	-55.2 ***
Threshold Level	Pth	dBm	-90.0
Margin to Threshold(50%)(≥ 33 dB)	Mth	dB	34.8 ***

Program No.
- 120 ch, 5W : T301
- 24 ch, 5W : T302
- 24 ch, 100W : T303

Mux Noise(pWOp)
- 460 SG/380 G
- 310 GC/230 R

Antenna Gain (dBi)		
14 ele. Yagi		15
1.2 mØ Para.		18
1.8	"	21
2.4	"	23.5
3.0	"	26
4.2	"	28.5
6.0	"	32
8.0	"	34.5

Feeder Loss(dB/m)	
RG-17/U	0.14
H13	0.091
H20	0.052
A20	0.048
A39	0.026

UHF SYSTEM PERFORMANCE CALCULATION

(900 MHz, ~~24 ch~~/120 ch, 5 W/~~100 W~~)

Path No. 3516-5

Station P	Ayutthaya	T ~~R~~	Station Q	Bang Ban	T ~~R~~

Path Type: L/S (~~no~~ reflection), ~~No. Diffraction~~

			P	Q
Antenna Height	ha	m	33	33
Antenna Type & Size (~~Yagi~~, Parabolic)		mØ	1.2	1.8
Antenna Gain	Ga	dBi	18	21
Feeder Type			H20	H20
Feeder Length	lf	m	43	43
Feeder Loss(ha + 10) x ΔLf	Lf	dB	2.2	2.2

Antenna Height at P	ha1	m	33.0 ***
Antenna Height at Q	ha2	m	33.0 ***
Path Loss			
Path Distance	d	km	12.1 ***
Free Space Propagation Loss	Lo	dB	113.2 ***
Additional Propagation Loss(50%)	La	dB	8.0 ***
Total Propagation Loss(50%)	Lp	dB	121.2 ***
Required Antenna Gain	Ga	dB	36.7 ***
Antenna Gain at P	Ga1	dBi	18.0 ***
Antenna Gain at Q	Ga2	dBi	21.0 ***
Branching Loss	Lb	dB	5.0
Feeder Loss at P	Lf1	dB	2.2 ***
Feeder Loss at Q	Lf2	dB	2.2 ***
Net Loss(50%)	Ln	dB	91.7 ***
Median Noise(50%)			
Figure of Merit	Fm	dB	160.0
Signal/Thermal Noise	S/Nta	dB	68.3 ***
Thermal Noise	Nta	pWOp	148.3 ***
Equipment Thermal Noise	Nte	pWOp	100.0
Intermodulation Noise	Nim	pWOp	200.0
Interference Noise	Nif	pWOp	240.0
Radio Link Noise	Npr	pWOp	688.0 ***
Carrier Multiplex Noise	Npm	pWOp	460.0 ***
Total Noise	Np	pWOp	1148.0 ***
Signal/Total Noise(≥ 57/50 dB)	S/Np	dB	59.4 ***
Short Period Noise(99.9%)			
Fading Depth	Af	dB	11.0 ***
Signal/Thermal Noise	S/Nta	dB	57.3 ***
Thermal Noise	Nta	pWOp	1862.0 ***
Radio Link Noise	Npr	pWOp	2402.0 ***
Total Noise	Np	pWOp	2862.0 ***
Signal/Total Noise	S/Np	dB	55.4 ***
Fading Margin			
Tx Output Power	Pt	dBm	37.0
Rx Input Level(50%)	Pri	dBm	-54.7 ***
Threshold Level	Pth	dBm	-90.0
Margin to Threshold(50%)(≥ 33 dB)	Mth	dB	35.3 ***

Program No.
120 ch, 5W : T301
24 ch, 5W : T302
24 ch, 100W : T303

Mux Noise(pWOp)
460 SG/380 G
310 GC/230 R

Antenna Gain (dBi)		
14 ele.	Yagi	15
1.2 mØ	Para.	18
1.8	"	21
2.4	"	23.5
3.0	"	26
4.2	"	28.5
6.0	"	32
8.0	"	34.5

Feeder Loss(dB/m)	
RG-17 /U	0.14
H13	0.091
H20	0.052
A20	0.048
A39	0.026

UHF SYSTEM PERFORMANCE CALCULATION

(900 MHz, ~~24 ch~~/120 ch, 5 W/~~100 W~~)

Path No. 3516-6

Station P		T ~~R~~	Station Q		T ~~R~~
Station P	Bang Ban	T ~~R~~	Station Q	Bangpa Han	T ~~R~~

Path Type: L/S (~~no~~ reflection), ~~Mt. Diffraction~~			P	Q
Antenna Height	ha	m	33	33
Antenna Type & Size (Yagi,Parabolic)		Ele, mφ	14	1.8
Antenna Gain	Ga	dBi	15	21
Feeder Type			H20	H20
Feeder Length	lf	m	43	43
Feeder Loss(ha + 10) x ΔLf	Lf	dB	2.2	2.2
Antenna Height at P	ha1	m	33.0 ***	
Antenna Height at Q	ha2	m	33.0 ***	

Path Loss			
Path Distance	d	km	10.4 ***
Free Space Propagation Loss	Lo	dB	111.8 ***
Additional Propagation Loss(50%)	La	dB	8.0 ***
Total Propagation Loss(50%)	Lp	dB	119.8 ***
Required Antenna Gain	Ga	dB	35.3 ***
Antenna Gain at P	Ga1	dBi	15.0 ***
Antenna Gain at Q	Ga2	dBi	21.0 ***
Branching Loss	Lb	dB	5.0
Feeder Loss at P	Lf1	dB	2.2 ***
Feeder Loss at Q	Lf2	dB	2.2 ***
Net Loss(50%)	Ln	dB	93.3 ***
Median Noise(50%)			
Figure of Merit	Fm	dB	160.0
Signal/Thermal Noise	S/Nta	dB	66.7 ***
Thermal Noise	Nta	pWOp	214.0 ***
Equipment Thermal Noise	Nte	pWOp	100.0
Intermodulation Noise	Nim	pWOp	200.0
Interference Noise	Nif	pWOp	240.0
Radio Link Noise	Npr	pWOp	754.0 ***
Carrier Multiplex Noise	Npm	pWOp	310.0 ***
Total Noise	Np	pWOp	1064.0 ***
Signal/Total Noise(≥ 57/50 dB)	S/Np	dB	59.7 ***
Short Period Noise(99.9%)			
Fading Depth	Af	dB	10.0 ***
Signal/Thermal Noise	S/Nta	dB	56.7 ***
Thermal Noise	Nta	pWOp	2138.0 ***
Radio Link Noise	Npr	pWOp	2678.0 ***
Total Noise	Np	pWOp	2988.0 ***
Signal/Total Noise	S/Np	dB	55.2 ***
Fading Margin			
Tx Output Power	Pt	dBm	37.0
Rx Input Level(50%)	Pri	dBm	-56.3 ***
Threshold Level	Pth	dBm	-90.0
Margin to Threshold(50%)(≥ 33 dB)	Mth	dB	33.7 ***

Program No.

120 ch, 5W	: T301
24 ch, 5W	: T302
24 ch, 100W	: T303

Mux Noise(pWOp)

460 SG/380 G

310 GC/230 R

Antenna Gain (dBi)

14 ele.	Yagi	15
1.2 mφ	Para.	18
1.8	"	21
2.4	"	23.5
3.0	"	26
4.2	"	28.5
6.0	"	32
8.0	"	34.5

Feeder Loss(dB/m)

RG-17 /U	0.14
H13	0.091
H20	0.052
A20	0.048
A39	0.026

UHF SYSTEM PERFORMANCE CALCULATION

(900 MHz, ~~24 ch~~/120 ch, 5 W/~~100 W~~)

Path No. 3516-7

Station P		Station Q	
Bang Ban	T ~~R~~	Phak Hai	T ~~R~~

Path Type: L/S (~~no~~ reflection), ~~Mt. Diffraction~~

			P	Q
Antenna Height	ha	m	33	33
Antenna Type & Size (Yagi, Parabolic)		Ele, mϕ	12	1.8
Antenna Gain	Ga	dBi	14	21
Feeder Type			H20	H20
Feeder Length	lf	m	43	43
Feeder Loss(ha + 10) x ΔLf	Lf	dB	2.2	2.2

Antenna Height at P	ha1	m	33.0 ***
Antenna Height at Q	ha2	m	33.0 ***
Path Loss			
Path Distance	d	km	12.3 ***
Free Space Propagation Loss	Lo	dB	113.3 ***
Additional Propagation Loss(50%)	La	dB	6.0 ***
Total Propagation Loss(50%)	Lp	dB	119.3 ***
Required Antenna Gain	Ga	dB	34.0 ***
Antenna Gain at P	Ga1	dBi	14.0 ***
Antenna Gain at Q	Ga2	dBi	21.0 ***
Branching Loss	Lb	dB	5.0
Feeder Loss at P	Lf1	dB	2.2 ***
Feeder Loss at Q	Lf2	dB	2.2 ***
Net Loss(50%)	Ln	dB	93.8 ***
Median Noise(50%)			
Figure of Merit	Fm	dB	160.0
Signal/Thermal Noise	S/Nta	dB	66.2 ***
Thermal Noise	Nta	pWOp	240.0 ***
Equipment Thermal Noise	Nte	pWOp	100.0
Intermodulation Noise	Nim	pWOp	200.0
Interference Noise	Nif	pWOp	240.0
Radio Link Noise	Npr	pWOp	780.0 ***
Carrier Multiplex Noise	Npm	pWOp	310.0 ***
Total Noise	Np	pWOp	1090.0 ***
Signal/Total Noise(≥ 57/50 dB)	S/Np	dB	59.6 ***
Short Period Noise(99.9%)			
Fading Depth	Af	dB	11.0 ***
Signal/Thermal Noise	S/Nta	dB	55.2 ***
Thermal Noise	Nta	pWOp	3020.0 ***
Radio Link Noise	Npr	pWOp	3560.0 ***
Total Noise	Np	pWOp	3870.0 ***
Signal/Total Noise	S/Np	dB	54.1 ***
Fading Margin			
Tx Output Power	Pt	dBm	37.0
Rx Input Level(50%)	Pri	dBm	-56.8 ***
Threshold Level	Pth	dBm	-90.0
Margin to Threshold(50%)(≥ 33 dB)	Mth	dB	33.2 ***

Program No.
- 120 ch, 5W : T301
- 24 ch, 5W : T302
- 24 ch, 100W : T303

Mux Noise(pWOp)
- 460 SG/380 G
- 310 GC/230 R

Antenna Gain (dBi)		
14 ele.	Yagi	15
1.2 mØ	Para.	18
1.8	"	21
2.4	"	23.5
3.0	"	26
4.2	"	28.5
6.0	"	32
8.0	"	34.5

Feeder Loss(dB/m)	
RG-17 /U	0.14
H13	0.091
H20	0.052
A20	0.048
A39	0.026

UHF SYSTEM PERFORMANCE CALCULATION (900 MHz, ~~24 ch~~/120 ch, 5 W/~~100 W~~)	Path No. 3516-8

Station P	Ayutthaya	T ~~R~~	Station Q	Sena	T ~~R~~

Path Type: L/S (~~no~~ reflection), ~~Mt. Diffraction~~			P	Q
Antenna Height	ha	m	45	33
Antenna Type & Size (~~Yagi,~~ Parabolic)		mØ	1.2	2.4
Antenna Gain	Ga	dBi	18	23.5
Feeder Type			H20	H20
Feeder Length	lf	m	55	43
Feeder Loss(ha + 10) x ΔLf	Lf	dB	2.9	2.2
Antenna Height at P	ha1	m	45.0 ***	
Antenna Height at Q	ha2	m	33.0 ***	
Path Loss				
Path Distance	d	km	18.1 ***	
Free Space Propagation Loss	Lo	dB	116.7 ***	
Additional Propagation Loss(50%)	La	dB	8.0 ***	
Total Propagation Loss(50%)	Lp	dB	124.7 ***	
Required Antenna Gain	Ga	dB	40.8 ***	
Antenna Gain at P	Ga1	dBi	18.0 ***	
Antenna Gain at Q	Ga2	dBi	23.5 ***	
Branching Loss	Lb	dB	5.0	
Feeder Loss at P	Lf1	dB	2.9 ***	
Feeder Loss at Q	Lf2	dB	2.2 ***	
Net Loss(50%)	Ln	dB	93.3 ***	
Median Noise(50%)			160.0	
Figure of Merit	Fm	dB	66.7 ***	
Signal/Thermal Noise	S/Nta	dB	214.6 ***	
Thermal Noise	Nta	pWOp	100.0	
Equipment Thermal Noise	Nte	pWOp	200.0	
Intermodulation Noise	Nim	pWOp	240.0	
Interference Noise	Nif	pWOp	754.0 ***	
Radio Link Noise	Npr	pWOp	460.0 ***	
Carrier Multiplex Noise	Npm	pWOp	1214.0 ***	
Total Noise	Np	pWOp	59.2 ***	
Signal/Total Noise(≥ 57/50 dB)	S/Np	dB		
Short Period Noise(99.9%)			13.0 ***	
Fading Depth	Af	dB	53.7 ***	
Signal/Thermal Noise	S/Nta	dB	4266.0 ***	
Thermal Noise	Nta	pWOp	4806.0 ***	
Radio Link Noise	Npr	pWOp	5266.0 ***	
Total Noise	Np	pWOp	52.8 ***	
Signal/Total Noise	S/Np	dB		
Fading Margin			37.0	
Tx Output Power	Pt	dBm	-56.3 ***	
Rx Input Level(50%)	Pri	dBm	-90.0	
Threshold Level	Pth	dBm	33.7 ***	
Margin to Threshold(50%)(≥ 33 dB)	Mth	dB		

Program No.		Antenna Gain (dBi)		Feeder Loss(dB/m)	
120 ch, 5W	: T301	14 ele. Yagi	15	RG-17 /U	0.14
24 ch, 5W	: T302	1.2 mØ Para.	18	H13	0.091
24 ch, 100W	: T303	1.8 "	21	H20	0.052
		2.4 "	23.5	A20	0.048
Mux Noise(pWOp)		3.0 "	26	A39	0.026
460 SG/380 G		4.2 "	28.5		
310 GC/230 R		6.0 "	32		
		8.0 "	34.5		

UHF SYSTEM PERFORMANCE CALCULATION

(900 MHz, ~~24 ch~~/120 ch, 5 W/~~100 W~~)

Path No. 3516-9

Station P		Station Q	
Sena	T ~~R~~	Bang Sai	T ~~R~~

Path Type: L/S (~~no~~ reflection), ~~Mt. Diffraction~~

			P	Q
Antenna Height	ha	m	33	33
Antenna Type & Size (Yagi, Parabolic)		Ele, mØ	12	1.8
Antenna Gain	Ga	dBi	14	21
Feeder Type			H20	H20
Feeder Length	lf	m	43	43
Feeder Loss (ha + 10) x ΔLf	Lf	dB	2.2	2.2
Antenna Height at P	ha1	m	33.0 ***	
Antenna Height at Q	ha2	m	33.0 ***	
Path Loss				
Path Distance	d	km	11.0 ***	
Free Space Propagation Loss	Lo	dB	112.3 ***	
Additional Propagation Loss (50%)	La	dB	6.0 ***	
Total Propagation Loss (50%)	Lp	dB	118.3 ***	
Required Antenna Gain	Ga	dB	33.8 ***	
Antenna Gain at P	Ga1	dBi	14.0 ***	
Antenna Gain at Q	Ga2	dBi	21.0 ***	
Branching Loss	Lb	dB	5.0	
Feeder Loss at P	Lf1	dB	2.2 ***	
Feeder Loss at Q	Lf2	dB	2.2 ***	
Net Loss (50%)	Ln	dB	92.8 ***	
Median Noise (50%)				
Figure of Merit	Fm	dB	160.0	
Signal/Thermal Noise	S/Nta	dB	67.2 ***	
Thermal Noise	Nta	pWOp	191.0 ***	
Equipment Thermal Noise	Nte	pWOp	100.0	
Intermodulation Noise	Nim	pWOp	200.0	
Interference Noise	Nif	pWOp	240.0	
Radio Link Noise	Npr	pWOp	731.0 ***	
Carrier Multiplex Noise	Npm	pWOp	460.0 ***	
Total Noise	Np	pWOp	1191.0 ***	
Signal/Total Noise (≥ 57/50 dB)	S/Np	dB	59.2 ***	
Short Period Noise (99.9%)				
Fading Depth	Af	dB	10.0 ***	
Signal/Thermal Noise	S/Nta	dB	57.2 ***	
Thermal Noise	Nta	pWOp	1905.0 ***	
Radio Link Noise	Npr	pWOp	2445.0 ***	
Total Noise	Np	pWOp	2905.0 ***	
Signal/Total Noise	S/Np	dB	55.4 ***	
Fading Margin				
Tx Output Power	Pt	dBm	37.0	
Rx Input Level (50%)	Pri	dBm	-55.8 ***	
Threshold Level	Pth	dBm	-90.0	
Margin to Threshold (50%) (≥ 33 dB)	Mth	dB	34.2 ***	

Program No.

- 120 ch, 5W : T301
- 24 ch, 5W : T302
- 24 ch, 100W : T303

Mux Noise (pWOp)

- 460 SG/380 G
- 310 GC/230 R

Antenna Gain (dBi)		
14 ele.	Yagi	15
1.2 mØ	Para.	18
1.8	"	21
2.4	"	23.5
3.0	"	26
4.2	"	28.5
6.0	"	32
8.0	"	34.5

Feeder Loss (dB/m)	
RG-17 /U	0.14
H13	0.091
H20	0.052
A20	0.048
A39	0.026

UHF SYSTEM PERFORMANCE CALCULATION

(900 MHz, 24 ch/~~120 ch,~~ 5 W/~~100 W~~)

Path No. 3516-10

Station P	T ~~R~~	Station Q	T ~~R~~
Sena		Lat Bua Luang	

Path Type: L/S (~~no~~ reflection), ~~No Diffraction~~			P	Q
Antenna Height	ha	m	33	33
Antenna Type & Size (Yagi, ~~Parabolic~~)		Ele	12	14
Antenna Gain	Ga	dBi	14	15
Feeder Type			H20	H20
Feeder Length	lf	m	43	43
Feeder Loss(ha + 10) x ⊿Lf	Lf	dB	2.2	2.2

Antenna Height at P	ha1	m	33.0 ***
Antenna Height at Q	ha2	m	33.0 ***
Path Loss			
Path Distance	d	km	20.4 ***
Free Space Propagation Loss	Lo	dB	117.7 ***
Additional Propagation Loss(50%)	La	dB	0.0 ***
Total Propagation Loss(50%)	Lp	dB	117.7 ***
Required Antenna Gain	Ga	dB	29.2 ***
Antenna Gain at P	Ga1	dBi	14.0 ***
Antenna Gain at Q	Ga2	dBi	15.0 ***
Branching Loss	Lb	dB	5.0
Feeder Loss at P	Lf1	dB	2.2 ***
Feeder Loss at Q	Lf2	dB	2.2 ***
Net Loss(50%)	Ln	dB	98.2 ***
Median Noise(50%)			
Figure of Merit	Fm	dB	165.0
Signal/Thermal Noise	S/Nta	dB	66.8 ***
Thermal Noise	Nta	pWOp	209.0 ***
Equipment Thermal Noise	Nte	pWOp	100.0
Intermodulation Noise	Nim	pWOp	200.0
Interference Noise	Nif	pWOp	240.0
Radio Link Noise	Npr	pWOp	749.0 ***
Carrier Multiplex Noise	Npm	pWOp	380.0 ***
Total Noise	Np	pWOp	1129.0 ***
Signal/Total Noise(≥ 57/50 dB)	S/Np	dB	59.5 ***
Short Period Noise(99.9%)			
Fading Depth	Af	dB	13.0 ***
Signal/Thermal Noise	S/Nta	dB	53.8 ***
Thermal Noise	Nta	pWOp	4169.0 ***
Radio Link Noise	Npr	pWOp	4789.0 ***
Total Noise	Np	pWOp	5089.0 ***
Signal/Total Noise	S/Np	dB	52.9 ***
Fading Margin			
Tx Output Power	Pt	dBm	37.0
Rx Input Level(50%)	Pri	dBm	-61.2 ***
Threshold Level	Pth	dBm	-95.0
Margin to Threshold(50%)(≥ 33 dB)	Mth	dB	33.8 ***

Program No.
- 120 ch, 5W : T301
- 24 ch, 5W : T302
- 24 ch, 100W : T303

Mux Noise(pWOp)
- 460 SG/380 G
- 310 GC/230 R

Antenna Gain (dBi)		
14 ele.	Yagi.	15
1.2 mØ	Para.	18
1.8	"	21
2.4	"	23.5
3.0	"	26
4.2	"	28.5
6.0	"	32
8.0	"	34.5

Feeder Loss(dB/m)	
RG-17 /U	0.14
H13	0.091
H20	0.052
A20	0.048
A39	0.026

UHF SYSTEM PERFORMANCE CALCULATION

(900 MHz, ~~24 ch~~/120 ch, 5 W/~~100 W~~)

Path No. 3516-11

Station P	Ayutthaya	T.#	Station Q	Ban Si	T.#

Path Type: L/S (~~no~~ reflection), ~~Mt. Diffraction~~			P	Q
Antenna Height	ha	m	33	33
Antenna Type & Size (Yagi, Parabolic)		Ele, mØ	12	1.8
Antenna Gain	Ga	dBi	14	21
Feeder Type			H20	H20
Feeder Length	lf	m	43	43
Feeder Loss (ha + 10) x ΔLf	Lf	dB	2.2	2.2
Antenna Height at P	ha1	m	33.0 ***	
Antenna Height at Q	ha2	m	33.0 ***	
Path Loss				
Path Distance	d	km	17.6 ***	
Free Space Propagation Loss	Lo	dB	116.4 ***	
Additional Propagation Loss(50%)	La	dB	3.0 ***	
Total Propagation Loss(50%)	Lp	dB	119.4 ***	
Required Antenna Gain	Ga	dB	34.9 ***	
Antenna Gain at P	Ga1	dBi	14.0 ***	
Antenna Gain at Q	Ga2	dBi	21.0 ***	
Branching Loss	Lb	dB	5.0	
Feeder Loss at P	Lf1	dB	2.2 ***	
Feeder Loss at Q	Lf2	dB	2.2 ***	
Net Loss(50%)	Ln	dB	93.9 ***	
Median Noise(50%)				
Figure of Merit	Fm	dB	168.0	
Signal/Thermal Noise	S/Nta	dB	66.1 ***	
Thermal Noise	Nta	pWOp	245.0 ***	
Equipment Thermal Noise	Nte	pWOp	100.0	
Intermodulation Noise	Nim	pWOp	200.0	
Interference Noise	Nif	pWOp	240.0	
Radio Link Noise	Npr	pWOp	795.0 ***	
Carrier Multiplex Noise	Npm	pWOp	460.0 ***	
Total Noise	Np	pWOp	1245.0 ***	
Signal/Total Noise(≥ 57/50 dB)	S/Np	dB	55.0 ***	
Short Period Noise(99.9%)				
Fading Depth	Af	dB	12.0 ***	
Signal/Thermal Noise	S/Nta	dB	54.1 ***	
Thermal Noise	Nta	pWOp	3890.0 ***	
Radio Link Noise	Npr	pWOp	4430.0 ***	
Total Noise	Np	pWOp	4890.0 ***	
Signal/Total Noise	S/Np	dB	53.1 ***	
Fading Margin				
Tx Output Power	Pt	dBm	37.0	
Rx Input Level(50%)	Pri	dBm	-56.9 ***	
Threshold Level	Pth	dBm	-90.0	
Margin to Threshold(50%)(≥ 33 dB)	Mth	dB	33.1 ***	

Program No.

- 120 ch, 5W : T301
- 24 ch, 5W : T302
- 24 ch, 100W : T303

Mux Noise(pWOp)

- 460 SG/380 G
- 310 GC/230 R

Antenna Gain (dBi)		
14 ele.	Yagi	15
1.2 mØ	Para.	18
1.8	"	21
2.4	"	23.5
3.0	"	26
4.2	"	28.5
6.0	"	32
8.0	"	34.5

Feeder Loss(dB/m)	
RG-17 /U	0.14
H13	0.091
H20	0.052
A20	0.048
A39	0.026

UHF SYSTEM PERFORMANCE CALCULATION

(900 MHz, ~~24 ch~~/120 ch, 5 W/~~100 W~~)

Path No. 4421-1

Station P	Nakhon Ratchasima	T.~~R~~	Station Q	Non Sung	T.~~R~~

Path Type: L/S (no reflection), ~~Mt. Diffraction~~			P	Q
Antenna Height	ha	m	50	33
Antenna Type & Size (~~Yagi~~, Parabolic)		mφ	2.4	2.4
Antenna Gain	Ga	dBi	23.5	23.5
Feeder Type			H20	H20
Feeder Length	lf	m	60	43
Feeder Loss(ha + 10) x ΔLf	Lf	dB	3.1	2.2
Antenna Height at P	ha1	m	50.0 ***	
Antenna Height at Q	ha2	m	33.0 ***	
Path Loss				
Path Distance	d	km	27.6 ***	
Free Space Propagation Loss	Lo	dB	120.3 ***	
Additional Propagation Loss(50%)	La	dB	10.0 ***	
Total Propagation Loss(50%)	Lp	dB	130.3 ***	
Required Antenna Gain	Ga	dB	46.7 ***	
Antenna Gain at P	Ga1	dBi	23.5 ***	
Antenna Gain at Q	Ga2	dBi	23.5 ***	
Branching Loss	Lb	dB	5.0	
Feeder Loss at P	Lf1	dB	3.1 ***	
Feeder Loss at Q	Lf2	dB	2.2 ***	
Net Loss(50%)	Ln	dB	93.7 ***	
Median Noise(50%)				
Figure of Merit	Fm	dB	160.0	
Signal/Thermal Noise	S/Nta	dB	66.3 ***	
Thermal Noise	Nta	pWOp	234.0 ***	
Equipment Thermal Noise	Nte	pWOp	100.0	
Intermodulation Noise	Nim	pWOp	200.0	
Interference Noise	Nif	pWOp	240.0	
Radio Link Noise	Npr	pWOp	774.0 ***	
Carrier Multiplex Noise	Npm	pWOp	460.0 ***	
Total Noise	Np	pWOp	1234.0 ***	
Signal/Total Noise(≥ 57/50 dB)	S/Np	dB	59.1 ***	
Short Period Noise(99.9%)				
Fading Depth	Af	dB	14.0 ***	
Signal/Thermal Noise	S/Nta	dB	52.3 ***	
Thermal Noise	Nta	pWOp	5886.0 ***	
Radio Link Noise	Npr	pWOp	6428.0 ***	
Total Noise	Np	pWOp	6888.0 ***	
Signal/Total Noise	S/Np	dB	51.6 ***	
Fading Margin				
Tx Output Power	Pt	dBm	37.0	
Rx Input Level(50%)	Pri	dBm	-56.7 ***	
Threshold Level	Pth	dBm	-90.0	
Margin to Threshold(50%)(≥ 33 dB)	Mth	dB	33.3 ***	

Program No.
120 ch, 5W : T301
24 ch, 5W : T302
24 ch, 100W : T303

Mux Noise(pWOp)
460 SG/380 G
310 GC/230 R

Antenna Gain (dBi)		
14 ele.	Yagi	15
1.2 mφ	Para.	18
1.8	"	21
2.4	"	23.5
3.0	"	26
4.2	"	28.5
6.0	"	32
8.0	"	34.5

Feeder Loss(dB/m)	
RG-17/U	0.14
H13	0.091
H20	0.052
A20	0.048
A39	0.026

UHF SYSTEM PERFORMANCE CALCULATION

(900 MHz, ~~24 ch/~~120 ch, 5 W~~/100 W~~)

Path No. 4421-2

Station P	Non Sung	T.~~R~~	Station Q	Phi Mai	T.~~R~~

Path Type: L/S (~~no~~ reflection), ~~Mt. Diffraction~~			P	Q
Antenna Height	ha	m	33	33
Antenna Type & Size (~~Yagi~~, Parabolic)		mφ	1.2	1.8
Antenna Gain	Ga	dBi	18.0	21.0
Feeder Type			H20	H20
Feeder Length	lf	m	43	43
Feeder Loss (ha + 10) x ΔLf	Lf	dB	2.2	2.2
Antenna Height at P	ha1	m		33.0 ***
Antenna Height at Q	ha2	m		33.0 ***
Path Loss				
Path Distance	d	km		27.0 ***
Free Space Propagation Loss	Lo	dB		120.1 ***
Additional Propagation Loss (50%)	La	dB		3.0 ***
Total Propagation Loss (50%)	Lp	dB		123.1 ***
Required Antenna Gain	Ga	dB		38.6 ***
Antenna Gain at P	Ga1	dBi		18.0 ***
Antenna Gain at Q	Ga2	dBi		21.0 ***
Branching Loss	Lb	dB		5.0
Feeder Loss at P	Lf1	dB		2.2 ***
Feeder Loss at Q	Lf2	dB		2.2 ***
Net Loss (50%)	Ln	dB		93.6 ***
Median Noise (50%)				
Figure of Merit	Fm	dB		160.0
Signal/Thermal Noise	S/Nta	dB		66.4 ***
Thermal Noise	Nta	pWOp		229.0 ***
Equipment Thermal Noise	Nte	pWOp		100.0
Intermodulation Noise	Nim	pWOp		200.0
Interference Noise	Nif	pWOp		240.0
Radio Link Noise	Npr	pWOp		765.0 ***
Carrier Multiplex Noise	Npm	pWOp		310.0 ***
Total Noise	Np	pWOp		1079.0 ***
Signal/Total Noise (≥ 57/50 dB)	S/Np	dB		59.7 ***
Short Period Noise (99.9%)				
Fading Depth	Af	dB		14.0 ***
Signal/Thermal Noise	S/Nta	dB		52.4 ***
Thermal Noise	Nta	pWOp		5754.0 ***
Radio Link Noise	Npr	pWOp		6294.0 ***
Total Noise	Np	pWOp		6604.0 ***
Signal/Total Noise	S/Np	dB		51.8 ***
Fading Margin				
Tx Output Power	Pt	dBm		37.0
Rx Input Level (50%)	Pri	dBm		-56.6 ***
Threshold Level	Pth	dBm		-90.0
Margin to Threshold (50%) (≥ 33 dB)	Mth	dB		33.4 ***

Program No.		Antenna Gain (dBi)			Feeder Loss (dB/m)	
120 ch, 5W	: T301	14 ele.	Yagi	15	RG-17 /U	0.14
24 ch, 5W	: T302	1.2 mØ	Para.	18	H13	0.091
24 ch, 100W	: T303	1.8	"	21	H20	0.052
		2.4	"	23.5	A20	0.048
Mux Noise (pWOp)		3.0	"	26	A39	0.026
460 SG/380 G		4.2	"	28.5		
310 GC/230 R		6.0	"	32		
		8.0	"	34.5		

UHF SYSTEM PERFORMANCE CALCULATION

(900 MHz, ~~24 ch~~/120 ch, 5 W/~~100 W~~)

Path No. 4421-3

Station P	Phi Mai	T.~~R.~~	Station Q	Chum Phuang	T.~~R.~~

Path Type: L/S (~~no~~ reflection), ~~Mt. Diffraction~~			P	Q
Antenna Height	ha	m	33	33
Antenna Type & Size (~~Yagi~~, Parabolic)		mφ	2.4	1.8
Antenna Gain	Ga	dBi	23.5	21.0
Feeder Type			H20	H20
Feeder Length	lf	m	43	43
Feeder Loss(ha + 10) x ΔLf	Lf	dB	2.2	2.2

Antenna Height at P	ha1	m	33.0 ***
Antenna Height at Q	ha2	m	33.0 ***
Path Loss			
Path Distance	d	km	30.1 ***
Free Space Propagation Loss	Lo	dB	121.1 ***
Additional Propagation Loss(50%)	La	dB	6.0 ***
Total Propagation Loss(50%)	Lp	dB	127.1 ***
Required Antenna Gain	Ga	dB	42.6 ***
Antenna Gain at P	Ga1	dBi	23.5 ***
Antenna Gain at Q	Ga2	dBi	21.0 ***
Branching Loss	Lb	dB	5.0
Feeder Loss at P	Lf1	dB	2.2 ***
Feeder Loss at Q	Lf2	dB	2.2 ***
Net Loss(50%)	Ln	dB	92.1 ***
Median Noise(50%)			
Figure of Merit	Fm	dB	160.0
Signal/Thermal Noise	S/Nta	dB	67.9 ***
Thermal Noise	Nta	pWOp	162.0 ***
Equipment Thermal Noise	Nte	pWOp	100.0
Intermodulation Noise	Nim	pWOp	200.0
Interference Noise	Nif	pWOp	240.0
Radio Link Noise	Npr	pWOp	702.0 ***
Carrier Multiplex Noise	Npm	pWOp	460.0 ***
Total Noise	Np	pWOp	1162.0 ***
Signal/Total Noise(≥ 57/50 dB)	S/Np	dB	59.3 ***
Short Period Noise(99.9%)			
Fading Depth	Af	dB	15.0 ***
Signal/Thermal Noise	S/Nta	dB	52.9 ***
Thermal Noise	Nta	pWOp	5129.0 ***
Radio Link Noise	Npr	pWOp	5669.0 ***
Total Noise	Np	pWOp	6129.0 ***
Signal/Total Noise	S/Np	dB	52.1 ***
Fading Margin			
Tx Output Power	Pt	dBm	37.0
Rx Input Level(50%)	Pri	dBm	-55.1 ***
Threshold Level	Pth	dBm	-90.0
Margin to Threshold(50%)(≥ 33 dB)	Mth	dB	34.9 ***

Program No.
120 ch, 5W : T301
24 ch, 5W : T302
24 ch, 100W : T303

Mux Noise(pWOp)
460 SG/380 G
310 GC/230 R

Antenna Gain (dBi)		
14 ele.	Yagi	15
1.2 mφ	Para.	18
1.8	"	21
2.4	"	23.5
3.0	"	26
4.2	"	28.5
6.0	"	32
8.0	"	34.5

Feeder Loss (dB/m)	
RG-17/U	0.141
H13	0.091
H20	0.052
A20	0.048
A39	0.026

UHF SYSTEM PERFORMANCE CALCULATION (900 MHz, 24 ch/~~120 ch,~~ 5 W/~~100 W~~)	Path No. 4421-4

Station P	Chum Phuang	T.~~R~~	Station Q	Prathai	T.~~R~~

Path Type: L/S (~~no~~ reflection), ~~Mt. Diffraction~~			P	Q	
Antenna Height	ha	m	33	33	
Antenna Type & Size (Yagi,Parabolic)		Ele, mφ	12	1.2	
Antenna Gain	Ga	dBi	14	18	
Feeder Type			H20	H20	
Feeder Length	lf	m	43	43	
Feeder Loss(ha + 10) x ΔLf	Lf	dB	2.2	2.2	
Antenna Height at P	ha1	m		33.0	***
Antenna Height at Q	ha2	m		33.0	***
Path Loss					
Path Distance	d	km		20.4	***
Free Space Propagation Loss	Lo	dB		117.7	***
Additional Propagation Loss(50%)	La	dB		3.0	***
Total Propagation Loss(50%)	Lp	dB		120.7	***
Required Antenna Gain	Ga	dB		31.2	***
Antenna Gain at P	Ga1	dBi		14.0	***
Antenna Gain at Q	Ga2	dBi		18.0	***
Branching Loss	Lb	dB		5.0	
Feeder Loss at P	Lf1	dB		2.2	***
Feeder Loss at Q	Lf2	dB		2.2	***
Net Loss(50%)	Ln	dB		98.2	***
Median Noise(50%)					
Figure of Merit	Fm	dB		165.0	
Signal/Thermal Noise	S/Nta	dB		66.8	***
Thermal Noise	Nta	pWOp		209.0	***
Equipment Thermal Noise	Nte	pWOp		100.0	
Intermodulation Noise	Nim	pWOp		200.0	
Interference Noise	Nif	pWOp		240.0	
Radio Link Noise	Npr	pWOp		749.0	***
Carrier Multiplex Noise	Npm	pWOp		236.0	***
Total Noise	Np	pWOp		979.0	***
Signal/Total Noise(≥ 57/50 dB)	S/Np	dB		60.1	***
Short Period Noise(99.9%)					
Fading Depth	Af	dB		13.0	***
Signal/Thermal Noise	S/Nta	dB		53.8	***
Thermal Noise	Nta	pWOp		4169.0	***
Radio Link Noise	Npr	pWOp		4709.0	***
Total Noise	Np	pWOp		4939.0	***
Signal/Total Noise	S/Np	dB		53.1	***
Fading Margin					
Tx Output Power	Pt	dBm		37.0	
Rx Input Level(50%)	Pri	dBm		-61.2	***
Threshold Level	Pth	dBm		-95.0	
Margin to Threshold(50%)(≥ 33 dB)	Mth	dB		33.8	***

Program No.
- 120 ch, 5W : T301
- 24 ch, 5W : T302
- 24 ch, 100W : T303

Mux Noise(pWOp)
- 460 SG/380 G
- 310 GC/230 R

Antenna Gain (dBi)		
14 ele.	Yagi	15
1.2 mφ	Para.	18
1.8	"	21
2.4	"	23.5
3.0	"	26
4.2	"	28.5
6.0	"	32
8.0	"	34.5

Feeder Loss(dB/m)	
RG-17 /U	0.14
H13	0.091
H20	0.052
A20	0.048
A39	0.026

UHF SYSTEM PERFORMANCE CALCULATION (900 MHz, ~~24 ch~~/120 ch, 5 W/~~100 W~~)			Path No. 4421-5	
Station P Bua Yai	T ~~R~~	Station Q Khong		T ~~R~~

Path Type: L/S (~~no~~ reflection), ~~Mt. Diffraction~~			P	Q
Antenna Height	ha	m	40	43
Antenna Type & Size (~~Yagi~~, Parabolic)		mφ	1.8	1.8
Antenna Gain	Ga	dBi	21	21
Feeder Type			H20	H20
Feeder Length	lf	m	50	53
Feeder Loss(ha + 10) x ΔLf	Lf	dB	2.6	2.8
Antenna Height at P	ha1	m	40.0 ***	
Antenna Height at Q	ha2	m	43.0 ***	
Path Loss				
Path Distance	d	km	18.6 ***	
Free Space Propagation Loss	Lo	dB	116.9 ***	
Additional Propagation Loss(50%)	La	dB	8.0 ***	
Total Propagation Loss(50%)	Lp	dB	124.9 ***	
Required Antenna Gain	Ga	dB	41.3 ***	
Antenna Gain at P	Ga1	dBi	21.0 ***	
Antenna Gain at Q	Ga2	dBi	21.0 ***	
Branching Loss	Lb	dB	5.2	
Feeder Loss at P	Lf1	dB	2.6 ***	
Feeder Loss at Q	Lf2	dB	2.8 ***	
Net Loss(50%)	Ln	dB	93.3 ***	
Median Noise(50%)				
Figure of Merit	Fm	dB	166.0	
Signal/Thermal Noise	S/Nta	dB	66.7 ***	
Thermal Noise	Nta	pWOp	214.0 ***	
Equipment Thermal Noise	Nte	pWOp	100.0	
Intermodulation Noise	Nim	pWOp	200.0	
Interference Noise	Nif	pWOp	240.0	
Radio Link Noise	Npr	pWOp	754.0 ***	
Carrier Multiplex Noise	Npm	pWOp	460.0 ***	
Total Noise	Np	pWOp	1214.0 ***	
Signal/Total Noise(≥ 57/50 dB)	S/Np	dB	59.2 ***	
Short Period Noise(99.9%)				
Fading Depth	Af	dB	13.0 ***	
Signal/Thermal Noise	S/Nta	dB	53.7 ***	
Thermal Noise	Nta	pWOp	4266.0 ***	
Radio Link Noise	Npr	pWOp	4806.0 ***	
Total Noise	Np	pWOp	5266.0 ***	
Signal/Total Noise	S/Np	dB	52.8 ***	
Fading Margin				
Tx Output Power	Pt	dBm	37.0	
Rx Input Level(50%)	Pri	dBm	-55.3 ***	
Threshold Level	Pth	dBm	-90.0	
Margin to Threshold(50%)(≥ 33 dB)	Mth	dB	33.7 ***	

Program No.
120 ch, 5W : T301
24 ch, 5W : T302
24 ch, 100W : T303

Mux Noise(pWOp)
460 SG/380 G
310 GC/230 R

Antenna Gain (dBi)		
14 ele.	Yagi	15
1.2 mφ	Para.	18
1.8	"	21
2.4	"	23.5
3.0	"	26
4.2	"	28.5
6.0	"	32
8.0	"	34.5

Feeder Loss(dB/m)	
RG-17/U	0.14
H13	0.091
H20	0.052
A20	0.048
A39	0.026

UHF SYSTEM PERFORMANCE CALCULATION (900 MHz, 24 ch/~~120 ch~~, 5 W/~~100 W~~)	Path No. 4421-6

Station P	Nakhon Ratchasima	T=~~R~~	Station Q	Non Thai	T=~~R~~

Path Type: L/S (no reflection), ~~Mt. Diffraction~~			P	Q
Antenna Height	ha	m	55	33
Antenna Type & Size (~~Yagi~~, Parabolic)		mø	1.2	1.8
Antenna Gain	Ga	dBi	18	21
Feeder Type			H20	H20
Feeder Length	lf	m	65	43
Feeder Loss(ha + 10) x ΔLf	Lf	dB	3.4	2.2
Antenna Height at P	ha1	m	55.0 ***	
Antenna Height at Q	ha2	m	33.0 ***	
Path Loss				
Path Distance	d	km	25.5 ***	
Free Space Propagation Loss	Lo	dB	119.6 ***	
Additional Propagation Loss(50%)	La	dB	6.0 ***	
Total Propagation Loss(50%)	Lp	dB	125.6 ***	
Required Antenna Gain	Ga	dB	37.2 ***	
Antenna Gain at P	Ga1	dBi	18.0 ***	
Antenna Gain at Q	Ga2	dBi	21.0 ***	
Branching Loss	Lb	dB	5.0	
Feeder Loss at P	Lf1	dB	3.4 ***	
Feeder Loss at Q	Lf2	dB	2.2 ***	
Net Loss(50%)	Ln	dB	97.2 ***	
Median Noise(50%)				
Figure of Merit	Fm	dB	165.0	
Signal/Thermal Noise	S/Nta	dB	67.8 ***	
Thermal Noise	Nta	pWOp	166.0 ***	
Equipment Thermal Noise	Nte	pWOp	100.0	
Intermodulation Noise	Nim	pWOp	200.0	
Interference Noise	Nif	pWOp	240.0	
Radio Link Noise	Npr	pWOp	706.0 ***	
Carrier Multiplex Noise	Npm	pWOp	380.0 ***	
Total Noise	Np	pWOp	1086.0 ***	
Signal/Total Noise(≥ 57/50 dB)	S/Np	dB	59.6 ***	
Short Period Noise(99.9%)				
Fading Depth	Af	dB	14.0 ***	
Signal/Thermal Noise	S/Nta	dB	53.8 ***	
Thermal Noise	Nta	pWOp	4169.0 ***	
Radio Link Noise	Npr	pWOp	4709.0 ***	
Total Noise	Np	pWOp	5089.0 ***	
Signal/Total Noise	S/Np	dB	52.9 ***	
Fading Margin				
Tx Output Power	Pt	dBm	37.8	
Rx Input Level(50%)	Pri	dBm	-60.2 ***	
Threshold Level	Pth	dBm	-95.0	
Margin to Threshold(50%)(≥ 33 dB)	Mth	dB	34.8 ***	

Program No.
- 120 ch, 5W : T301
- 24 ch, 5W : T302
- 24 ch, 100W : T303

Mux Noise(pWOp)
- 460 SG/380 G
- 310 GC/230 R

Antenna Gain (dBi)		
14 ele.	Yagi	15
1.2 mø	Para.	18
1.8	"	21
2.4	"	23.5
3.0	"	26
4.2	"	28.5
6.0	"	32
8.0	"	34.5

Feeder Loss(dB/m)	
RG-17 /U	0.14
H13	0.091
H20	0.052
A20	0.048
A39	0.026

UHF SYSTEM PERFORMANCE CALCULATION

(900 MHz, 24 ch/~~120 ch~~, 5 W/~~100 W~~)

Path No. 4421-7

Station P	Non Thai	T.#	Station Q	Kham Sakae Saeng	T.#

Path Type: L/S (no reflection), ~~Mt. Diffraction~~			P	Q
Antenna Height	ha	m	33	33
Antenna Type & Size (~~Yagi~~, Parabolic)		mφ	1.2	1.2
Antenna Gain	Ga	dBi	18	18
Feeder Type			H20	H20
Feeder Length	lf	m	43	43
Feeder Loss(ha + 10) x ΔLf	Lf	dB	2.2	2.2

Antenna Height at P	ha1	m	33.0 ***
Antenna Height at Q	ha2	m	33.0 ***
Path Loss			
Path Distance	d	km	17.9 ***
Free Space Propagation Loss	Lo	dB	116.6 ***
Additional Propagation Loss(50%)	La	dB	6.0 ***
Total Propagation Loss(50%)	Lp	dB	122.6 ***
Required Antenna Gain	Ga	dB	33.1 ***
Antenna Gain at P	Ga1	dBi	18.0 ***
Antenna Gain at Q	Ga2	dBi	18.0 ***
Branching Loss	Lb	dB	5.0
Feeder Loss at P	Lf1	dB	2.2 ***
Feeder Loss at Q	Lf2	dB	2.2 ***
Net Loss(50%)	Ln	dB	96.1 ***
Median Noise(50%)			
Figure of Merit	Fm	dB	165.0
Signal/Thermal Noise	S/Nta	dB	68.9 ***
Thermal Noise	Nta	pWOp	129.0 ***
Equipment Thermal Noise	Nte	pWOp	100.0
Intermodulation Noise	Nim	pWOp	200.0
Interference Noise	Nif	pWOp	240.0
Radio Link Noise	Npr	pWOp	669.0 ***
Carrier Multiplex Noise	Npm	pWOp	190.0 ***
Total Noise	Np	pWOp	859.0 ***
Signal/Total Noise(≥ 57/50 dB)	S/Np	dB	60.7 ***
Short Period Noise(99.9%)			
Fading Depth	Af	dB	13.0 ***
Signal/Thermal Noise	S/Nta	dB	55.9 ***
Thermal Noise	Nta	pWOp	2570.0 ***
Radio Link Noise	Npr	pWOp	3110.0 ***
Total Noise	Np	pWOp	3300.0 ***
Signal/Total Noise	S/Np	dB	54.8 ***
Fading Margin			
Tx Output Power	Pt	dBm	37.0
Rx Input Level(50%)	Pri	dBm	-59.1 ***
Threshold Level	Pth	dBm	-95.0
Margin to Threshold(50%)(≥ 33 dB)	Mth	dB	35.9 ***

Program No.		Antenna Gain (dBi)		Feeder Loss(dB/m)	
120 ch, 5W	: T301	14 ele. Yagi	15	RG-17 /U	0.14
24 ch, 5W	: T302	1.2 mφ Para.	18	H13	0.091
24 ch, 100W	: T303	1.8 "	21	H20	0.052
		2.4 "	23.5	A20	0.048
Mux Noise(pWOp)		3.0 "	26	A39	0.026
460 SG/380 G		4.2 "	28.5		
310 GC/230 R		6.0 "	32		
		8.0 "	34.5		

UHF SYSTEM PERFORMANCE CALCULATION

(900 MHz, ~~24 ch~~/120 ch, 5 W/~~100 W~~)

Path No. 4421-8

Station P		T.~~R~~	Station Q		T.~~R~~
	Non Thai			Dan Khun That	

Path Type: L/S (no reflection), ~~Mt. Diffraction~~			P	Q
Antenna Height	ha	m	43	43
Antenna Type & Size (~~Yagi~~, Parabolic)		mφ	2.4	2.4
Antenna Gain	Ga	dBi	23.5	23.5
Feeder Type			H20	H20
Feeder Length	lf	m	53	53
Feeder Loss(ha + 10) x ΔLf	Lf	dB	2.8	2.8

Antenna Height at P	ha1	m	43.0 ***
Antenna Height at Q	ha2	m	43.0 ***
Path Loss			
Path Distance	d	km	32.7 ***
Free Space Propagation Loss	Lo	dB	121.9 ***
Additional Propagation Loss(50%)	La	dB	13.0 ***
Total Propagation Loss(50%)	Lp	dB	134.8 ***
Required Antenna Gain	Ga	dB	46.3
Antenna Gain at P	Ga1	dBi	23.5 ***
Antenna Gain at Q	Ga2	dBi	23.5 ***
Branching Loss	Lb	dB	5.0
Feeder Loss at P	Lf1	dB	2.8 ***
Feeder Loss at Q	Lf2	dB	2.8 ***
Net Loss(50%)	Ln	dB	98.3 ***
Median Noise(50%)			
Figure of Merit	Fm	dB	165.0
Signal/Thermal Noise	S/Nta	dB	66.7 ***
Thermal Noise	Nta	pWOp	214.0 ***
Equipment Thermal Noise	Nte	pWOp	100.0
Intermodulation Noise	Nim	pWOp	200.0
Interference Noise	Nif	pWOp	240.0
Radio Link Noise	Npr	pWOp	754.0 ***
Carrier Multiplex Noise	Npm	pWOp	193.0 ***
Total Noise	Np	pWOp	944.0 ***
Signal/Total Noise(≥ 57/50 dB)	S/Np	dB	60.3 ***
Short Period Noise(99.9%)			
Fading Depth	Af	dB	15.0 ***
Signal/Thermal Noise	S/Nta	dB	51.7 ***
Thermal Noise	Nta	pWOp	6761.0 ***
Radio Link Noise	Npr	pWOp	7301.0 ***
Total Noise	Np	pWOp	7491.0 ***
Signal/Total Noise	S/Np	dB	51.3 ***
Fading Margin			
Tx Output Power	Pt	dBm	37.0
Rx Input Level(50%)	Pri	dBm	-61.3 ***
Threshold Level	Pth	dBm	-95.0
Margin to Threshold(50%)(≥ 33 dB)	Mth	dB	33.7 ***

Program No.
- 120 ch, 5W : T301
- 24 ch, 5W : T302
- 24 ch, 100W : T303

Mux Noise(pWOp)
- 460 SG/380 G
- 310 GC/230 R

Antenna Gain (dBi)		
14 ele.	Yagi	15
1.2 mφ	Para.	18
1.8	"	21
2.4	"	23.5
3.0	"	26
4.2	"	28.5
6.0	"	32
8.0	"	34.5

Feeder Loss(dB/m)	
RG-17 /U	0.14
H13	0.091
H20	0.052
A20	0.048
A39	0.026

UHF SYSTEM PERFORMANCE CALCULATION

(900 MHz, 24 ch/~~120 ch~~, 5 W/~~100 W~~)

Path No. 4421-9

Station P	Nakhon Ratchasima	T.~~R~~	Station Q	Chakkarat	T.~~R~~

Path Type: L/S (no reflection), Mt. ~~Diffraction~~

			P	Q
Antenna Height	ha	m	55	63
Antenna Type & Size (~~Yagi~~, Parabolic)		mϕ	2.4	3.0
Antenna Gain	Ga	dBi	23.5	26
Feeder Type			H20	H20
Feeder Length	lf	m	65	73
Feeder Loss(ha + 10) x ΔLf	Lf	dB	3.4	3.8

Antenna Height at P	ha1	m	55.0 ***
Antenna Height at Q	ha2	m	63.0 ***
Path Loss			
Path Distance	d	km	34.0 ***
Free Space Propagation Loss	Lo	dB	122.1 ***
Additional Propagation Loss(50%)	La	dB	12.0 ***
Total Propagation Loss(50%)	Lp	dB	134.1 ***
Required Antenna Gain	Ga	dB	47.3 ***
Antenna Gain at P	Ga1	dBi	23.5 ***
Antenna Gain at Q	Ga2	dBi	26.0 ***
Branching Loss	Lb	dB	5.0
Feeder Loss at P	Lf1	dB	3.4 ***
Feeder Loss at Q	Lf2	dB	3.8 ***
Net Loss(50%)	Ln	dB	96.8 ***
Median Noise(50%)			
Figure of Merit	Fm	dB	165.0
Signal/Thermal Noise	S/Nta	dB	68.2 ***
Thermal Noise	Nta	pWOp	151.0 ***
Equipment Thermal Noise	Nte	pWOp	100.0
Intermodulation Noise	Nim	pWOp	200.0
Interference Noise	Nif	pWOp	240.0
Radio Link Noise	Npr	pWOp	691.0 ***
Carrier Multiplex Noise	Npm	pWOp	380.0 ***
Total Noise	Np	pWOp	1071.0 ***
Signal/Total Noise(≥ 57/50 dB)	S/Np	dB	59.7 ***
Short Period Noise(99.9%)			
Fading Depth	Af	dB	15.0 ***
Signal/Thermal Noise	S/Nta	dB	53.2 ***
Thermal Noise	Nta	pWOp	4786.0 ***
Radio Link Noise	Npr	pWOp	5326.0 ***
Total Noise	Np	pWOp	5706.0 ***
Signal/Total Noise	S/Np	dB	52.4 ***
Fading Margin			
Tx Output Power	Pt	dBm	37.0
Rx Input Level(50%)	Pri	dBm	-59.8 ***
Threshold Level	Pth	dBm	-95.0
Margin to Threshold(50%)(≥ 33 dB)	Mth	dB	35.2 ***

Program No.

120 ch, 5W : T301
24 ch, 5W : T302
24 ch, 100W : T303

Mux Noise(pWOp)

460 SG/380 G
310 GC/230 R

Antenna Gain (dBi)		
14 ele.	Yagi	15
1.2 mØ	Para.	18
1.8	"	21
2.4	"	23.5
3.0	"	26
4.2	"	28.5
6.0	"	32
8.0	"	34.5

Feeder Loss (dB/m)	
RG-17 /U	0.14
H13	0.091
H20	0.052
A20	0.048
A39	0.026

UHF SYSTEM PERFORMANCE CALCULATION (900 MHz, 24 ch/~~120 ch~~, 5 W/~~100 W~~)	Path No. 4421-10

Station P	Chakkarat	T.	Station Q	Huai Thalaeng	T.

Path Type: L/S (no reflection), ~~Nt. Diffraction~~			P	Q
Antenna Height	ha	m	63	58
Antenna Type & Size (~~Yagi~~, Parabolic)		mφ	1.8	2.4
Antenna Gain	Ga	dBi	21	23.5
Feeder Type			H20	H20
Feeder Length	lf	m	73	68
Feeder Loss(ha + 10) x ΔLf	Lf	dB	3.8	3.5
Antenna Height at P	ha1	m		63.0 ***
Antenna Height at Q	ha2	m		58.0 ***
Path Loss				
Path Distance	d	km		24.3 ***
Free Space Propagation Loss	Lo	dB		119.2 ***
Additional Propagation Loss(50%)	La	dB		10.0 ***
Total Propagation Loss(50%)	Lp	dB		129.2 ***
Required Antenna Gain	Ga	dB		42.5 ***
Antenna Gain at P	Ga1	dBi		21.0 ***
Antenna Gain at Q	Ga2	dBi		23.5 ***
Branching Loss	Lb	dB		5.0
Feeder Loss at P	Lf1	dB		3.8 ***
Feeder Loss at Q	Lf2	dB		3.5 ***
Net Loss(50%)	Ln	dB		97.0 ***
Median Noise(50%)				
Figure of Merit	Fm	dB		165.0
Signal/Thermal Noise	S/Nta	dB		68.0 ***
Thermal Noise	Nta	pWOp		158.0 ***
Equipment Thermal Noise	Nte	pWOp		100.0
Intermodulation Noise	Nim	pWOp		200.0
Interference Noise	Nif	pWOp		240.0
Radio Link Noise	Npr	pWOp		698.0 ***
Carrier Multiplex Noise	Npm	pWOp		150.0 ***
Total Noise	Np	pWOp		888.0 ***
Signal/Total Noise(≥ 57/50 dB)	S/Np	dB		60.5 ***
Short Period Noise(99.9%)				
Fading Depth	Af	dB		14.0 ***
Signal/Thermal Noise	S/Nta	dB		54.0 ***
Thermal Noise	Nta	pWOp		3961.0 ***
Radio Link Noise	Npr	pWOp		4521.0 ***
Total Noise	Np	pWOp		4711.0 ***
Signal/Total Noise	S/Np	dB		53.3 ***
Fading Margin				
Tx Output Power	Pt	dBm		37.0
Rx Input Level(50%)	Pri	dBm		-60.0 ***
Threshold Level	Pth	dBm		-95.0
Margin to Threshold(50%)(≥ 33 dB)	Mth	dB		35.0 ***

Program No.
- 120 ch, 5W : T301
- 24 ch, 5W : T302
- 24 ch, 100W : T303

Mux Noise(pWOp)
- 460 SG/380 G
- 310 GC/230 R

Antenna Gain (dBi)		
14 ele.	Yagi	15
1.2 mØ	Para.	18
1.8	"	21
2.4	"	23.5
3.0	"	26
4.2	"	28.5
6.0	"	32
8.0	"	34.5

Feeder Loss(dB/m)	
RG-17 /U	0.14
H13	0.091
H20	0.052
A20	0.048
A39	0.026

UHF SYSTEM PERFORMANCE CALCULATION

(900 MHz, 24 ch/~~120 ch~~, 5 W/~~100 W~~)

Path No. 4421-11

Station P	T ~~R~~	Station Q	T ~~R~~
Kham Thale So		Nakhon Ratchasima	

Path Type: L/S (~~no~~ reflection), ~~Mt. Diffraction~~			P	Q
Antenna Height	ha	m	33	35
Antenna Type & Size (Yagi, Parabolic)		mØ, Ele.	1.2	14
Antenna Gain	Ga	dBi	18	15
Feeder Type			H20	H20
Feeder Length	lf	m	43	45
Feeder Loss(ha + 10) x ΔLf	Lf	dB	2.2	2.3

Antenna Height at P	ha1	m	33.0 ***
Antenna Height at Q	ha2	m	35.0 ***
Path Loss			
Path Distance	d	km	16.5 ***
Free Space Propagation Loss	Lo	dB	115.8 ***
Additional Propagation Loss(50%)	La	dB	6.0 ***
Total Propagation Loss(50%)	Lp	dB	121.8 ***
Required Antenna Gain	Ga	dB	32.4 ***
Antenna Gain at P	Ga1	dBi	18.0 ***
Antenna Gain at Q	Ga2	dBi	15.0 ***
Branching Loss	Lb	dB	5.0
Feeder Loss at P	Lf1	dB	2.2 ***
Feeder Loss at Q	Lf2	dB	2.3 ***
Net Loss(50%)	Ln	dB	98.4 ***
Median Noise(50%)			
Figure of Merit	Fm	dB	165.0
Signal/Thermal Noise	S/Nta	dB	66.6 ***
Thermal Noise	Nta	pWOp	219.0 ***
Equipment Thermal Noise	Nte	pWOp	100.0
Intermodulation Noise	Nim	pWOp	200.0
Interference Noise	Nif	pWOp	240.0
Radio Link Noise	Npr	pWOp	759.0 ***
Carrier Multiplex Noise	Npm	pWOp	380.0 ***
Total Noise	Np	pWOp	1139.0 ***
Signal/Total Noise(≥ 57/50 dB)	S/Np	dB	59.4 ***
Short Period Noise(99.9%)			
Fading Depth	Af	dB	12.0 ***
Signal/Thermal Noise	S/Nta	dB	54.6 ***
Thermal Noise	Nta	pWOp	3467.0 ***
Radio Link Noise	Npr	pWOp	4007.0 ***
Total Noise	Np	pWOp	4387.0 ***
Signal/Total Noise	S/Np	dB	53.6 ***
Fading Margin			
Tx Output Power	Pt	dBm	37.0
Rx Input Level(50%)	Pri	dBm	-61.4 ***
Threshold Level	Pth	dBm	-95.0
Margin to Threshold(50%)(≥ 33 dB)	Mth	dB	33.6 ***

Program No.
- 120 ch, 5W : T301
- 24 ch, 5W : T302
- 24 ch, 100W : T303

Mux Noise(pWOp)
- 460 SG/380 G
- 310 GC/230 R

Antenna Gain (dBi)		
14 ele.	Yagi	15
1.2 mØ	Para.	18
1.8	"	21
2.4	"	23.5
3.0	"	26
4.2	"	28.5
6.0	"	32
8.0	"	34.5

Feeder Loss(dB/m)	
RG-17 /U	0.141
H13	0.091
H20	0.052
A20	0.048
A39	0.026

UHF SYSTEM PERFORMANCE CALCULATION (900 MHz, 24 ch/~~120 ch~~, 5 W/~~100 W~~)	Path No. 4421-12

Station P	Si Kiu	T-~~R~~	Station Q	Sung Noen	T-~~R~~

Path Type: L/S (~~no~~ reflection), ~~Mt. Diffraction~~			P	Q
Antenna Height	ha	m	33	33
Antenna Type & Size (Yagi, ~~Parabolic~~)		Ele.	8	8
Antenna Gain	Ga	dBi	12	12
Feeder Type			H20	H20
Feeder Length	lf	m	43	43
Feeder Loss(ha + 10) x ΔLf	Lf	dB	2.2	2.2

Antenna Height at P	ha1	m	33.0 ***
Antenna Height at Q	ha2	m	33.0 ***
Path Loss			
Path Distance	d	km	11.3 ***
Free Space Propagation Loss	Lo	dB	112.6 ***
Additional Propagation Loss(50%)	La	dB	0.0 ***
Total Propagation Loss(50%)	Lp	dB	112.6 ***
Required Antenna Gain	Ga	dB	23.1 ***
Antenna Gain at P	Ga1	dBi	12.0 ***
Antenna Gain at Q	Ga2	dBi	12.0 ***
Branching Loss	Lb	dB	5.0
Feeder Loss at P	Lf1	dB	2.2 ***
Feeder Loss at Q	Lf2	dB	2.2 ***
Net Loss(50%)	Ln	dB	98.1 ***
Median Noise(50%)			
Figure of Merit	Fm	dB	165.0
Signal/Thermal Noise	S/Nta	dB	66.9 ***
Thermal Noise	Nta	pWOp	204.0 ***
Equipment Thermal Noise	Nte	pWOp	100.0
Intermodulation Noise	Nim	pWOp	200.0
Interference Noise	Nif	pWOp	240.0
Radio Link Noise	Npr	pWOp	744.0 ***
Carrier Multiplex Noise	Npm	pWOp	380.0 ***
Total Noise	Np	pWOp	1124.0 ***
Signal/Total Noise(≥ 57/50 dB)	S/Np	dB	59.5 ***
Short Period Noise(99.9%)			
Fading Depth	Af	dB	11.0 ***
Signal/Thermal Noise	S/Nta	dB	55.9 ***
Thermal Noise	Nta	pWOp	2570.0 ***
Radio Link Noise	Npr	pWOp	3110.0 ***
Total Noise	Np	pWOp	3490.0 ***
Signal/Total Noise	S/Np	dB	54.6 ***
Fading Margin			
Tx Output Power	Pt	dBm	37.0
Rx Input Level(50%)	Pri	dBm	-61.1 ***
Threshold Level	Pth	dBm	-95.0
Margin to Threshold(50%)(≥ 33 dB)	Mth	dB	33.9 ***

Program No.
- 120 ch, 5W : T301
- 24 ch, 5W : T302
- 24 ch, 100W : T303

Mux Noise(pWOp)
- 460 SG/380 G
- 310 GC/230 R

Antenna Gain (dBi)		
14 ele.	Yagi	15
1.2 mØ	Para.	18
1.8	"	21
2.4	"	23.5
3.0	"	26
4.2	"	28.5
6.0	"	32
8.0	"	34.5

Feeder Loss(dB/m)	
RG-17 /U	0.14
H13	0.091
H20	0.052
A20	0.048
A39	0.026

UHF SYSTEM PERFORMANCE CALCULATION

(900 MHz, 24 ch/~~120 ch,~~ 5 W/~~100 W~~)

Path No. 4421-13

Station P	Pak Tong Chai	T.R	Station Q	Chok Chai	T.R

Path Type: L/S (~~no~~ reflection), ~~No. Diffraction~~			P	Q
Antenna Height	ha	m	43	48
Antenna Type & Size (~~Yagi~~, Parabolic)		mØ	1.8	1.8
Antenna Gain	Ga	dBi	21	21
Feeder Type			H20	H20
Feeder Length	lf	m	53	58
Feeder Loss(ha + 10) x ΔLf	Lf	dB	2.8	3.0
Antenna Height at P	ha1	m	43.0 ***	
Antenna Height at Q	ha2	m	48.0 ***	
Path Loss				
Path Distance	d	km	15.4 ***	
Free Space Propagation Loss	Lo	dB	115.3 ***	
Additional Propagation Loss(50%)	La	dB	13.0 ***	
Total Propagation Loss(50%)	Lp	dB	128.3 ***	
Required Antenna Gain	Ga	dB	40.1 ***	
Antenna Gain at P	Ga1	dBi	21.0 ***	
Antenna Gain at Q	Ga2	dBi	21.0 ***	
Branching Loss	Lb	dB	5.0	
Feeder Loss at P	Lf1	dB	2.8 ***	
Feeder Loss at Q	Lf2	dB	3.0 ***	
Net Loss(50%)	Ln	dB	97.1 ***	
Median Noise(50%)				
Figure of Merit	Fm	dB	165.0	
Signal/Thermal Noise	S/Nta	dB	67.9 ***	
Thermal Noise	Nta	pWOp	162.0 ***	
Equipment Thermal Noise	Nte	pWOp	100.0	
Intermodulation Noise	Nim	pWOp	200.0	
Interference Noise	Nif	pWOp	240.0	
Radio Link Noise	Npr	pWOp	702.0 ***	
Carrier Multiplex Noise	Npm	pWOp	230.0 ***	
Total Noise	Np	pWOp	932.0 ***	
Signal/Total Noise(≥ 57/50 dB)	S/Np	dB	60.3 ***	
Short Period Noise(99.9%)				
Fading Depth	Af	dB	12.0 ***	
Signal/Thermal Noise	S/Nta	dB	55.9 ***	
Thermal Noise	Nta	pWOp	2570.0 ***	
Radio Link Noise	Npr	pWOp	3110.0 ***	
Total Noise	Np	pWOp	3340.0 ***	
Signal/Total Noise	S/Np	dB	54.8 ***	
Fading Margin				
Tx Output Power	Pt	dBm	37.0	
Rx Input Level(50%)	Pri	dBm	-60.1 ***	
Threshold Level	Pth	dBm	-95.0	
Margin to Threshold(50%)(≥ 33 dB)	Mth	dB	34.9 ***	

Program No.

- 120 ch, 5W : T301
- 24 ch, 5W : T302
- 24 ch, 100W : T303

Mux Noise(pWOp)

- 460 SG/380 G
- 310 GC/230 R

Antenna Gain (dBi)		
14 ele.	Yagi	15
1.2 mØ	Para.	18
1.8	"	21
2.4	"	23.5
3.0	"	26
4.2	"	28.5
6.0	"	32
8.0	"	34.5

Feeder Loss(dB/m)	
RG-17 /U	0.14
H13	0.091
H20	0.052
A20	0.048
A39	0.026

UHF SYSTEM PERFORMANCE CALCULATION

(900 MHz, 24 ch/~~120 ch~~, 5 W/~~100 W~~)

Path No. 4421-14

Station P	Pak Tong Chai	T ~~R~~	Station Q	Khon Buri	T ~~R~~

Path Type: L/S (no reflection), ~~Mr. Diffraction~~			P	Q
Antenna Height	ha	m	38	38
Antenna Type & Size (~~Yagi~~, Parabolic)		mØ	2.4	2.4
Antenna Gain	Ga	dBi	23.5	23.5
Feeder Type			H20	H20
Feeder Length	lf	m	48	48
Feeder Loss(ha + 10) x ΔLf	Lf	dB	2.5	2.5
Antenna Height at P	ha1	m	38.0 ***	
Antenna Height at Q	ha2	m	38.0 ***	
Path Loss				
Path Distance	d	km	31.9 ***	
Free Space Propagation Loss	Lo	dB	121.6 ***	
Additional Propagation Loss(50%)	La	dB	14.0 ***	
Total Propagation Loss(50%)	Lp	dB	135.6 ***	
Required Antenna Gain	Ga	dB	46.6 ***	
Antenna Gain at P	Ga1	dBi	23.5 ***	
Antenna Gain at Q	Ga2	dBi	23.5 ***	
Branching Loss	Lb	dB	5.0	
Feeder Loss at P	Lf1	dB	2.5 ***	
Feeder Loss at Q	Lf2	dB	2.5 ***	
Net Loss(50%)	Ln	dB	96.6 ***	
Median Noise(50%)				
Figure of Merit	Fm	dB	165.0	
Signal/Thermal Noise	S/Nta	dB	66.4 ***	
Thermal Noise	Nta	pWOp	229.0 ***	
Equipment Thermal Noise	Nte	pWOp	100.0	
Intermodulation Noise	Nim	pWOp	200.0	
Interference Noise	Nif	pWOp	240.0	
Radio Link Noise	Npr	pWOp	769.0 ***	
Carrier Multiplex Noise	Npm	pWOp	380.0 ***	
Total Noise	Np	pWOp	1149.0 ***	
Signal/Total Noise(≥ 57/50 dB)	S/Np	dB	59.4 ***	
Short Period Noise(99.9%)				
Fading Depth	Af	dB	15.0 ***	
Signal/Thermal Noise	S/Nta	dB	51.4 ***	
Thermal Noise	Nta	pWOp	7244.0 ***	
Radio Link Noise	Npr	pWOp	7784.0 ***	
Total Noise	Np	pWOp	8164.0 ***	
Signal/Total Noise	S/Np	dB	50.9 ***	
Fading Margin				
Tx Output Power	Pt	dBm	37.0	
Rx Input Level(50%)	Pri	dBm	-61.6 ***	
Threshold Level	Pth	dBm	-95.0	
Margin to Threshold(50%)(≥ 33 dB)	Mth	dB	33.4 ***	

Program No.

- 120 ch, 5W : T301
- 24 ch, 5W : T302
- 24 ch, 100W : T303

Mux Noise(pWOp)

- 460 SG/380 G
- 310 GC/230 R

Antenna Gain (dBi)		
14 ele.	Yagi	15
1.2 mØ	Para.	18
1.8	"	21
2.4	"	23.5
3.0	"	26
4.2	"	28.5
6.0	"	32
8.0	"	34.5

Feeder Loss(dB/m)	
RG-17 /U	0.14
H13	0.091
H20	0.052
A20	0.048
A39	0.026

UHF SYSTEM PERFORMANCE CALCULATION (900 MHz, 24 ch/~~120 ch~~, 5 W/~~100 W~~)	Path No. 4421-15

Station P	T.R.	Station Q	T.R.
Khon Buri		Sa Pratheep	

Path Type: L/S (no reflection), ~~No Diffraction~~			P	Q
Antenna Height	ha	m	38	68
Antenna Type & Size (~~Yagi~~, Parabolic)		mØ	1.8	2.4
Antenna Gain	Ga	dBi	21	23.5
Feeder Type			H20	H20
Feeder Length	lf	m	48	78
Feeder Loss (ha + 10) x ΔLf	Lf	dB	2.5	4.1

Antenna Height at P	ha1	m	38.0 ***
Antenna Height at Q	ha2	m	68.0 ***
Path Loss			
Path Distance	d	km	17.1 ***
Free Space Propagation Loss	Lo	dB	116.2 ***
Additional Propagation Loss (50%)	La	dB	15.0 ***
Total Propagation Loss (50%)	Lp	dB	131.2 ***
Required Antenna Gain	Ga	dB	43.8 ***
Antenna Gain at P	Ga1	dBi	21.0 ***
Antenna Gain at Q	Ga2	dBi	23.5 ***
Branching Loss	Lb	dB	5.0
Feeder Loss at P	Lf1	dB	2.5 ***
Feeder Loss at Q	Lf2	dB	4.1 ***
Net Loss (50%)	Ln	dB	98.3 ***
Median Noise (50%)			
Figure of Merit	Fm	dB	165.0
Signal/Thermal Noise	S/Nta	dB	66.7 ***
Thermal Noise	Nta	pWOp	214.0 ***
Equipment Thermal Noise	Nte	pWOp	100.0
Intermodulation Noise	Nim	pWOp	200.0
Interference Noise	Nif	pWOp	240.0
Radio Link Noise	Npr	pWOp	754.0 ***
Carrier Multiplex Noise	Npm	pWOp	190.0 ***
Total Noise	Np	pWOp	944.0 ***
Signal/Total Noise (≥ 57/50 dB)	S/Np	dB	60.3 ***
Short Period Noise (99.9%)			
Fading Depth	Af	dB	12.0 ***
Signal/Thermal Noise	S/Nta	dB	54.7 ***
Thermal Noise	Nta	pWOp	3388.0 ***
Radio Link Noise	Npr	pWOp	3926.0 ***
Total Noise	Np	pWOp	4118.0 ***
Signal/Total Noise	S/Np	dB	53.9 ***
Fading Margin			
Tx Output Power	Pt	dBm	37.0
Rx Input Level (50%)	Pri	dBm	-61.3 ***
Threshold Level	Pth	dBm	-95.0
Margin to Threshold (50%) (≥ 33 dB)	Mth	dB	33.7 ***

Program No.

120 ch, 5W	:	T301
24 ch, 5W	:	T302
24 ch, 100W	:	T303

Mux Noise (pWOp)

460 SG/380 G	
310 GC/230 R	

Antenna Gain (dBi)

14 ele.	Yagi	15
1.2 mØ	Para.	18
1.8	"	21
2.4	"	23.5
3.0	"	26
4.2	"	28.5
6.0	"	32
8.0	"	34.5

Feeder Loss (dB/m)

RG-17 /U	0.14
H13	0.091
H20	0.052
A20	0.048
A39	0.026

UHF SYSTEM PERFORMANCE CALCULATION (900 MHz, 24 ch/120 ch, 5 W/100 W)	Path No. 4421-16

Station P	Sa Pratheep	~~P~~.R	Station Q	Saeng Sang	T.~~R~~

Path Type: L/S (no reflection), ~~Mt. Diffraction~~			P	Q
Antenna Height	ha	m	63	73
Antenna Type & Size (~~Yagi~~, Parabolic)		mφ	1.2	1.8
Antenna Gain	Ga	dBi	18	21
Feeder Type			H20	H20
Feeder Length	lf	m	73	83
Feeder Loss (ha + 10) x ΔLf	Lf	dB	3.8	4.3
Antenna Height at P	ha1	m	63.0 ***	
Antenna Height at Q	ha2	m	73.0 ***	
Path Loss				
Path Distance	d	km	12.6 ***	
Free Space Propagation Loss	Lo	dB	113.5 ***	
Additional Propagation Loss (50%)	La	dB	10.0 ***	
Total Propagation Loss (50%)	Lp	dB	123.5 ***	
Required Antenna Gain	Ga	dB	37.6 ***	
Antenna Gain at P	Ga1	dBi	18.0 ***	
Antenna Gain at Q	Ga2	dBi	21.0 ***	
Branching Loss	Lb	dB	5.0	
Feeder Loss at P	Lf1	dB	3.8 ***	
Feeder Loss at Q	Lf2	dB	4.3 ***	
Net Loss (50%)	Ln	dB	97.6 ***	
Median Noise (50%)				
Figure of Merit	Fm	dB	165.0	
Signal/Thermal Noise	S/Nta	dB	67.4 ***	
Thermal Noise	Nta	pWOp	182.0 ***	
Equipment Thermal Noise	Nte	pWOp	100.0	
Intermodulation Noise	Nim	pWOp	200.0	
Interference Noise	Nif	pWOp	240.0	
Radio Link Noise	Npr	pWOp	722.0 ***	
Carrier Multiplex Noise	Npm	pWOp	190.0 ***	
Total Noise	Np	pWOp	912.0 ***	
Signal/Total Noise (≥ 57/50 dB)	S/Np	dB	60.4 ***	
Short Period Noise (99.9%)				
Fading Depth	Af	dB	11.0 ***	
Signal/Thermal Noise	S/Nta	dB	56.4 ***	
Thermal Noise	Nta	pWOp	2291.0 ***	
Radio Link Noise	Npr	pWOp	2831.0 ***	
Total Noise	Np	pWOp	3021.0 ***	
Signal/Total Noise	S/Np	dB	55.2 ***	
Fading Margin				
Tx Output Power	Pt	dBm	37.0	
Rx Input Level (50%)	Pri	dBm	-60.6 ***	
Threshold Level	Pth	dBm	-95.0	
Margin to Threshold (50%) (≥ 33 dB)	Mth	dB	34.4 ***	

Program No.		Antenna Gain (dBi)			Feeder Loss (dB/m)	
120 ch, 5W	T301	14 ele. Yagi		15	RG-17/U	0.14
24 ch, 5W	T302	1.2 mφ	Para.	18	H13	0.091
24 ch, 100W	T303	1.8	"	21	H20	0.052
		2.4	"	23.5	A20	0.048
Mux Noise (pWOp)		3.0	"	26	A39	0.026
460 SG/380 G		4.2	"	28.5		
310 GC/230 R		6.0	"	32		
		8.0	"	34.5		

UHF SYSTEM PERFORMANCE CALCULATION (900 MHz, ~~24 ch~~/120 ch, 5 W/~~100 W~~)	Path No. 5313-1

Station P	Chiangmai	T.~~R~~	Station Q	Ban Pak Tang	~~T~~.R

Path Type: L/S (~~no~~ reflection), ~~Mt. Diffraction~~			P	Q
Antenna Height	ha	m	40	15
Antenna Type & Size (~~Yagi~~, Parabolic)		mφ	2.4	2.4
Antenna Gain	Ga	dBi	23.5	23.5
Feeder Type			H20	H20
Feeder Length	lf	m	50	25
Feeder Loss(ha + 10) x 4Lf	Lf	dB	2.6	1.3
Antenna Height at P	ha1	m	40.0	
Antenna Height at Q	ha2	m	15.0	
Path Loss				
Path Distance	d	km	37.2 ***	
Free Space Propagation Loss	Lo	dB	122.9 ***	
Additional Propagation Loss(50%)	La	dB	7.0 ***	
Total Propagation Loss(50%)	Lp	dB	129.9 ***	
Required Antenna Gain	Ga	dB	44.8 ***	
Antenna Gain at P	Ga1	dBi	23.5 ***	
Antenna Gain at Q	Ga2	dBi	23.5 ***	
Branching Loss	Lb	dB	5.0	
Feeder Loss at P	Lf1	dB	2.6 ***	
Feeder Loss at Q	Lf2	dB	1.3 ***	
Net Loss(50%)	Ln	dB	91.8 ***	
Median Noise(50%)				
Figure of Merit	Fm	dB	160.0	
Signal/Thermal Noise	S/Nta	dB	68.2 ***	
Thermal Noise	Nta	pWOp	151.0 ***	
Equipment Thermal Noise	Nte	pWOp	100.0	
Intermodulation Noise	Nim	pWOp	222.0	
Interference Noise	Nif	pWOp	246.8	
Radio Link Noise	Npr	pWOp	591.0 ***	
Carrier Multiplex Noise	Npm	pWOp	230.0 ***	
Total Noise	Np	pWOp	921.0 ***	
Signal/Total Noise(≥ 57/50 dB)	S/Np	dB	60.4 ***	
Short Period Noise(99.9%)				
Fading Depth	Af	dB	16.8 ***	
Signal/Thermal Noise	S/Nta	dB	52.2 ***	
Thermal Noise	Nta	pWOp	6025.0 ***	
Radio Link Noise	Npr	pWOp	6565.0 ***	
Total Noise	Np	pWOp	6796.0 ***	
Signal/Total Noise	S/Np	dB	51.7 ***	
Fading Margin				
Tx Output Power	Pt	dBm	37.0	
Rx Input Level(50%)	Pri	dBm	-54.8 ***	
Threshold Level	Pth	dBm	-90.0	
Margin to Threshold(50%)(≥ 33 dB)	Mth	dB	35.2 ***	

Program No.		Antenna Gain (dBi)		Feeder Loss(dB/m)	
120 ch, 5W	: T301	14 ele. Yagi	15	RG-17 /U	0.14
24 ch, 5W	: T302	1.2 mØ Para.	18	H13	0.091
24 ch, 100W	: T303	1.8 "	21	H20	0.052
		2.4 "	23.5	A20	0.048
Mux Noise(pWOp)		3.0 "	26	A39	0.026
460 SG/380 G		4.2 "	28.5		
310 GC/230 R		6.0 "	32		
		8.0 "	34.5		

UHF SYSTEM PERFORMANCE CALCULATION

(900 MHz, ~~24 ch~~/120 ch, 5 W/~~100 W~~)

Path No. 5313-2

Station P	Ban Pak Tang	~~R~~	Station Q	Doi Chiang Dao	T~~R~~

Path Type: L/S (~~no~~ reflection), ~~Mt. Diffraction~~			P	Q
Antenna Height	ha	m	30	18
Antenna Type & Size (Yagi, ~~Parabolic~~)		Ele.	14	14
Antenna Gain	Ga	dBi	15	15
Feeder Type			H20	H20
Feeder Length	lf	m	40	28
Feeder Loss(ha + 10) x ΔLf	Lf	dB	2.1	1.5

Antenna Height at P	ha1	m	30.0 ***
Antenna Height at Q	ha2	m	18.0 ***
Path Loss			
Path Distance	d	km	14.8 ***
Free Space Propagation Loss	Lo	dB	114.9 ***
Additional Propagation Loss(50%)	La	dB	0.0 ***
Total Propagation Loss(50%)	Lp	dB	114.9 ***
Required Antenna Gain	Ga	dB	29.4 ***
Antenna Gain at P	Ga1	dBi	15.0 ***
Antenna Gain at Q	Ga2	dBi	15.0 ***
Branching Loss	Lb	dB	5.0
Feeder Loss at P	Lf1	dB	2.1 ***
Feeder Loss at Q	Lf2	dB	1.5 ***
Net Loss(50%)	Ln	dB	93.4 ***
Median Noise(50%)			
Figure of Merit	Fm	dB	160.0
Signal/Thermal Noise	S/Nta	dB	66.6 ***
Thermal Noise	Nta	pWOp	215.0 ***
Equipment Thermal Noise	Nte	pWOp	100.0
Intermodulation Noise	Nim	pWOp	200.0
Interference Noise	Nif	pWOp	240.0
Radio Link Noise	Npr	pWOp	759.0 ***
Carrier Multiplex Noise	Npm	pWOp	0.0 ***
Total Noise	Np	pWOp	759.0 ***
Signal/Total Noise(≥ 57/50 dB)	S/Np	dB	61.2 ***
Short Period Noise(99.9%)			
Fading Depth	Af	dB	12.0 ***
Signal/Thermal Noise	S/Nta	dB	54.6 ***
Thermal Noise	Nta	pWOp	3467.0 ***
Radio Link Noise	Npr	pWOp	4007.0 ***
Total Noise	Np	pWOp	4007.0 ***
Signal/Total Noise	S/Np	dB	[illegible] ***
Fading Margin			
Tx Output Power	Pt	dBm	37.0
Rx Input Level(50%)	Pri	dBm	-56.4 ***
Threshold Level	Pth	dBm	-90.0
Margin to Threshold(50%)(≥ 33 dB)	Mth	dB	33.6 ***

Program No.
120 ch, 5W : T301
24 ch, 5W : T302
24 ch, 100W : T303

Mux Noise(pWOp)
460 SG/380 G
310 GC/230 R

Antenna Gain (dBi)		
14 ele.	Yagi	15
1.2 mØ	Para.	18
1.8	"	21
2.4	"	23.5
3.0	"	26
4.2	"	28.5
6.0	"	32
8.0	"	34.5

Feeder Loss(dB/m)	
RG-17 /U	0.14
H13	0.091
H20	0.052
A20	0.048
A39	0.026

UHF SYSTEM PERFORMANCE CALCULATION (900 MHz, ~~24 ch~~/120 ch, 5 W/~~100 W~~)	Path No. 5313-3

Station P Doi Chiang Dao	T ~~R~~	Station Q Doi Pha Hong	~~T~~ R

Path Type: L/S (no reflection), ~~Nt. Diffraction~~			P	Q
Antenna Height	ha	m	18	18
Antenna Type & Size (Yagi, ~~Parabolic~~)		mØ	1.2	1.8
Antenna Gain	Ga	dBi	18	21
Feeder Type			H20	H20
Feeder Length	lf	m	28	28
Feeder Loss(ha + 10) x ΔLf	Lf	dB	1.5	1.5

Antenna Height at P	ha1	m	18.0 ***
Antenna Height at Q	ha2	m	18.0 ***
Path Loss			
Path Distance	d	km	47.6 ***
Free Space Propagation Loss	Lo	dB	125.1 ***
Additional Propagation Loss(50%)	La	dB	0.0 ***
Total Propagation Loss(50%)	Lp	dB	125.1 ***
Required Antenna Gain	Ga	dB	39.0 ***
Antenna Gain at P	Ga1	dBi	18.0 ***
Antenna Gain at Q	Ga2	dBi	21.0 ***
Branching Loss	Lb	dB	5.0
Feeder Loss at P	Lf1	dB	1.5 ***
Feeder Loss at Q	Lf2	dB	1.5 ***
Net Loss(50%)	Ln	dB	94.0 ***
Median Noise(50%)			
Figure of Merit	Fm	dB	160.0
Signal/Thermal Noise	S/Nta	dB	66.0 ***
Thermal Noise	Nta	pWOp	251.0 ***
Equipment Thermal Noise	Nte	pWOp	100.0
Intermodulation Noise	Nim	pWOp	200.0
Interference Noise	Nif	pWOp	240.0
Radio Link Noise	Npr	pWOp	791.0 ***
Carrier Multiplex Noise	Npm	pWOp	0.0 ***
Total Noise	Np	pWOp	791.0 ***
Signal/Total Noise(≥ 57/50 dB)	S/Np	dB	61.0 ***
Short Period Noise(99.9%)			
Fading Depth	Af	dB	17.0 ***
Signal/Thermal Noise	S/Nta	dB	49.0 ***
Thermal Noise	Nta	pWOp	12589.0 ***
Radio Link Noise	Npr	pWOp	13129.0 ***
Total Noise	Np	pWOp	13129.0 ***
Signal/Total Noise	S/Np	dB	48.8 ***
Fading Margin			
Tx Output Power	Pt	dBm	37.0
Rx Input Level(50%)	Pri	dBm	-57.0 ***
Threshold Level	Pth	dBm	-90.0
Margin to Threshold(50%)(≥ 33 dB)	Mth	dB	33.0 ***

Program No.		Antenna Gain (dBi)			Feeder Loss(dB/m)	
120 ch, 5W	: T301	14 ele.	Yagi	15	RG-17 /U	0.14
24 ch, 5W	: T302	1.2 mØ	Para.	18	H13	0.091
24 ch, 100W	: T303	1.8	"	21	H20	0.052
		2.4	"	23.5	A20	0.048
Mux Noise(pWOp)		3.0	"	26	A39	0.026
460 SG/380 G		4.2	"	28.5		
310 GC/230 R		6.0	"	32		
		8.0	"	34.5		

UHF SYSTEM PERFORMANCE CALCULATION (900 MHz, ~~24 ch~~/120 ch, 5 W/~~100 W~~)	Path No. 5313-4

Station P	Doi Pha Hong	~~T~~ R	Station Q	Fang	T ~~R~~

Path Type: L/S (~~no~~ reflection), ~~Nt. Diffraction~~			P	Q
Antenna Height	ha	m	18	33
Antenna Type & Size (~~Yagi~~, Parabolic)		mØ	1.2	1.8
Antenna Gain	Ga	dBi	18	21
Feeder Type			H20	H20
Feeder Length	lf	m	28	43
Feeder Loss(ha + 10) x ΔLf	Lf	dB	1.5	2.2

Antenna Height at P	ha1	m	18.0 ***
Antenna Height at Q	ha2	m	33.0 ***
Path Loss			
Path Distance	d	km	[illegible].6 ***
Free Space Propagation Loss	Lo	dB	122.0 ***
Additional Propagation Loss(50%)	La	dB	0.0 ***
Total Propagation Loss(50%)	Lp	dB	122.0 ***
Required Antenna Gain	Ga	dB	36.7 ***
Antenna Gain at P	Ga1	dBi	18.0 ***
Antenna Gain at Q	Ga2	dBi	21.0 ***
Branching Loss	Lb	dB	5.0
Feeder Loss at P	Lf1	dB	1.5 ***
Feeder Loss at Q	Lf2	dB	2.2 ***
Net Loss(50%)	Ln	dB	91.7 ***
Median Noise(50%)			
Figure of Merit	Fm	dB	160.0
Signal/Thermal Noise	S/Nta	dB	69.3 ***
Thermal Noise	Nta	pWOp	149.0 ***
Equipment Thermal Noise	Nte	pWOp	100.0
Intermodulation Noise	Nim	pWOp	200.0
Interference Noise	Nif	pWOp	240.0
Radio Link Noise	Npr	pWOp	689.0 ***
Carrier Multiplex Noise	Npm	pWOp	230.0 ***
Total Noise	Np	pWOp	918.0 ***
Signal/Total Noise(≥ 57/50 dB)	S/Np	dB	60.4 ***
Short Period Noise(99.9%)			
Fading Depth	Af	dB	15.0 ***
Signal/Thermal Noise	S/Nta	dB	53.3 ***
Thermal Noise	Nta	pWOp	4677.0 ***
Radio Link Noise	Npr	pWOp	5217.0 ***
Total Noise	Np	pWOp	5447.0 ***
Signal/Total Noise	S/Np	dB	52.5 ***
Fading Margin			
Tx Output Power	Pt	dBm	37.0
Rx Input Level(50%)	Pri	dBm	-54.7 ***
Threshold Level	Pth	dBm	-90.0
Margin to Threshold(50%)(≥ 33 dB)	Mth	dB	35.3 ***

Program No.
- 120 ch, 5W : T301
- 24 ch, 5W : T302
- 24 ch, 100W : T303

Mux Noise(pWOp)
- 460 SG/380 G
- 310 GC/230 R

Antenna Gain (dBi)		
14 ele.	Yagi	15
1.2 mØ	Para.	18
1.8	"	21
2.4	"	23.5
3.0	"	26
4.2	"	28.5
6.0	"	32
8.0	"	34.5

Feeder Loss(dB/m)	
RG-17 /U	0.14
H13	0.091
H20	0.052
A20	0.048
A39	0.026

UHF SYSTEM PERFORMANCE CALCULATION

(900 MHz, 24 ch/~~120 ch~~, 5 W/~~100 W~~)

Path No. 5313-5

Station P	Fang	T.#	Station O	Mae Ai	T.#

Path Type: L/S (~~no~~ reflection), ~~No Diffraction~~

			P	Q
Antenna Height	ha	m	33	33
Antenna Type & Size (Yagi, Parabolic)		Ele, mφ	12	1.2
Antenna Gain	Ga	dBi	14	18
Feeder Type			H20	H20
Feeder Length	lf	m	43	43
Feeder Loss(ha + 10) x ΔLf	Lf	dB	2.2	2.2
Antenna Height at P	ha1	m	33.0 ***	
Antenna Height at Q	ha2	m	33.0 ***	
Path Loss				
Path Distance	d	km	13.6 ***	
Free Space Propagation Loss	Lo	dB	114.3 ***	
Additional Propagation Loss(50%)	La	dB	6.0 ***	
Total Propagation Loss(50%)	Lp	dB	120.3 ***	
Required Antenna Gain	Ga	dB	30.8 ***	
Antenna Gain at P	Ga1	dBi	14.0 ***	
Antenna Gain at Q	Ga2	dBi	18.0 ***	
Branching Loss	Lb	dB	5.0	
Feeder Loss at P	Lf1	dB	2.2 ***	
Feeder Loss at Q	Lf2	dB	2.2 ***	
Net Loss(50%)	Ln	dB	97.8 ***	
Median Noise(50%)				
Figure of Merit	Fm	dB	165.0	
Signal/Thermal Noise	S/Nta	dB	67.2 ***	
Thermal Noise	Nta	pWOp	191.0 ***	
Equipment Thermal Noise	Nte	pWOp	100.0	
Intermodulation Noise	Nim	pWOp	200.0	
Interference Noise	Nif	pWOp	240.0	
Radio Link Noise	Npr	pWOp	731.0 ***	
Carrier Multiplex Noise	Npm	pWOp	190.0 ***	
Total Noise	Np	pWOp	921.0 ***	
Signal/Total Noise(≥ 57/50 dB)	S/Np	dB	60.4 ***	
Short Period Noise(99.9%)				
Fading Depth	Af	dB	11.0 ***	
Signal/Thermal Noise	S/Nta	dB	56.2 ***	
Thermal Noise	Nta	pWOp	2399.0 ***	
Radio Link Noise	Npr	pWOp	2939.0 ***	
Total Noise	Np	pWOp	3129.0 ***	
Signal/Total Noise	S/Np	dB	55.0 ***	
Fading Margin				
Tx Output Power	Pt	dBm	37.0	
Rx Input Level(50%)	Pri	dBm	-60.8 ***	
Threshold Level	Pth	dBm	-95.0	
Margin to Threshold(50%)(≥ 33 dB)	Mth	dB	34.2 ***	

Program No.

120 ch, 5W	: T301
24 ch, 5W	: T302
24 ch, 100W	: T303

Mux Noise(pWOp)

460 SG/380 G

310 GC/230 R

Antenna Gain (dBi)

14 ele.	Yagi	15
1.2 mØ	Para.	18
1.8	"	21
2.4	"	23.5
3.0	"	26
4.2	"	28.5
6.0	"	32
8.0	"	34.5

Feeder Loss (dB/m)

RG-17/U	0.14
H13	0.091
H20	0.052
A20	0.048
A39	0.026

UHF SYSTEM PERFORMANCE CALCULATION

(900 MHz, ~~24 ch~~/120 ch, 5 W/~~100 W~~)

Path No. 5313-6

Station P		Station Q	
Doi Chiang Dao	T ~~R~~	Chiang Dao	T ~~R~~

Path Type: L/S (~~no~~ reflection), ~~No Diffraction~~

			P	Q
Antenna Height	ha	m	18	33
Antenna Type & Size (Yagi, ~~Parabolic~~)		Ele	14	14
Antenna Gain	Ga	dBi	15	15
Feeder Type			H20	H20
Feeder Length	lf	m	28	48
Feeder Loss(ha + 10) x ΔLf	Lf	dB	1.5	2.2

Antenna Height at P	ha1	m	18.0	***
Antenna Height at Q	ha2	m	33.0	***
Path Loss				
Path Distance	d	km	14.[illegible]	***
Free Space Propagation Loss	Lo	dB	115.0	***
Additional Propagation Loss(50%)	La	dB	0.0	***
Total Propagation Loss(50%)	Lp	dB	115.0	***
Required Antenna Gain	Ga	dB	29.7	***
Antenna Gain at P	Ga1	dBi	15.0	***
Antenna Gain at Q	Ga2	dBi	15.0	***
Branching Loss	Lb	dB	5.0	
Feeder Loss at P	Lf1	dB	1.5	***
Feeder Loss at Q	Lf2	dB	2.2	***
Net Loss(50%)	Ln	dB	93.7	***
Median Noise(50%)				
Figure of Merit	Fm	dB	160.0	
Signal/Thermal Noise	S/Nta	dB	66.3	***
Thermal Noise	Nta	pWOp	234.0	***
Equipment Thermal Noise	Nte	pWOp	100.0	
Intermodulation Noise	Nim	pWOp	200.0	
Interference Noise	Nif	pWOp	240.0	
Radio Link Noise	Npr	pWOp	774.0	***
Carrier Multiplex Noise	Npm	pWOp	310.0	***
Total Noise	Np	pWOp	1084.0	***
Signal/Total Noise(≥ 57/50 dB)	S/Np	dB	59.6	***
Short Period Noise(99.9%)				
Fading Depth	Af	dB	12.0	***
Signal/Thermal Noise	S/Nta	dB	54.3	***
Thermal Noise	Nta	pWOp	3715.0	***
Radio Link Noise	Npr	pWOp	4255.0	***
Total Noise	Np	pWOp	4565.0	***
Signal/Total Noise	S/Np	dB	53.4	***
Fading Margin				
Tx Output Power	Pt	dBm	37.0	
Rx Input Level(50%)	Pri	dBm	-56.7	***
Threshold Level	Pth	dBm	-90.0	
Margin to Threshold(50%)(≥ 33 dB)	Mth	dB	33.3	***

Program No.
- 120 ch, 5W : T301
- 24 ch, 5W : T302
- 24 ch, 100W : T303

Mux Noise(pWOp)
- 460 SG/380 G
- 310 GC/230 R

Antenna Gain (dBi)		
14 ele.	Yagi	15
1.2 mØ	Para.	18
1.8	"	21
2.4	"	23.5
3.0	"	26
4.2	"	28.5
6.0	"	32
8.0	"	34.5

Feeder Loss(dB/m)	
RG-17 /U	0.14
H13	0.091
H20	0.052
A20	0.048
A39	0.026

UHF SYSTEM PERFORMANCE CALCULATION (900 MHz, ~~24 ch~~/120 ch, 5 W/~~100 W~~)	Path No. 5313-7

Station P	Doi Chiang Dao	T ~~R~~	Station Q	Doi Mu Soe	~~T~~ R

Path Type: L/S (no reflection), ~~No Diffraction~~			P	Q
Antenna Height	ha	m	18	18
Antenna Type & Size (~~Yagi~~, Parabolic)		mØ	1.2	1.2
Antenna Gain	Ga	dBi	18	18
Feeder Type			H20	H20
Feeder Length	lf	m	28	28
Feeder Loss(ha + 10) x ΔLf	Lf	dB	1.5	1.5

Antenna Height at P	ha1	m	18.0 ***
Antenna Height at Q	ha2	m	18.0 ***
Path Loss			
Path Distance	d	km	29.8 ***
Free Space Propagation Loss	Lo	dB	121.0 ***
Additional Propagation Loss(50%)	La	dB	0.0 ***
Total Propagation Loss(50%)	Lp	dB	121.0 ***
Required Antenna Gain	Ga	dB	34.9 ***
Antenna Gain at P	Ga1	dBi	18.0 ***
Antenna Gain at Q	Ga2	dBi	18.0 ***
Branching Loss	Lb	dB	5.0
Feeder Loss at P	Lf1	dB	1.5 ***
Feeder Loss at Q	Lf2	dB	1.5 ***
Net Loss(50%)	Ln	dB	92.9 ***
Median Noise(50%)			
Figure of Merit	Fm	dB	160.0
Signal/Thermal Noise	S/Nta	dB	67.1 ***
Thermal Noise	Nta	pWOp	195.0 ***
Equipment Thermal Noise	Nte	pWOp	100.0
Intermodulation Noise	Nim	pWOp	200.0
Interference Noise	Nif	pWOp	246.0
Radio Link Noise	Npr	pWOp	735.0 ***
Carrier Multiplex Noise	Npm	pWOp	0.0 ***
Total Noise	Np	pWOp	735.0 ***
Signal/Total Noise(≥ 57/50 dB)	S/Np	dB	61.3 ***
Short Period Noise(99.9%)			
Fading Depth	Af	dB	15.0 ***
Signal/Thermal Noise	S/Nta	dB	52.1 ***
Thermal Noise	Nta	pWOp	6166.0 ***
Radio Link Noise	Npr	pWOp	6706.0 ***
Total Noise	Np	pWOp	6706.0 ***
Signal/Total Noise	S/Np	dB	51.7 ***
Fading Margin			
Tx Output Power	Pt	dBm	37.0
Rx Input Level(50%)	Pri	dBm	-55.9 ***
Threshold Level	Pth	dBm	-90.0
Margin to Threshold(50%)(≥ 33 dB)	Mth	dB	34.1 ***

Program No.
- 120 ch, 5W : T301
- 24 ch, 5W : T302
- 24 ch, 100W : T303

Mux Noise(pWOp)
- 460 SG/380 G
- 310 GC/230 R

Antenna Gain (dBi)		
14 ele.	Yagi	15
1.2 mØ	Para.	18
1.8	"	21
2.4	"	23.5
3.0	"	26
4.2	"	28.5
6.0	"	32
8.0	"	34.5

Feeder Loss(dB/m)	
RG-17 /U	0.14
H13	0.091
H20	0.052
A20	0.048
A39	0.026

UHF SYSTEM PERFORMANCE CALCULATION (900 MHz, ~~24 ch~~/120 ch, 5 W/~~100 W~~)	Path No. 5313-8

Station P		Station Q	
Doi Mu Soe	~~T~~ R	Phrao	T ~~R~~

Path Type: L/S (no reflection), ~~Mt. Diffraction~~			P	Q
Antenna Height	ha	m	18	33
Antenna Type & Size (Yagi, ~~Parabolic~~)		Ele.	8	8
Antenna Gain	Ga	dBi	12	12
Feeder Type			H20	H20
Feeder Length	lf	m	28	43
Feeder Loss(ha + 10) x ΔLf	Lf	dB	1.5	2.2

Antenna Height at P	ha1	m	18.0 ***
Antenna Height at Q	ha2	m	33.0 ***
Path Loss			
Path Distance	d	km	7.1 ***
Free Space Propagation Loss	Lo	dB	108.5 ***
Additional Propagation Loss(50%)	La	dB	0.0 ***
Total Propagation Loss(50%)	Lp	dB	108.5 ***
Required Antenna Gain	Ga	dB	23.2 ***
Antenna Gain at P	Ga1	dBi	12.0 ***
Antenna Gain at Q	Ga2	dBi	12.0 ***
Branching Loss	Lb	dB	5.0
Feeder Loss at P	Lf1	dB	1.5 ***
Feeder Loss at Q	Lf2	dB	2.2 ***
Net Loss(50%)	Ln	dB	93.2 ***
Median Noise(50%)			
Figure of Merit	Fm	dB	160.0
Signal/Thermal Noise	S/Nta	dB	62.8 ***
Thermal Noise	Nta	pWOp	209.0 ***
Equipment Thermal Noise	Nte	pWOp	100.0
Intermodulation Noise	Nim	pWOp	200.0
Interference Noise	Nif	pWOp	240.0
Radio Link Noise	Npr	pWOp	749.0 ***
Carrier Multiplex Noise	Npm	pWOp	230.0 ***
Total Noise	Np	pWOp	979.0 ***
Signal/Total Noise(≥ 57/50 dB)	S/Np	dB	60.1 ***
Short Period Noise(99.9%)			
Fading Depth	Af	dB	9.0 ***
Signal/Thermal Noise	S/Nta	dB	57.8 ***
Thermal Noise	Nta	pWOp	1660.0 ***
Radio Link Noise	Npr	pWOp	2200.0 ***
Total Noise	Np	pWOp	2430.0 ***
Signal/Total Noise	S/Np	dB	56.1 ***
Fading Margin			
Tx Output Power	Pt	dBm	37.0
Rx Input Level(50%)	Pri	dBm	-59.2 ***
Threshold Level	Pth	dBm	-96.0
Margin to Threshold(50%)(≥ 33 dB)	Mth	dB	33.6 ***

Program No.
- 120 ch, 5W : T301
- 24 ch, 5W : T302
- 24 ch, 100W : T303

Mux Noise(pWOp)
- 460 SG/380 G
- 310 GC/230 R

Antenna Gain (dBi)		
14 ele.	Yagi	15
1.2 mØ	Para.	18
1.8	"	21
2.4	"	23.5
3.0	"	26
4.2	"	28.5
6.0	"	32
8.0	"	34.5

Feeder Loss(dB/m)	
RG-17 /U	0.14
H13	0.091
H20	0.052
A20	0.048
A39	0.026

UHF SYSTEM PERFORMANCE CALCULATION

(900 MHz, ~~24 ch~~/120 ch, 5 W/~~100 W~~)

Path No. 5313-9

Station P	Mae Rim	T ~~R~~	Station Q	Chiangmai	T ~~R~~

			P	Q
Path Type: L/S ~~(no reflection)~~, Mt. Diffraction				
Antenna Height	ha	m	68	40
Antenna Type & Size (~~Yagi,~~ Parabolic)		mØ	4.2	2.4
Antenna Gain	Ga	dBi	28.5	23.5
Feeder Type			H20	H20
Feeder Length	lf	m	78	50
Feeder Loss(ha + 10) x 4Lf	Lf	dB	4.1	2.6
Antenna Height at P	ha1	m	68.0	
Antenna Height at Q	ha2	m	40.0	
Path Loss				
Path Distance	d	km	12.3	
Free Space Propagation Loss	Lo	dB	113.3	
Additional Propagation Loss(50%)	La	dB	20.0	
Total Propagation Loss(50%)	Lp	dB	133.3	
Required Antenna Gain	Ga	dB	51.0	
Antenna Gain at P	Ga1	dBi	28.5	
Antenna Gain at Q	Ga2	dBi	23.5	
Branching Loss	Lb	dB	5.0	
Feeder Loss at P	Lf1	dB	4.1	
Feeder Loss at Q	Lf2	dB	2.6	
Net Loss(50%)	Ln	dB	93.0	
Median Noise(50%)				
Figure of Merit	Fm	dB	160.0	
Signal/Thermal Noise	S/Nta	dB	67.0	
Thermal Noise	Nta	pWOp	200.0	
Equipment Thermal Noise	Nte	pWOp	100.0	
Intermodulation Noise	Nim	pWOp	200.0	
Interference Noise	Nif	pWOp	240.0	
Radio Link Noise	Npr	pWOp	740.0	
Carrier Multiplex Noise	Npm	pWOp	460.0	
Total Noise	Np	pWOp	1200.0	
Signal/Total Noise(≥ 57/50 dB)	S/Np	dB	59.2	
Short Period Noise(99.9%)				
Fading Depth	Af	dB	10.0	
Signal/Thermal Noise	S/Nta	dB	57.0	
Thermal Noise	Nta	pWOp	1995.0	
Radio Link Noise	Npr	pWOp	2535.0	
Total Noise	Np	pWOp	2995.0	
Signal/Total Noise	S/Np	dB	55.2	
Fading Margin				
Tx Output Power	Pt	dBm	37.0	
Rx Input Level(50%)	Pri	dBm	-56.0	
Threshold Level	Pth	dBm	-90.0	
Margin to Threshold(50%)(≥ 33 dB)	Mth	dB	34.0	

Program No.
- 120 ch, 5W : T301
- 24 ch, 5W : T302
- 24 ch, 100W : T303

Mux Noise(pWOp)
- 460 SG/380 G
- 310 GC/230 R

Antenna Gain (dBi)	
14 ele. Yagi	15
1.2 mØ Para.	18
1.8 "	21
2.4 "	23.5
3.0 "	26
4.2 "	28.5
6.0 "	32
8.0 "	34.5

Feeder Loss(dB/m)	
RG-17 /U	0.14
H13	0.091
H20	0.052
A20	0.048
A39	0.026

UHF SYSTEM PERFORMANCE CALCULATION (900 MHz, ~~24 ch~~/120 ch, 5 W/~~100 W~~)	Path No. 5313-10
Station P: Mae Rim — T ~~R~~	Station Q: Mae Taeng — T ~~R~~

Path Type: L/S (no reflection), ~~Mt. Diffraction~~			P	Q
Antenna Height	ha	m	68	57
Antenna Type & Size (~~Yagi~~, Parabolic)		mϕ	2.4	3.0
Antenna Gain	Ga	dBi	23.5	26
Feeder Type			H20	H20
Feeder Length	lf	m	78	67
Feeder Loss(ha + 10) x ΔLf	Lf	dB	4.1	3.5

Item	Symbol	Unit	Value
Antenna Height at P	ha1	m	68.0 ***
Antenna Height at Q	ha2	m	57.0 ***
Path Loss			
Path Distance	d	km	22.8 ***
Free Space Propagation Loss	Lo	dB	118.7 ***
Additional Propagation Loss(50%)	La	dB	10.0 ***
Total Propagation Loss(50%)	Lp	dB	128.7 ***
Required Antenna Gain	Ga	dB	47.2 ***
Antenna Gain at P	Ga1	dBi	23.5 ***
Antenna Gain at Q	Ga2	dBi	26.0 ***
Branching Loss	Lb	dB	5.0
Feeder Loss at P	Lf1	dB	4.1 ***
Feeder Loss at Q	Lf2	dB	3.5 ***
Net Loss(50%)	Ln	dB	91.7 ***
Median Noise(50%)			
Figure of Merit	Fm	dB	160.0
Signal/Thermal Noise	S/Nta	dB	68.3 ***
Thermal Noise	Nta	pWOp	148.0 ***
Equipment Thermal Noise	Nte	pWOp	100.0
Intermodulation Noise	Nim	pWOp	200.0
Interference Noise	Nif	pWOp	240.0
Radio Link Noise	Npr	pWOp	688.0 ***
Carrier Multiplex Noise	Npm	pWOp	230.0 ***
Total Noise	Np	pWOp	918.0 ***
Signal/Total Noise(≥ 57/50 dB)	S/Np	dB	60.4 ***
Short Period Noise(99.9%)			
Fading Depth	Af	dB	14.0 ***
Signal/Thermal Noise	S/Nta	dB	54.3 ***
Thermal Noise	Nta	pWOp	3715.0 ***
Radio Link Noise	Npr	pWOp	4255.0 ***
Total Noise	Np	pWOp	4485.0 ***
Signal/Total Noise	S/Np	dB	53.5 ***
Fading Margin			
Tx Output Power	Pt	dBm	37.0
Rx Input Level(50%)	Pri	dBm	-54.7 ***
Threshold Level	Pth	dBm	-90.0
Margin to Threshold(50%)(≥ 33 dB)	Mth	dB	35.3 ***

Program No.

120 ch, 5W	:	T301
24 ch, 5W	:	T302
24 ch, 100W	:	T303

Mux Noise(pWOp)

460 SG/380 G

310 GC/230 R

Antenna Gain (dBi)		
14 ele.	Yagi	15
1.2 mϕ	Para.	18
1.8	"	21
2.4	"	23.5
3.0	"	26
4.2	"	28.5
6.0	"	32
8.0	"	34.5

Feeder Loss(dB/m)	
RG-17/U	0.14
H13	0.091
H20	0.052
A20	0.048
A39	0.026

UHF SYSTEM PERFORMANCE CALCULATION

(900 MHz, 24 ch/~~120 ch~~, 5 W/~~100 W~~)

Path No. 5313-11

Station P	Chiangmai	T ~~R~~	Station Q	San Sai	T ~~R~~

Item	Symbol	Unit	P	Q
Path Type: L/S (~~no~~ reflection), ~~Mt. Diffraction~~			P	Q
Antenna Height	ha	m	38	33
Antenna Type & Size (Yagi, ~~Parabolic~~)		Ele.	8	8
Antenna Gain	Ga	dBi	12	12
Feeder Type			H20	H20
Feeder Length	lf	m	48	43
Feeder Loss(ha + 10) x ΔLf	Lf	dB	2.5	2.2
Antenna Height at P	ha1	m	38.0 ***	
Antenna Height at Q	ha2	m	33.0 ***	
Path Loss				
Path Distance	d	km	9.0 ***	
Free Space Propagation Loss	Lo	dB	110.5 ***	
Additional Propagation Loss(50%)	La	dB	2.0 ***	
Total Propagation Loss(50%)	Lp	dB	112.5 ***	
Required Antenna Gain	Ga	dB	23.3 ***	
Antenna Gain at P	Ga1	dBi	12.0 ***	
Antenna Gain at Q	Ga2	dBi	12.0 ***	
Branching Loss	Lb	dB	5.0	
Feeder Loss at P	Lf1	dB	2.5 ***	
Feeder Loss at Q	Lf2	dB	2.2 ***	
Net Loss(50%)	Ln	dB	98.3 ***	
Median Noise(50%)				
Figure of Merit	Fm	dB	165.0	
Signal/Thermal Noise	S/Nta	dB	66.7 ***	
Thermal Noise	Nta	pWOp	214.0 ***	
Equipment Thermal Noise	Nte	pWOp	100.0	
Intermodulation Noise	Nim	pWOp	200.0	
Interference Noise	Nif	pWOp	240.0	
Radio Link Noise	Npr	pWOp	754.0 ***	
Carrier Multiplex Noise	Npm	pWOp	380.0 ***	
Total Noise	Np	pWOp	1134.0 ***	
Signal/Total Noise(≥ 57/50 dB)	S/Np	dB	59.5 ***	
Short Period Noise(99.9%)				
Fading Depth	Af	dB	10.0 ***	
Signal/Thermal Noise	S/Nta	dB	56.7 ***	
Thermal Noise	Nta	pWOp	2138.0 ***	
Radio Link Noise	Npr	pWOp	2678.0 ***	
Total Noise	Np	pWOp	3058.0 ***	
Signal/Total Noise	S/Np	dB	55.1 ***	
Fading Margin				
Tx Output Power	Pt	dBm	37.0	
Rx Input Level(50%)	Pri	dBm	-61.3 ***	
Threshold Level	Pth	dBm	-95.0	
Margin to Threshold(50%)(≥ 33 dB)	Mth	dB	33.7 ***	

Program No.		Antenna Gain (dBi)			Feeder Loss (dB/m)	
120 ch, 5W	: T301	14 ele.	Yagi	15	RG-17 /U	0.14
24 ch, 5W	: T302	1.2 mØ	Para.	18	H13	0.091
24 ch, 100W	: T303	1.8	"	21	H20	0.052
		2.4	"	23.5	A20	0.048
Mux Noise (pWOp)		3.0	"	26	A39	0.026
460 SG/380 G		4.2	"	28.5		
310 GC/230 R		6.0	"	32		
		8.0	"	34.5		

UHF SYSTEM PERFORMANCE CALCULATION (900 MHz, ~~24 ch~~/120 ch, 5 W/~~100 W~~)	Path No. 5313-12

Station P	Chiangmai	T ~~R~~	Station Q	Doi Saket	T ~~R~~

Path Type: L/S (~~no~~ reflection), ~~Mt. Diffraction~~			P	Q
Antenna Height	ha	m	35	33
Antenna Type & Size (~~Yagi~~, Parabolic)		mØ	1.2	1.8
Antenna Gain	Ga	dBi	18	21
Feeder Type			H20	H20
Feeder Length	lf	m	45	43
Feeder Loss(ha + 10) x ΔLf	Lf	dB	2.3	2.2

Antenna Height at P	ha1	m	35.0 ***
Antenna Height at Q	ha2	m	33.0 ***
Path Loss			
Path Distance	d	km	18.3 ***
Free Space Propagation Loss	Lo	dB	116.7 ***
Additional Propagation Loss(50%)	La	dB	4.0 ***
Total Propagation Loss(50%)	Lp	dB	120.7 ***
Required Antenna Gain	Ga	dB	36.3 ***
Antenna Gain at P	Ga1	dBi	18.0 ***
Antenna Gain at Q	Ga2	dBi	21.0 ***
Branching Loss	Lb	dB	5.0
Feeder Loss at P	Lf1	dB	2.3 ***
Feeder Loss at Q	Lf2	dB	2.2 ***
Net Loss(50%)	Ln	dB	91.3 ***
Median Noise(50%)			
Figure of Merit	Fm	dB	160.0
Signal/Thermal Noise	S/Nta	dB	68.7 ***
Thermal Noise	Nta	pWOp	135.0 ***
Equipment Thermal Noise	Nte	pWOp	100.0
Intermodulation Noise	Nim	pWOp	200.0
Interference Noise	Nif	pWOp	240.0
Radio Link Noise	Npr	pWOp	675.0 ***
Carrier Multiplex Noise	Npm	pWOp	460.0 ***
Total Noise	Np	pWOp	1135.0 ***
Signal/Total Noise(≥ 57/50 dB)	S/Np	dB	59.5 ***
Short Period Noise(99.9%)			
Fading Depth	Af	dB	13.0 ***
Signal/Thermal Noise	S/Nta	dB	55.7 ***
Thermal Noise	Nta	pWOp	2692.0 ***
Radio Link Noise	Npr	pWOp	3232.0 ***
Total Noise	Np	pWOp	3692.0 ***
Signal/Total Noise	S/Np	dB	54.3 ***
Fading Margin			
Tx Output Power	Pt	dBm	37.0
Rx Input Level(50%)	Pri	dBm	-54.3 ***
Threshold Level	Pth	dBm	-90.0
Margin to Threshold(50%)(≥ 33 dB)	Mth	dB	35.7 ***

Program No.
- 120 ch, 5W : T301
- 24 ch, 5W : T302
- 24 ch, 100W : T303

Mux Noise(pWOp)
- 460 SG/380 G
- 310 GC/230 R

Antenna Gain (dBi)		
14 ele.	Yagi	15
1.2 mØ	Para.	18
1.8	"	21
2.4	"	23.5
3.0	"	26
4.2	"	28.5
6.0	"	32
8.0	"	34.5

Feeder Loss(dB/m)	
RG-17 /U	0.14
H13	0.091
H20	0.052
A20	0.048
A39	0.026

UHF SYSTEM PERFORMANCE CALCULATION

(900 MHz, ~~24 ch~~/120 ch, 5 W/~~100 W~~)

Path No. 5313-13

Station P	Doi Saket	T ~~R~~	
Station Q	San Kam Phaeng	T ~~R~~	

Path Type: L/S (~~no~~ reflection), ~~Mt. Diffraction~~			P	Q
Antenna Height	ha	m	33	33
Antenna Type & Size (~~Yagi~~, Parabolic)		mø	1.2	1.2
Antenna Gain	Ga	dBi	18	18
Feeder Type			H20	H20
Feeder Length	lf	m	43	43
Feeder Loss(ha + 10) x ΔLf	Lf	dB	2.2	2.2

Antenna Height at P	ha1	m	33.0 ***
Antenna Height at Q	ha2	m	33.0 ***
Path Loss			
Path Distance	d	km	13.7 ***
Free Space Propagation Loss	Lo	dB	114.2 ***
Additional Propagation Loss(50%)	La	dB	4.0 ***
Total Propagation Loss(50%)	Lp	dB	116.2 ***
Required Antenna Gain	Ga	dB	33.7 ***
Antenna Gain at P	Ga1	dBi	18.0 ***
Antenna Gain at Q	Ga2	dBi	18.0 ***
Branching Loss	Lb	dB	5.0
Feeder Loss at P	Lf1	dB	2.2 ***
Feeder Loss at Q	Lf2	dB	2.2 ***
Net Loss(50%)	Ln	dB	91.7 ***
Median Noise(50%)			
Figure of Merit	Fm	dB	160.0
Signal/Thermal Noise	S/Nta	dB	68.3 ***
Thermal Noise	Nta	pWOp	148.0 **
Equipment Thermal Noise	Nte	pWOp	100.0
Intermodulation Noise	Nim	pWOp	200.0
Interference Noise	Nif	pWOp	246.0
Radio Link Noise	Npr	pWOp	688.0 ***
Carrier Multiplex Noise	Npm	pWOp	230.0 ***
Total Noise	Np	pWOp	918.0 ***
Signal/Total Noise(≥ 57/50 dB)	S/Np	dB	60.4 ***
Short Period Noise(99.9%)			
Fading Depth	Af	dB	11.0 ***
Signal/Thermal Noise	S/Nta	dB	57.3 ***
Thermal Noise	Nta	pWOp	1862.0 ***
Radio Link Noise	Npr	pWOp	2402.0 ***
Total Noise	Np	pWOp	2632.0 ***
Signal/Total Noise	S/Np	dB	55.8 ***
Fading Margin			
Tx Output Power	Pt	dBm	37.0
Rx Input Level(50%)	Pri	dBm	-54.7 ***
Threshold Level	Pth	dBm	-90.6
Margin to Threshold(50%)(≥ 33 dB)	Mth	dB	35.3 ***

Program No.
- 120 ch, 5W : T301
- 24 ch, 5W : T302
- 24 ch, 100W : T303

Mux Noise(pWOp)
- 460 SG/380 G
- 310 GC/230 R

Antenna Gain (dBi)		
14 ele.	Yagi	15
1.2 mø	Para.	18
1.8	"	21
2.4	"	23.5
3.0	"	26
4.2	"	28.5
6.0	"	32
8.0	"	34.5

Feeder Loss(dB/m)	
RG-17 /U	0.14
H13	0.091
H20	0.052
A20	0.048
A39	0.026

UHF SYSTEM PERFORMANCE CALCULATION

(900 MHz, ~~24 ch~~/120 ch, 5 W/~~100 W~~)

Path No. 5313-15

Station P	San Patong	T ~~R~~	Station Q	Ban Nong Hai	~~T~~ R

Path Type: L/S (no reflection), Mt. Diffraction			P	Q
Antenna Height	ha	m	78	78
Antenna Type & Size (~~Yagi~~, Parabolic)		mø	4.2	4.2
Antenna Gain	Ga	dBi	28.5	28.5
Feeder Type			H20	H20
Feeder Length	lf	m	88	88
Feeder Loss(ha + 10) x ΔLf	Lf	dB	4.6	4.6
Antenna Height at P	ha1	m	78.0 ***	
Antenna Height at Q	ha2	m	78.0 ***	
Path Loss				
Path Distance	d	km	26.0 ***	
Free Space Propagation Loss	Lo	dB	119.8 ***	
Additional Propagation Loss(50%)	La	dB	17.0 ***	
Total Propagation Loss(50%)	Lp	dB	136.8 ***	
Required Antenna Gain	Ga	dB	57.0 ***	
Antenna Gain at P	Ga1	dBi	28.5 ***	
Antenna Gain at Q	Ga2	dBi	28.5 ***	
Branching Loss	Lb	dB	5.0	
Feeder Loss at P	Lf1	dB	4.6 ***	
Feeder Loss at Q	Lf2	dB	4.6 ***	
Net Loss(50%)	Ln	dB	94.3 ***	
Median Noise(50%)			160.0	
Figure of Merit	Fm	dB	66.0 ***	
Signal/Thermal Noise	S/Nta	dB	251.0 ***	
Thermal Noise	Nta	pWOp	100.0	
Equipment Thermal Noise	Nte	pWOp	200.0	
Intermodulation Noise	Nim	pWOp	240.0	
Interference Noise	Nif	pWOp	791.0 ***	
Radio Link Noise	Npr	pWOp	230.0 ***	
Carrier Multiplex Noise	Npm	pWOp	1021.0 ***	
Total Noise	Np	pWOp	59.9 ***	
Signal/Total Noise(≥ 57/50 dB)	S/Np	dB		
Short Period Noise(99.9%)			14.0 ***	
Fading Depth	Af	dB	52.0 ***	
Signal/Thermal Noise	S/Nta	dB	6310.0 ***	
Thermal Noise	Nta	pWOp	6850.0 ***	
Radio Link Noise	Npr	pWOp	7080.0 ***	
Total Noise	Np	pWOp	51.5 ***	
Signal/Total Noise	S/Np	dB		
Fading Margin			37.0	
Tx Output Power	Pt	dBm	-57.0 ***	
Rx Input Level(50%)	Pri	dBm	-90.0	
Threshold Level	Pth	dBm	33.0 ***	
Margin to Threshold(50%)(≥ 33 dB)	Mth	dB		

Program No.
- 120 ch, 5W : T301
- 24 ch, 5W : T302
- 24 ch, 100W : T303

Mux Noise(pWOp)
- 460 SG/380 G
- 310 GC/230 R

Antenna Gain(dBi)		
14 ele.	Yagi	15
1.2 mø	Para.	18
1.8	"	21
2.4	"	23.5
3.0	"	26
4.2	"	28.5
6.0	"	32
8.0	"	34.5

Feeder Loss(dB/m)	
RG-17 /U	0.14
H13	0.091
H20	0.052
A20	0.048
A39	0.026

UHF SYSTEM PERFORMANCE CALCULATION (900 MHz, ~~24 ch~~/120 ch, 5 W/~~100 W~~)	Path No. 5313-16

Station P	Ban Nong Hai	~~T~~-R	Station Q	Hot	T-~~R~~

Path Type: L/S (~~no~~ reflection), ~~Mt. Diffraction~~			P	Q
Antenna Height	ha	m	50	45
Antenna Type & Size (~~Yagi~~, Parabolic)		mØ	1.8	1.8
Antenna Gain	Ga	dBi	21	21
Feeder Type			H20	H20
Feeder Length	lf	m	60	55
Feeder Loss(ha + 10) x ΔLf	Lf	dB	3.1	2.9

Antenna Height at P	ha1	m	50.0 ***
Antenna Height at Q	ha2	m	45.0 ***
Path Loss			
Path Distance	d	km	31.0 ***
Free Space Propagation Loss	Lo	dB	121.3 ***
Additional Propagation Loss(50%)	La	dB	3.0 ***
Total Propagation Loss(50%)	Lp	dB	124.3 ***
Required Antenna Gain	Ga	dB	41.3 ***
Antenna Gain at P	Ga1	dBi	21.0 ***
Antenna Gain at Q	Ga2	dBi	21.0 ***
Branching Loss	Lb	dB	5.0
Feeder Loss at P	Lf1	dB	3.1 ***
Feeder Loss at Q	Lf2	dB	2.9 ***
Net Loss(50%)	Ln	dB	93.3 ***
Median Noise(50%)			
Figure of Merit	Fm	dB	160.0
Signal/Thermal Noise	S/Nta	dB	66.7 ***
Thermal Noise	Nta	pWOp	214.0 ***
Equipment Thermal Noise	Nte	pWOp	100.0
Intermodulation Noise	Nim	pWOp	200.0
Interference Noise	Nif	pWOp	240.0
Radio Link Noise	Npr	pWOp	754.0 ***
Carrier Multiplex Noise	Npm	pWOp	230.0 ***
Total Noise	Np	pWOp	984.0 ***
Signal/Total Noise(≥ 57/50 dB)	S/Np	dB	60.1 ***
Short Period Noise(99.9%)			
Fading Depth	Af	dB	15.0 ***
Signal/Thermal Noise	S/Nta	dB	51.7 ***
Thermal Noise	Nta	pWOp	6761.0 ***
Radio Link Noise	Npr	pWOp	7301.0 ***
Total Noise	Np	pWOp	7531.0 ***
Signal/Total Noise	S/Np	dB	51.2 ***
Fading Margin			
Tx Output Power	Pt	dBm	37.0
Rx Input Level(50%)	Pri	dBm	-56.3 ***
Threshold Level	Pth	dBm	-90.0
Margin to Threshold(50%)(≥ 33 dB)	Mth	dB	33.7 ***

Program No.		Antenna Gain (dBi)			Feeder Loss(dB/m)	
120 ch, 5W	: T301	14 ele.	Yagi	15	RG-17 /U	0.14
24 ch, 5W	: T302	1.2 mØ	Para.	18	H13	0.091
24 ch, 100W	: T303	1.8	"	21	H20	0.052
		2.4	"	23.5	A20	0.048
Mux Noise(pWOp)		3.0	"	26	A39	0.026
460 SG/380 G		4.2	"	28.5		
310 GC/230 R		6.0	"	32		
		8.0	"	34.5		

UHF SYSTEM PERFORMANCE CALCULATION

(900 MHz, 24 ch/~~120 ch,~~ 5 W/~~100 W~~)

Path No. 5313-17

Station P	T.~~R~~	Station Q	~~T~~.R
Hot		Doi Pae Po Mak	

Path Type: L/S (no reflection), ~~No. Diffraction~~			P	Q
Antenna Height	ha	m	63	48
Antenna Type & Size (~~Yagi~~,Parabolic)		mϕ	1.8	2.4
Antenna Gain	Ga	dBi	21	23.5
Feeder Type			H20	H20
Feeder Length	lf	m	73	58
Feeder Loss(ha + 10) x ΔLf	Lf	dB	3.8	3.0

Antenna Height at P	ha1	m	63.0 ***
Antenna Height at Q	ha2	m	48.0 ***
Path Loss			
Path Distance	d	km	37.5 ***
Free Space Propagation Loss	Lo	dB	123.0 ***
Additional Propagation Loss(50%)	La	dB	8.8 ***
Total Propagation Loss(50%)	Lp	dB	131.8 ***
Required Antenna Gain	Ga	dB	43.8 ***
Antenna Gain at P	Ga1	dBi	21.0 ***
Antenna Gain at Q	Ga2	dBi	23.5 ***
Branching Loss	Lb	dB	5.0
Feeder Loss at P	Lf1	dB	3.8 ***
Feeder Loss at Q	Lf2	dB	3.0 ***
Net Loss(50%)	Ln	dB	98.3 ***
Median Noise(50%)			
Figure of Merit	Fm	dB	165.0
Signal/Thermal Noise	S/Nta	dB	66.7 ***
Thermal Noise	Nta	pWOp	214.0 ***
Equipment Thermal Noise	Nte	pWOp	100.0
Intermodulation Noise	Nim	pWOp	200.0
Interference Noise	Nif	pWOp	240.0
Radio Link Noise	Npr	pWOp	754.0 ***
Carrier Multiplex Noise	Npm	pWOp	0.0 ***
Total Noise	Np	pWOp	754.0 ***
Signal/Total Noise(≥ 57/50 dB)	S/Np	dB	61.2 ***
Short Period Noise(99.9%)			
Fading Depth	Af	dB	16.0 ***
Signal/Thermal Noise	S/Nta	dB	50.7 ***
Thermal Noise	Nta	pWOp	8511.0 ***
Radio Link Noise	Npr	pWOp	9051.0 ***
Total Noise	Np	pWOp	9051.0 ***
Signal/Total Noise	S/Np	dB	50.4 ***
Fading Margin			
Tx Output Power	Pt	dBm	37.0
Rx Input Level(50%)	Pri	dBm	-61.3 ***
Threshold Level	Pth	dBm	-95.0
Margin to Threshold(50%)(≥ 33 dB)	Mth	dB	33.7 ***

Program No.
- 120 ch, 5W : T301
- 24 ch, 5W : T302
- 24 ch, 100W : T303

Mux Noise(pWOp)
- 460 SG/380 G
- 310 GC/230 R

Antenna Gain (dBi)		
14 ele.	Yagi	15
1.2 mØ	Para.	18
1.8	"	21
2.4	"	23.5
3.0	"	26
4.2	"	28.5
6.0	"	32
8.0	"	34.5

Feeder Loss(dB/m)	
RG-17 /U	0.14
H13	0.091
H20	0.052
A20	0.048
A39	0.026

UHF SYSTEM PERFORMANCE CALCULATION (900 MHz, ~~24 ch~~/120 ch, 5 W/~~100 W~~)	Path No. 5313-18

Station P	Doi Pae Po Mak	~~T~~R	Station Q	Kao Huai Bon	~~T~~R

Path Type: L/S (no reflection), ~~Mt. Diffraction~~

			P	Q
Antenna Height	ha	m	48	86
Antenna Type & Size (~~Yagi~~, Parabolic)		mØ	2.4	3.0
Antenna Gain	Ga	dBi	23.5	26.0
Feeder Type			H20	H20
Feeder Length	lf	m	58	96
Feeder Loss (ha + 10) x ΔLf	Lf	dB	3.0	5.0

Antenna Height at P	ha1	m	48.0 ***
Antenna Height at Q	ha2	m	86.0 ***
Path Loss			
Path Distance	d	km	41.?
Free Space Propagation Loss	Lo	dB	123.9 ***
Additional Propagation Loss (50%)	La	dB	10.0 ***
Total Propagation Loss (50%)	Lp	dB	133.9 ***
Required Antenna Gain	Ga	dB	47.9 ***
Antenna Gain at P	Ga1	dBi	23.5 ***
Antenna Gain at Q	Ga2	dBi	26.0 ***
Branching Loss	Lb	dB	5.0
Feeder Loss at P	Lf1	dB	3.0 ***
Feeder Loss at Q	Lf2	dB	5.0 ***
Net Loss (50%)	Ln	dB	97.4 ***
Median Noise (50%)			
Figure of Merit	Fm	dB	163.0
Signal/Thermal Noise	S/Nta	dB	67.6 ***
Thermal Noise	Nta	pWOp	174.0 ***
Equipment Thermal Noise	Nte	pWOp	100.0
Intermodulation Noise	Nim	pWOp	200.0
Interference Noise	Nif	pWOp	240.0
Radio Link Noise	Npr	pWOp	714.0 ***
Carrier Multiplex Noise	Npm	pWOp	0.0 ***
Total Noise	Np	pWOp	714.0 ***
Signal/Total Noise (≥ 57/50 dB)	S/Np	dB	61.5 ***
Short Period Noise (99.9%)			
Fading Depth	Af	dB	16.0 ***
Signal/Thermal Noise	S/Nta	dB	51.6 ***
Thermal Noise	Nta	pWOp	6918.0 ***
Radio Link Noise	Npr	pWOp	7459.0 ***
Total Noise	Np	pWOp	7458.0 ***
Signal/Total Noise	S/Np	dB	51.3 ***
Fading Margin			
Tx Output Power	Pt	dBm	37.0
Rx Input Level (50%)	Pri	dBm	-60.4 ***
Threshold Level	Pth	dBm	-95.0
Margin to Threshold (50%) (≥ 33 dB)	Mth	dB	34.6 ***

Program No.		Antenna Gain (dBi)			Feeder Loss (dB/m)	
120 ch, 5W	: T301	14 ele. Yagi		15	RG-17 /U	0.14
24 ch, 5W	: T302	1.2 mØ Para.		18	H13	0.091
24 ch, 100W	: T303	1.8	"	21	H20	0.052
		2.4	"	23.5	A20	0.048
Mux Noise (pWOp)		3.0	"	26	A39	0.026
460 SG/380 G		4.2	"	28.5		
310 GC/230 R		6.0	"	32		
		8.0	"	34.5		

UHF SYSTEM PERFORMANCE CALCULATION (900 MHz, 24 ch/~~120 ch~~, 5 W/~~100 W~~)	Path No. 5313-19

Station P	Kao Huai Bon	~~T~~.R	Station Q	Omkoi	T.~~R~~

Path Type: L/S (~~no~~ reflection), ~~Mt. Diffraction~~			P	Q
Antenna Height	ha	m	63	78
Antenna Type & Size (Yagi, ~~Parabolic~~)		Ele.	8	12
Antenna Gain	Ga	dBi	12	14
Feeder Type			H20	H20
Feeder Length	lf	m	73	88
Feeder Loss(ha + 10) x ΔLf	Lf	dB	3.8	4.6

Antenna Height at P	ha1	m	63.0 ***
Antenna Height at Q	ha2	m	78.0 ***
Path Loss			
Path Distance	d	km	6.8 ***
Free Space Propagation Loss	Lo	dB	108.2 ***
Additional Propagation Loss(50%)	La	dB	3.0 ***
Total Propagation Loss(50%)	Lp	dB	111.2 ***
Required Antenna Gain	Ga	dB	25.6 ***
Antenna Gain at P	Ga1	dBi	12.0 ***
Antenna Gain at Q	Ga2	dBi	14.0 ***
Branching Loss	Lb	dB	5.0
Feeder Loss at P	Lf1	dB	3.8 ***
Feeder Loss at Q	Lf2	dB	4.6 ***
Net Loss(50%)	Ln	dB	98.6 ***
Median Noise(50%)			
Figure of Merit	Fm	dB	165.0
Signal/Thermal Noise	S/Nta	dB	66.4 ***
Thermal Noise	Nta	pWOp	229.0 ***
Equipment Thermal Noise	Nte	pWOp	100.0
Intermodulation Noise	Nim	pWOp	200.0
Interference Noise	Nif	pWOp	240.0
Radio Link Noise	Npr	pWOp	769.0 ***
Carrier Multiplex Noise	Npm	pWOp	190.0 ***
Total Noise	Np	pWOp	959.0 ***
Signal/Total Noise(≥ 57/50 dB)	S/Np	dB	60.2 ***
Short Period Noise(99.9%)			
Fading Depth	Af	dB	8.0 ***
Signal/Thermal Noise	S/Nta	dB	58.4 ***
Thermal Noise	Nta	pWOp	1445.0 ***
Radio Link Noise	Npr	pWOp	1985.0 ***
Total Noise	Np	pWOp	2175.0 ***
Signal/Total Noise	S/Np	dB	56.6 ***
Fading Margin			
Tx Output Power	Pt	dBm	37.0
Rx Input Level(50%)	Pri	dBm	-61.6 ***
Threshold Level	Pth	dBm	-95.0
Margin to Threshold(50%)(≥ 33 dB)	Mth	dB	33.4 ***

Program No.
120 ch, 5W : T301
24 ch, 5W : T302
24 ch, 100W : T303

Mux Noise(pWOp)
460 SG/380 G
310 GC/230 R

Antenna Gain (dBi)		
14 ele. Yagi		15
1.2 mØ Para.		18
1.8	"	21
2.4	"	23.5
3.0	"	26
4.2	"	28.5
6.0	"	32
8.0	"	34.5

Feeder Loss(dB/m)	
RG-17 /U	0.14
H13	0.091
H20	0.052
A20	0.048
A39	0.026

UHF SYSTEM PERFORMANCE CALCULATION (900 MHz, ~~24 ch~~/120 ch, 5 W/~~100 W~~)			Path No. 5313-20	
Station P: San Patong	T ~~R~~	Station Q: Hang Dong		T ~~R~~

Path Type: L/S (~~no~~ reflection), ~~No Diffraction~~			P	Q
Antenna Height	ha	m	60	33
Antenna Type & Size (Yagi, ~~Parabolic~~)		Ele.	12	12
Antenna Gain	Ga	dBi	14	14
Feeder Type			H20	H20
Feeder Length	lf	m	70	43
Feeder Loss(ha + 10) x ΔLf	Lf	dB	3.6	2.2
Antenna Height at P	ha1	m	60.0 ***	
Antenna Height at Q	ha2	m	33.0 ***	
Path Loss				
Path Distance	d	km	5.6 ***	
Free Space Propagation Loss	Lo	dB	110.4 ***	
Additional Propagation Loss(50%)	La	dB	0.0 ***	
Total Propagation Loss(50%)	Lp	dB	110.	
Required Antenna Gain	Ga	dB	27.3 ***	
Antenna Gain at P	Ga1	dBi	14.0 ***	
Antenna Gain at Q	Ga2	dBi	14.0 ***	
Branching Loss	Lb	dB	5.0	
Feeder Loss at P	Lf1	dB	3.6 ***	
Feeder Loss at Q	Lf2	dB	2.2 ***	
Net Loss(50%)	Ln	dB	93.3 ***	
Median Noise(50%)				
Figure of Merit	Fm	dB	16	
Signal/Thermal Noise	S/Nta	dB	6 ***	
Thermal Noise	Nta	pWOp	214.0 ***	
Equipment Thermal Noise	Nte	pWOp	100.0	
Intermodulation Noise	Nim	pWOp	200.0	
Interference Noise	Nif	pWOp	240.0	
Radio Link Noise	Npr	pWOp	754.0 ***	
Carrier Multiplex Noise	Npm	pWOp	460.0 ***	
Total Noise	Np	pWOp	1214.0 ***	
Signal/Total Noise(≥ 57/50 dB)	S/Np	dB	59.2	
Short Period Noise(99.9%)				
Fading Depth	Af	dB	9.0 ***	
Signal/Thermal Noise	S/Nta	dB	57.7 ***	
Thermal Noise	Nta	pWOp	1698.0 ***	
Radio Link Noise	Npr	pWOp	2238.0 ***	
Total Noise	Np	pWOp	2698.0 ***	
Signal/Total Noise	S/Np	dB	55.7 ***	
Fading Margin				
Tx Output Power	Pt	dBm	37.0	
Rx Input Level(50%)	Pri	dBm	-56.3 ***	
Threshold Level	Pth	dBm	-90.0	
Margin to Threshold(50%)(≥ 33 dB)	Mth	dB	33.7 ***	

Program No.		Antenna Gain (dBi)			Feeder Loss (dB/m)	
120 ch, 5W	: T301	14 ele.	Yagi	15	RG-17 /U	0.14
24 ch, 5W	: T302	1.2 mØ	Para.	18	H13	0.091
24 ch, 100W	: T303	1.8	"	21	H20	0.052
		2.4	"	23.5	A20	0.048
Mux Noise(pWOp)		3.0	"	26	A39	0.026
460 SG/380 G		4.2	"	28.5		
310 GC/230 R		6.0	"	32		
		8.0	"	34.5		

UHF SYSTEM PERFORMANCE CALCULATION

(900 MHz, ~~24 ch~~/120 ch, 5 W/~~100 W~~)

Path No. 5313-21

Station P		Station Q	
Ban Nong Hai	~~T.~~R	Chom Thong	T.~~R~~

Path Type: L/S (~~no~~ reflection), ~~Mt. Diffraction~~

			P	Q
Antenna Height	ha	m	30	33
Antenna Type & Size (Yagi, ~~Parabolic~~)		Ele.	8	8
Antenna Gain	Ga	dBi	12	12
Feeder Type			H20	H20
Feeder Length	lf	m	40	43
Feeder Loss(ha + 10) x ⊿Lf	Lf	dB	2.1	2.2

Antenna Height at P	ha1	m	30.0 ***
Antenna Height at Q	ha2	m	33.0 ***
Path Loss			
Path Distance	d	km	6.4 ***
Free Space Propagation Loss	Lo	dB	107.6 ***
Additional Propagation Loss(50%)	La	dB	0.0 ***
Total Propagation Loss(50%)	Lp	dB	107.6 ***
Required Antenna Gain	Ga	dB	22.9 ***
Antenna Gain at P	Ga1	dBi	12.0 ***
Antenna Gain at Q	Ga2	dBi	12.0 ***
Branching Loss	Lb	dB	5.0
Feeder Loss at P	Lf1	dB	2.1 ***
Feeder Loss at Q	Lf2	dB	2.2 ***
Net Loss(50%)	Ln	dB	92.9 ***
Median Noise(50%)			
Figure of Merit	Fm	dB	160.0
Signal/Thermal Noise	S/Nta	dB	67.1 ***
Thermal Noise	Nta	pWOp	195.0 ***
Equipment Thermal Noise	Nte	pWOp	100.0
Intermodulation Noise	Nim	pWOp	200.0
Interference Noise	Nif	pWOp	240.0
Radio Link Noise	Npr	pWOp	735.0 ***
Carrier Multiplex Noise	Npm	pWOp	230.0 ***
Total Noise	Np	pWOp	965.0 ***
Signal/Total Noise(≥ 57/50 dB)	S/Np	dB	60.2 ***
Short Period Noise(99.9%)			
Fading Depth	Af	dB	8.0 ***
Signal/Thermal Noise	S/Nta	dB	59.1 ***
Thermal Noise	Nta	pWOp	1230.0 ***
Radio Link Noise	Npr	pWOp	1770.0 ***
Total Noise	Np	pWOp	2000.0 ***
Signal/Total Noise	S/Np	dB	57.0 ***
Fading Margin			
Tx Output Power	Pt	dBm	37.0
Rx Input Level(50%)	Pri	dBm	-55.9 ***
Threshold Level	Pth	dBm	-90.0
Margin to Threshold(50%)(≥ 33 dB)	Mth	dB	34.1 ***

Program No.
- 120 ch, 5W : T301
- 24 ch, 5W : T302
- 24 ch, 100W : T303

Mux Noise(pWOp)
- 460 SG/380 G
- 310 GC/230 R

Antenna Gain (dBi)		
14 ele.	Yagi	15
1.2 mØ	Para.	18
1.8	"	21
2.4	"	23.5
3.0	"	26
4.2	"	28.5
6.0	"	32
8.0	"	34.5

Feeder Loss(dB/m)	
RG-17 /U	0.14
H13	0.091
H20	0.052
A20	0.048
A39	0.026

UHF SYSTEM PERFORMANCE CALCULATION

(900 MHz, 24 ch/~~120 ch~~, 5 W/~~100 W~~)

Path No. 5313-22

Station P		~~T~~ R	Station Q		T ~~R~~
Doi Pae Po Mak			Doi Tao		

Path Type: L/S (~~no~~ reflection), ~~Mt. Diffraction~~			P	Q
Antenna Height	ha	m	15	33
Antenna Type & Size (Yagi, ~~Parabolic~~)		Ele.	8	8
Antenna Gain	Ga	dBi	12	12
Feeder Type			H20	H20
Feeder Length	lf	m	25	43
Feeder Loss (ha + 10) x ΔLf	Lf	dB	1.3	2.2
Antenna Height at P	ha1	m	15.0 ***	
Antenna Height at Q	ha2	m	33.0 ***	
Path Loss				
Path Distance	d	km	12.1 ***	
Free Space Propagation Loss	Lo	dB	113.2 ***	
Additional Propagation Loss(50%)	La	dB	0.0 ***	
Total Propagation Loss(50%)	Lp	dB	113.2 ***	
Required Antenna Gain	Ga	dB	22.7 ***	
Antenna Gain at P	Ga1	dBi	12.0 ***	
Antenna Gain at Q	Ga2	dBi	12.0 ***	
Branching Loss	Lb	dB	5.0	
Feeder Loss at P	Lf1	dB	1.3 ***	
Feeder Loss at Q	Lf2	dB	2.2 ***	
Net Loss(50%)	Ln	dB	97.7 ***	
Median Noise(50%)				
Figure of Merit	Fm	dB	165.0	
Signal/Thermal Noise	S/Nta	dB	67.3 ***	
Thermal Noise	Nta	pWOp	186.0 ***	
Equipment Thermal Noise	Nte	pWOp	100.0	
Intermodulation Noise	Nim	pWOp	200.0	
Interference Noise	Nif	pWOp	0.0	
Radio Link Noise	Npr	pWOp	726.0 ***	
Carrier Multiplex Noise	Npm	pWOp	136.0 ***	
Total Noise	Np	pWOp	916.0 ***	
Signal/Total Noise(≥ 57/50 dB)	S/Np	dB	60.4 ***	
Short Period Noise(99.9%)				
Fading Depth	Af	dB	11.0 ***	
Signal/Thermal Noise	S/Nta	dB	56.3 ***	
Thermal Noise	Nta	pWOp	2344.0 ***	
Radio Link Noise	Npr	pWOp	2884.0 ***	
Total Noise	Np	pWOp	3074.0 ***	
Signal/Total Noise	S/Np	dB	55.1 ***	
Fading Margin				
Tx Output Power	Pt	dBm	33.0	
Rx Input Level(50%)	Pri	dBm	-66.7 ***	
Threshold Level	Pth	dBm	-95.0	
Margin to Threshold(50%)(≥ 33 dB)	Mth	dB	34.3 ***	

Program No.
- 120 ch, 5W : T301
- 24 ch, 5W : T302
- 24 ch, 100W : T303

Mux Noise(pWOp)
- 460 SG/380 G
- 310 GC/230 R

Antenna Gain (dBi)		
14 ele.	Yagi	15
1.2 mØ	Para.	18
1.8	"	21
2.4	"	23.5
3.0	"	26
4.2	"	28.5
6.0	"	32
8.0	"	34.5

Feeder Loss(dB/m)	
RG-17 /U	0.14
H13	0.091
H20	0.052
A20	0.048
A39	0.026

UHF SYSTEM PERFORMANCE CALCULATION (900 MHz, ~~24 ch~~/120 ch, 5 W/~~100 W~~)	Path No. 5313-23

Station P	San Patong	T~~R~~	Station Q	Doi Inthanon	~~T~~.R

Path Type: L/S (~~no~~ reflection), ~~Mt. Diffraction~~			P	Q
Antenna Height	ha	m	40	33
Antenna Type & Size (~~Yagi~~, Parabolic)		mϕ	1.8	1.8
Antenna Gain	Ga	dBi	21	21
Feeder Type			H20	H20
Feeder Length	lf	m	50	43
Feeder Loss(ha + 10) x ΔLf	Lf	dB	2.6	2.2
Antenna Height at P	ha1	m	40.0 ***	
Antenna Height at Q	ha2	m	33.0 ***	
Path Loss				
Path Distance	d	km	44.0 ***	
Free Space Propagation Loss	Lo	dB	124.4 ***	
Additional Propagation Loss(50%)	La	dB	0.0 ***	
Total Propagation Loss(50%)	Lp	dB	124.4 ***	
Required Antenna Gain	Ga	dB	40.2 ***	
Antenna Gain at P	Ga1	dBi	21.0 ***	
Antenna Gain at Q	Ga2	dBi	21.0 ***	
Branching Loss	Lb	dB	5.0	
Feeder Loss at P	Lf1	dB	2.6 ***	
Feeder Loss at Q	Lf2	dB	2.2 ***	
Net Loss(50%)	Ln	dB	92.2 ***	
Median Noise(50%)				
Figure of Merit	Fm	dB	160.0	
Signal/Thermal Noise	S/Nta	dB	67.6 ***	
Thermal Noise	Nta	pWOp	166.0 ***	
Equipment Thermal Noise	Nte	pWOp	100.0	
Intermodulation Noise	Nim	pWOp	200.0	
Interference Noise	Nif	pWOp	240.0	
Radio Link Noise	Npr	pWOp	706.0 ***	
Carrier Multiplex Noise	Npm	pWOp	310.0 ***	
Total Noise	Np	pWOp	1016.0 ***	
Signal/Total Noise(≥ 57/50 dB)	S/Np	dB	59.9 ***	
Short Period Noise(99.9%)				
Fading Depth	Af	dB	16.0 ***	
Signal/Thermal Noise	S/Nta	dB	51.0 ***	
Thermal Noise	Nta	pWOp	6607.0 ***	
Radio Link Noise	Npr	pWOp	7147.0 ***	
Total Noise	Np	pWOp	7457.0 ***	
Signal/Total Noise	S/Np	dB	51.3 ***	
Fading Margin				
Tx Output Power	Pt	dBm	37.0	
Rx Input Level(50%)	Pri	dBm	-55.2 ***	
Threshold Level	Pth	dBm	-90.0	
Margin to Threshold(50%)(≥ 33 dB)	Mth	dB	34.8 ***	

Program No.
- 120 ch, 5W : T301
- 24 ch, 5W : T302
- 24 ch, 100W : T303

Mux Noise(pWOp)
- 460 SG/380 G
- 310 GC/230 R

Antenna Gain (dBi)		
14 ele.	Yagi	15
1.2 mϕ	Para.	18
1.8	"	21
2.4	"	23.5
3.0	"	26
4.2	"	28.5
6.0	"	32
8.0	"	34.5

Feeder Loss (dB/m)	
RG-17 /U	0.14
H13	0.091
H20	0.052
A20	0.048
A39	0.026

UHF SYSTEM PERFORMANCE CALCULATION

(900 MHz, 24 ch/~~120 ch~~, 5 W/~~100 W~~)

Path No. 5313-24

Station P	Mae Chaen	T. ~~R~~	Station Q	Doi Inthanon	~~T~~ R

Path Type: L/S (no reflection), ~~No. Diffraction~~			P	Q
Antenna Height	ha	m	58	58
Antenna Type & Size (~~Yagi~~, Parabolic)		mφ	1.8	1.8
Antenna Gain	Ga	dBi	21	21
Feeder Type			H20	H20
Feeder Length	lf	m	68	68
Feeder Loss(ha + 10) x ΔLf	Lf	dB	3.5	3.5
Antenna Height at P	ha1	m	58.0 ***	
Antenna Height at Q	ha2	m	59.0 ***	
Path Loss				
Path Distance	d	km	14.9 ***	
Free Space Propagation Loss	Lo	dB	115.0 ***	
Additional Propagation Loss(50%)	La	dB	11.0 ***	
Total Propagation Loss(50%)	Lp	dB	126.0 ***	
Required Antenna Gain	Ga	dB	39.1 ***	
Antenna Gain at P	Ga1	dBi	21.0 ***	
Antenna Gain at Q	Ga2	dBi	21.0 ***	
Branching Loss	Lb	dB	5.0	
Feeder Loss at P	Lf1	dB	3.5 ***	
Feeder Loss at Q	Lf2	dB	3.5 ***	
Net Loss(50%)	Ln	dB	96.1 ***	
Median Noise(50%)				
Figure of Merit	Fm	dB	165.0	
Signal/Thermal Noise	S/Nta	dB	68.9 ***	
Thermal Noise	Nta	pWOp	129.0 ***	
Equipment Thermal Noise	Nte	pWOp	100.0	
Intermodulation Noise	Nim	pWOp	200.0	
Interference Noise	Nif	pWOp	240.0	
Radio Link Noise	Npr	pWOp	669.0 ***	
Carrier Multiplex Noise	Npm	pWOp	230.0 ***	
Total Noise	Np	pWOp	899.0 ***	
Signal/Total Noise(≥ 57/50 dB)	S/Np	dB	60.5 ***	
Short Period Noise(99.9%)				
Fading Depth	Af	dB	12.0 ***	
Signal/Thermal Noise	S/Nta	dB	56.9 ***	
Thermal Noise	Nta	pWOp	2042.0 ***	
Radio Link Noise	Npr	pWOp	2582.0 ***	
Total Noise	Np	pWOp	2812.0 ***	
Signal/Total Noise	S/Np	dB	55.5 ***	
Fading Margin				
Tx Output Power	Pt	dBm	37.0	
Rx Input Level(50%)	Pri	dBm	-59.1 ***	
Threshold Level	Pth	dBm	-95.0	
Margin to Threshold(50%)(≥ 33 dB)	Mth	dB	35.9 ***	

Program No.
- 120 ch, 5W : T301
- 24 ch, 5W : T302
- 24 ch, 100W : T303

Mux Noise(pWOp)
- 460 SG/380 G
- 310 GC/230 R

Antenna Gain (dBi)		
14 ele.	Yagi	15
1.2 mØ	Para.	18
1.8	"	21
2.4	"	23.5
3.0	"	26
4.2	"	28.5
6.0	"	32
8.0	"	34.5

Feeder Loss(dB/m)	
RG-17 /U	0.14
H13	0.091
H20	0.052
A20	0.048
A39	0.026

UHF SYSTEM PERFORMANCE CALCULATION

(900 MHz, 24 ch/~~120 ch~~, ~~5 W~~/~~100~~ 50 W)

Path No. 5313-25

Station P		Station Q	
Doi Inthanon	~~T~~ R	Sa Moeng	T ~~R~~

Path Type: ~~L/S (no reflection)~~, Mt. Diffraction			P	Q
Antenna Height	ha	m	58	33
Antenna Type & Size (~~Yagi~~, Parabolic)		mφ	3	3
Antenna Gain	Ga	dBi	26	26
Feeder Type			H20	H20
Feeder Length	lf	m	68	43
Feeder Loss(ha + 10) x ΔLf	Lf	dB	3.5	2.2

Antenna Height at P	ha1	m	58.0 ***
Antenna Height at Q	ha2	m	33.0 ***
Path Loss			
Path Distance	d	km	39.8 ***
Free Space Propagation Loss	Lo	dB	123.5 ***
Additional Propagation Loss(50%)	La	dB	46.0 ***
Total Propagation Loss(50%)	Lp	dB	169.5 ***
Required Antenna Gain	Ga	dB	50.9 ***
Antenna Gain at P	Ga1	dBi	26.0 ***
Antenna Gain at Q	Ga2	dBi	26.0 ***
Branching Loss	Lb	dB	5.0
Feeder Loss at P	Lf1	dB	3.5 ***
Feeder Loss at Q	Lf2	dB	2.2 ***
Net Loss(50%)	Ln	dB	128.3 ***
Median Noise(50%)			
Figure of Merit	Fm	dB	188.0
Signal/Thermal Noise	S/Nta	dB	59.7 **
Thermal Noise	Nta	pWOp	1072.0 **
Equipment Thermal Noise	Nte	pWOp	100.0
Intermodulation Noise	Nim	pWOp	400.0
Interference Noise	Nif	pWOp	1120.0
Radio Link Noise	Npr	pWOp	2692.0 ***
Carrier Multiplex Noise	Npm	pWOp	230.0 ***
Total Noise	Np	pWOp	2922.0 ***
Signal/Total Noise(≥ 57/50 dB)	S/Np	dB	55.3 ***
Short Period Noise(99.9%)			
Fading Depth	Af	dB	16.0 ***
Signal/Thermal Noise	S/Nta	dB	43.7 ***
Thermal Noise	Nta	pWOp	42658.0 ***
Radio Link Noise	Npr	pWOp	44273.1 ***
Total Noise	Np	pWOp	44506.9 ***
Signal/Total Noise	S/Np	dB	43.5 ***
Fading Margin			
Tx Output Power	Pt	dBm	47.0
Rx Input Level(50%)	Pri	dBm	-91.3 ***
Threshold Level	Pth	dBm	-105.0
Margin to Threshold(50%) (≥ 33 dB)	Mth	dB	23.7 ***

Program No.
- 120 ch, 5W : T301
- 24 ch, 5W : T302
- 24 ch, 100W : T303

Mux Noise(pWOp)
- 460 SG/380 G
- 310 GC/230 R

Antenna Gain (dBi)		
14 ele.	Yagi	15
1.2 mφ	Para.	18
1.8	"	21
2.4	"	23.5
3.0	"	26
4.2	"	28.5
6.0	"	32
8.0	"	34.5

Feeder Loss (dB/m)	
RG-17 /U	0.14
H13	0.091
H20	0.052
A20	0.048
A39	0.026

UHF SYSTEM PERFORMANCE CALCULATION

(900 MHz, ~~24 ch~~/120 ch, 5 W/~~100 W~~)

Path No. 7711-1

Station P	Phun Phin (Radio)	T.~~R~~	Station Q	Don Sak	T.~~R~~

Path Type: L/S (~~no~~ reflection), ~~No Diffraction~~			P	Q
Antenna Height	ha	m	10	33
Antenna Type & Size (~~Yagi~~, Parabolic)		mØ	2.4	3.0
Antenna Gain	Ga	dBi	23.5	26
Feeder Type			H20	H20
Feeder Length	lf	m	20	43
Feeder Loss(ha + 10) x ΔLf	Lf	dB	1.0	2.2

Antenna Height at P	ha1	m	10.0 ***
Antenna Height at Q	ha2	m	33.0 ***
Path Loss			
Path Distance	d	km	57.4 ***
Free Space Propagation Loss	Lo	dB	126.7 ***
Additional Propagation Loss(50%)	La	dB	7.0 ***
Total Propagation Loss(50%)	Lp	dB	133.7 ***
Required Antenna Gain	Ga	dB	46.0 ***
Antenna Gain at P	Ga1	dBi	23.5 ***
Antenna Gain at Q	Ga2	dBi	26.0 ***
Branching Loss	Lb	dB	5.0
Feeder Loss at P	Lf1	dB	1.0 ***
Feeder Loss at Q	Lf2	dB	2.2 ***
Net Loss(50%)	Ln	dB	92.5 ***
Median Noise(50%)			
Figure of Merit	Fm	dB	160.0
Signal/Thermal Noise	S/Nta	dB	67.5 ***
Thermal Noise	Nta	pWOp	170.0 ***
Equipment Thermal Noise	Nte	pWOp	100.0
Intermodulation Noise	Nim	pWOp	200.0
Interference Noise	Nif	pWOp	240.0
Radio Link Noise	Npr	pWOp	710.0 ***
Carrier Multiplex Noise	Npm	pWOp	270.0 ***
Total Noise	Np	pWOp	980.0 ***
Signal/Total Noise(≥ 57/50 dB)	S/Np	dB	60.1 ***
Short Period Noise(99.9%)			
Fading Depth	Af	dB	18.0 ***
Signal/Thermal Noise	S/Nta	dB	49.5 ***
Thermal Noise	Nta	pWOp	11220.0 ***
Radio Link Noise	Npr	pWOp	11760.0 ***
Total Noise	Np	pWOp	12030.0 ***
Signal/Total Noise	S/Np	dB	49.2 ***
Fading Margin			
Tx Output Power	Pt	dBm	37.0
Rx Input Level(50%)	Pri	dBm	-55.5 ***
Threshold Level	Pth	dBm	-90.0
Margin to Threshold(50%)(≥ 33 dB)	Mth	dB	34.5

Program No.		Antenna Gain (dBi)			Feeder Loss(dB/m)	
120 ch, 5W	T301	14 ele.	Yagi	15	RG-17 /U	0.14
24 ch, 5W	T302	1.2 mØ	Para.	18	H13	0.091
24 ch, 100W	T303	1.8	"	21	H20	0.052
		2.4	"	23.5	A20	0.048
Mux Noise(pWOp)		3.0	"	26	A39	0.026
460 SG/380 G		4.2	"	28.5		
310 GC/230 R		6.0	"	32		
		8.0	"	34.5		

UHF SYSTEM PERFORMANCE CALCULATION (900 MHz, ~~24 ch~~/120 ch, 5 W/~~100 W~~)	Path No. 7711-2

Station P	Don Sak	T.~~R~~	Station Q	Ko Samui	T.~~R~~

Path Type: L/S (~~no~~ reflection), ~~Mt. Diffraction~~			P	Q
Antenna Height	ha	m	33	33
Antenna Type & Size (~~Yagi~~, Parabolic)			1.8	1.8
Antenna Gain	Ga	dBi	21	21
Feeder Type			H20	H20
Feeder Length	lf	m	43	43
Feeder Loss(ha + 10) x ΔLf	Lf	dB	2.2	2.2
Antenna Height at P	ha1	m		33.0 ***
Antenna Height at Q	ha2	m		33.0 ***
Path Loss				
Path Distance	d	km		36.3 ***
Free Space Propagation Loss	Lo	dB		122.7 ***
Additional Propagation Loss(50%)	La	dB		3.0 ***
Total Propagation Loss(50%)	Lp	dB		125.7 ***
Required Antenna Gain	Ga	dB		41.2 ***
Antenna Gain at P	Ga1	dBi		21.0 ***
Antenna Gain at Q	Ga2	dBi		21.0 ***
Branching Loss	Lb	dB		5.0
Feeder Loss at P	Lf1	dB		2.2 ***
Feeder Loss at Q	Lf2	dB		2.2 ***
Net Loss(50%)	Ln	dB		93.2 ***
Median Noise(50%)				
Figure of Merit	Fm	dB		160.0
Signal/Thermal Noise	S/Nta	dB		66.3 ***
Thermal Noise	Nta	pWOp		209.0 ***
Equipment Thermal Noise	Nte	pWOp		100.0
Intermodulation Noise	Nim	pWOp		200.0
Interference Noise	Nif	pWOp		240.0
Radio Link Noise	Npr	pWOp		749.0 ***
Carrier Multiplex Noise	Npm	pWOp		310.0 ***
Total Noise	Np	pWOp		1059.0 ***
Signal/Total Noise(≥ 57/50 dB)	S/Np	dB		59.8 ***
Short Period Noise(99.9%)				
Fading Depth	Af	dB		16.0 ***
Signal/Thermal Noise	S/Nta	dB		50.8 ***
Thermal Noise	Nta	pWOp		8318.0 ***
Radio Link Noise	Npr	pWOp		8858.0 ***
Total Noise	Np	pWOp		9168.0 ***
Signal/Total Noise	S/Np	dB		50.4 ***
Fading Margin				
Tx Output Power	Pt	dBm		37.0
Rx Input Level(50%)	Pri	dBm		-56.2 ***
Threshold Level	Pth	dBm		-90.0
Margin to Threshold(50%)(≥ 33 dB)	Mth	dB		33.8 ***

Program No.
120 ch, 5W : T301
24 ch, 5W : T302
24 ch, 100W : T303

Mux Noise(pWOp)
460 SG/380 G
310 GC/230 R

Antenna Gain (dBi)		
14 ele.	Yagi	15
1.2 mØ	Para.	18
1.8	"	21
2.4	"	23.5
3.0	"	26
4.2	"	28.5
6.0	"	32
8.0	"	34.5

Feeder Loss(dB/m)	
RG-17 /U	0.14
H13	0.091
H20	0.052
A20	0.048
A39	0.026

UHF SYSTEM PERFORMANCE CALCULATION (900 MHz, 24 ch/~~120 ch,~~ 5 W/~~100 W~~)	Path No. 7711-3

Station P	Don Sak	T~~-R~~	Station Q	Ko Phangan	T~~-R~~

Path Type: L/S (~~no~~ reflection), ~~Mt. Diffraction~~			P	Q
Antenna Height	ha	m	53	33
Antenna Type & Size (~~Yagi~~, Parabolic)		mØ	2.4	2.4
Antenna Gain	Ga	dBi	23.5	23.5
Feeder Type			H20	H20
Feeder Length	lf	m	63	43
Feeder Loss(ha + 10) x ΔLf	Lf	dB	3.3	2.2

Antenna Height at P	ha1	m	53.0 ***
Antenna Height at Q	ha2	m	33.0 ***
Path Loss			
Path Distance	d	km	55.7 ***
Free Space Propagation Loss	Lo	dB	126.4 ***
Additional Propagation Loss(50%)	La	dB	7.0 ***
Total Propagation Loss(50%)	Lp	dB	133.4 ***
Required Antenna Gain	Ga	dB	44.9 ***
Antenna Gain at P	Ga1	dBi	23.5 ***
Antenna Gain at Q	Ga2	dBi	23.5 ***
Branching Loss	Lb	dB	5.0
Feeder Loss at P	Lf1	dB	3.3 ***
Feeder Loss at Q	Lf2	dB	2.2 ***
Net Loss(50%)	Ln	dB	96.9 ***
Median Noise(50%)			
Figure of Merit	Fm	dB	165.0
Signal/Thermal Noise	S/Nta	dB	68.1 ***
Thermal Noise	Nta	pWOp	155.0 ***
Equipment Thermal Noise	Nte	pWOp	100.0
Intermodulation Noise	Nim	pWOp	205.0
Interference Noise	Nif	pWOp	240.0
Radio Link Noise	Npr	pWOp	695.0 ***
Carrier Multiplex Noise	Npm	pWOp	230.0 ***
Total Noise	Np	pWOp	925.0 ***
Signal/Total Noise(≥ 57/50 dB)	S/Np	dB	60.3 ***
Short Period Noise(99.9%)			
Fading Depth	Af	dB	17.0 ***
Signal/Thermal Noise	S/Nta	dB	51.1 ***
Thermal Noise	Nta	pWOp	7762.0 ***
Radio Link Noise	Npr	pWOp	8302.0 ***
Total Noise	Np	pWOp	8532.0 ***
Signal/Total Noise	S/Np	dB	50.7 ***
Fading Margin			
Tx Output Power	Pt	dBm	37.0
Rx Input Level(50%)	Pri	dBm	-59.9 ***
Threshold Level	Pth	dBm	-95.0
Margin to Threshold(50%)(≥ 33 dB)	Mth	dB	35.1 ***

Program No.
- 120 ch, 5W : T301
- 24 ch, 5W : T302
- 24 ch, 100W : T303

Mux Noise(pWOp)
- 460 SG/380 G
- 310 GC/230 R

Antenna Gain(dBi)		
14 ele.	Yagi	15
1.2 mØ	Para.	18
1.8	"	21
2.4	"	23.5
3.0	"	26
4.2	"	28.5
6.0	"	32
8.0	"	34.5

Feeder Loss(dB/m)	
RG-17/U	0.14
H13	0.091
H20	0.052
A20	0.048
A39	0.026

UHF SYSTEM PERFORMANCE CALCULATION (900 MHz, 24 ch/~~120 ch,~~ 5 W/~~100 W~~)			Path No. 7711-4	
Station P: Phun Phin (Tex)	T ~~R~~		Station Q: Kanchanadit	T ~~R~~
Path Type: L/S (~~no~~ reflection), ~~Mt. Diffraction~~			P	Q
Antenna Height	ha	m	47	43
Antenna Type & Size (~~Yagi,~~ Parabolic)		mø	1.8	1.8
Antenna Gain	Ga	dBi	21	21
Feeder Type			H20	H20
Feeder Length	lf	m	57	53
Feeder Loss(ha + 10) x 4Lf	Lf	dB	3.0	2.8
Antenna Height at P	ha1	m	47.0 ***	
Antenna Height at Q	ha2	m	43.0 ***	
Path Loss				
Path Distance	d	km	25.1 ***	
Free Space Propagation Loss	Lo	dB	119.5 ***	
Additional Propagation Loss(50%)	La	dB	10.0 ***	
Total Propagation Loss(50%)	Lp	dB	129.5 ***	
Required Antenna Gain	Ga	dB	41.2 ***	
Antenna Gain at P	Ga1	dBi	21.0 ***	
Antenna Gain at Q	Ga2	dBi	21.0 ***	
Branching Loss	Lb	dB	5.0	
Feeder Loss at P	Lf1	dB	3.0 ***	
Feeder Loss at Q	Lf2	dB	2.9 ***	
Net Loss(50%)	Ln	dB	98.2 ***	
Median Noise(50%)				
Figure of Merit	Fm	dB	165.0	
Signal/Thermal Noise	S/Nta	dB	66.8 ***	
Thermal Noise	Nta	pWOp	209.0 ***	
Equipment Thermal Noise	Nte	pWOp	100.0	
Intermodulation Noise	Nim	pWOp	200.0	
Interference Noise	Nif	pWOp	240.0	
Radio Link Noise	Npr	pWOp	749.0 ***	
Carrier Multiplex Noise	Npm	pWOp	380.0 ***	
Total Noise	Np	pWOp	1129.0 ***	
Signal/Total Noise(≥ 57/50 dB)	S/Np	dB	59.5 ***	
Short Period Noise(99.9%)				
Fading Depth	Af	dB	14.0 ***	
Signal/Thermal Noise	S/Nta	dB	52.8 ***	
Thermal Noise	Nta	pWOp	5248.0 ***	
Radio Link Noise	Npr	pWOp	5768.0 ***	
Total Noise	Np	pWOp	6168.0 ***	
Signal/Total Noise	S/Np	dB	52.1 ***	
Fading Margin				
Tx Output Power	Pt	dBm	37.0	
Rx Input Level(50%)	Pri	dBm	-61.2 ***	
Threshold Level	Pth	dBm	-95.0	
Margin to Threshold(50%)(≥ 33 dB)	Mth	dB	33.8 ***	

Program No.

120 ch, 5W	T301
24 ch, 5W	T302
24 ch, 100W	T303

Mux Noise(pWOp)

460 SG/380 G

310 GC/230 R

Antenna Gain (dBi)

14 ele.	Yagi	15
1.2 mø	Para.	18
1.8	"	21
2.4	"	23.5
3.0	"	26
4.2	"	28.5
6.0	"	32
8.0	"	34.5

Feeder Loss(dB/m)

RG-17 /U	0.14
H13	0.091
H20	0.052
A20	0.048
A39	0.026

UHF SYSTEM PERFORMANCE CALCULATION (900 MHz, ~~24 ch~~/120 ch, 5 W/~~100 W~~)	Path No. 7711-5

Station P	Phun Phin (Tex)	T ~~R~~	Station Q	Tha Chang	T ~~R~~

Path Type: L/S (~~no~~ reflection), ~~Mt. Diffraction~~			P	Q
Antenna Height	ha	m	36	33
Antenna Type & Size (~~Yagi~~, Parabolic)		mØ	1.8	1.8
Antenna Gain	Ga	dBi	21	21
Feeder Type			H20	H20
Feeder Length	lf	m	46	43
Feeder Loss(ha + 10) x ΔLf	Lf	dB	2.4	2.2
Antenna Height at P	ha1	m	36.0 ***	
Antenna Height at Q	ha2	m	33.0 ***	
Path Loss				
Path Distance	d	km	18.8 ***	
Free Space Propagation Loss	Lo	dB	117.0 ***	
Additional Propagation Loss(50%)	La	dB	9.0 ***	
Total Propagation Loss(50%)	Lp	dB	126.0 ***	
Required Antenna Gain	Ga	dB	41.6 ***	
Antenna Gain at P	Ga1	dBi	21.0 ***	
Antenna Gain at Q	Ga2	dBi	21.0 ***	
Branching Loss	Lb	dB	5.0	
Feeder Loss at P	Lf1	dB	2.4 ***	
Feeder Loss at Q	Lf2	dB	2.2 ***	
Net Loss(50%)	Ln	dB	93.6 ***	
Median Noise(50%)				
Figure of Merit	Fm	dB	160.0	
Signal/Thermal Noise	S/Nta	dB	66.4 ***	
Thermal Noise	Nta	pWOp	229.0 ***	
Equipment Thermal Noise	Nte	pWOp	100.0	
Intermodulation Noise	Nim	pWOp	200.0	
Interference Noise	Nif	pWOp	240.0	
Radio Link Noise	Npr	pWOp	769.0 ***	
Carrier Multiplex Noise	Npm	pWOp	460.0 ***	
Total Noise	Np	pWOp	1229.0 ***	
Signal/Total Noise(≥ 57/50 dB)	S/Np	dB	59.1 ***	
Short Period Noise(99.9%)				
Fading Depth	Af	dB	13.0 ***	
Signal/Thermal Noise	S/Nta	dB	53.4 ***	
Thermal Noise	Nta	pWOp	4571.0 ***	
Radio Link Noise	Npr	pWOp	5111.0 ***	
Total Noise	Np	pWOp	5571.0 ***	
Signal/Total Noise	S/Np	dB	52.5 ***	
Fading Margin				
Tx Output Power	Pt	dBm	37.0	
Rx Input Level(50%)	Pri	dBm	-56.6 ***	
Threshold Level	Pth	dBm	-90.0	
Margin to Threshold(50%)(≥ 33 dB)	Mth	dB	33.4 ***	

Program No.		Antenna Gain (dBi)			Feeder Loss (dB/m)	
120 ch, 5W	: T301	14 ele.	Yagi	15	RG-17/U	0.14
24 ch, 5W	: T302	1.2 mØ	Para.	18	H13	0.091
24 ch, 100W	: T303	1.8	"	21	H20	0.052
		2.4	"	23.5	A20	0.048
Mux Noise(pWOp)		3.0	"	26	A39	0.026
460 SG/380 G		4.2	"	28.5		
310 GC/230 R		6.0	"	32		
		8.0	"	34.5		

UHF SYSTEM PERFORMANCE CALCULATION

(900 MHz, ~~24 ch~~/120 ch, 5 W/~~100 W~~)

Path No. 7711-6

Station P	Chai Ya	T.~~R~~	Station Q	Tha Chana	T.~~R~~

Path Type: L/S (~~no~~ reflection), ~~No. Diffraction~~			P	Q
Antenna Height	ha	m	45	33
Antenna Type & Size (~~Yagi~~,Parabolic)		mφ	1.8	1.8
Antenna Gain	Ga	dBi	21	21
Feeder Type			H20	H20
Feeder Length	lf	m	65	43
Feeder Loss(ha + 10) x ΔLf	Lf	dB	2.9	2.2
Antenna Height at P	ha1	m	45.0 ***	
Antenna Height at Q	ha2	m	33.0 ***	
Path Loss				
Path Distance	d	km	20.6 ***	
Free Space Propagation Loss	Lo	dB	117.8 ***	
Additional Propagation Loss(50%)	La	dB	7.0 ***	
Total Propagation Loss(50%)	Lp	dB	124.8 ***	
Required Antenna Gain	Ga	dB	40.5 ***	
Antenna Gain at P	Ga1	dBi	21.0 ***	
Antenna Gain at Q	Ga2	dBi	21.0 ***	
Branching Loss	Lb	dB	5.0	
Feeder Loss at P	Lf1	dB	2.9 ***	
Feeder Loss at Q	Lf2	dB	2.2 ***	
Net Loss(50%)	Ln	dB	92.9 ***	
Median Noise(50%)				
Figure of Merit	Fm	dB	160.0	
Signal/Thermal Noise	S/Nta	dB	67.1 ***	
Thermal Noise	Nta	pWOp	195.0 ***	
Equipment Thermal Noise	Nte	pWOp	100.0	
Intermodulation Noise	Nim	pWOp	200.0	
Interference Noise	Nif	pWOp	240.0	
Radio Link Noise	Npr	pWOp	735.0 ***	
Carrier Multiplex Noise	Npm	pWOp	460.0 ***	
Total Noise	Np	pWOp	1195.0 ***	
Signal/Total Noise(≥ 57/50 dB)	S/Np	dB	59.2 ***	
Short Period Noise(99.9%)				
Fading Depth	Af	dB	13.0 ***	
Signal/Thermal Noise	S/Nta	dB	54.1 ***	
Thermal Noise	Nta	pWOp	3899.0 ***	
Radio Link Noise	Npr	pWOp	4430.0 ***	
Total Noise	Np	pWOp	4890.0 ***	
Signal/Total Noise	S/Np	dB	53.1 ***	
Fading Margin				
Tx Output Power	Pt	dBm	37.0	
Rx Input Level(50%)	Pri	dBm	-55.9 ***	
Threshold Level	Pth	dBm	-90.0	
Margin to Threshold(50%)(≥ 33 dB)	Mth	dB	34.1 ***	

Program No.		Antenna Gain (dBi)		Feeder Loss (dB/m)	
120 ch, 5W	: T301	14 ele. Yagi	15	RG-17 /U	0.14
24 ch, 5W	: T302	1.2 mØ Para.	18	H13	0.091
24 ch, 100W	: T303	1.8 "	21	H20	0.052
		2.4 "	23.5	A20	0.048
Mux Noise(pWOp)		3.0 "	26	A39	0.026
460 SG/380 G		4.2 "	28.5		
310 GC/230 R		6.0 "	32		
		8.0 "	34.5		

UHF SYSTEM PERFORMANCE CALCULATION (900 MHz, ~~24 ch~~/120 ch, 5 W/~~100 W~~)	Path No. 7711-7

Station P	Phun Phin (Radio)	T.*	Station Q	Khiri Ratthanikhom	T.*

Path Type: L/S (~~no~~ reflection), ~~No. Diffraction~~			P	Q
Antenna Height	ha	m	10	35
Antenna Type & Size (~~Yagi~~, Parabolic)		mφ	1.8	1.8
Antenna Gain	Ga	dBi	21	21
Feeder Type			H20	H20
Feeder Length	lf	m	20	45
Feeder Loss(ha + 10) x ΔLf	Lf	dB	1.0	2.3

Antenna Height at P	ha1	m	10.0 *
Antenna Height at Q	ha2	m	35.0 *
Path Loss			
Path Distance	d	km	31.7 **
Free Space Propagation Loss	Lo	dB	121.5 **
Additional Propagation Loss(50%)	La	dB	6.0 **
Total Propagation Loss(50%)	Lp	dB	127.5 **
Required Antenna Gain	Ga	dB	41.9 **
Antenna Gain at P	Ga1	dBi	21.0 **
Antenna Gain at Q	Ga2	dBi	21.0 **
Branching Loss	Lb	dB	5.0
Feeder Loss at P	Lf1	dB	1.0 **
Feeder Loss at Q	Lf2	dB	2.3 **
Net Loss(50%)	Ln	dB	93.9 **
Median Noise(50%)			
Figure of Merit	Fm	dB	160.0
Signal/Thermal Noise	S/Nta	dB	66.1 ***
Thermal Noise	Nta	pWOp	245.0 ***
Equipment Thermal Noise	Nte	pWOp	100.0
Intermodulation Noise	Nim	pWOp	200.0
Interference Noise	Nif	pWOp	240.0
Radio Link Noise	Npr	pWOp	785.0 ***
Carrier Multiplex Noise	Npm	pWOp	270.0 ***
Total Noise	Np	pWOp	1055.0 ***
Signal/Total Noise(≥ 57/50 dB)	S/Np	dB	59.8 ***
Short Period Noise(99.9%)			
Fading Depth	Af	dB	15.0 ***
Signal/Thermal Noise	S/Nta	dB	51.1 ***
Thermal Noise	Nta	pWOp	7762.0 ***
Radio Link Noise	Npr	pWOp	8302.0 ***
Total Noise	Np	pWOp	8572.0 ***
Signal/Total Noise	S/Np	dB	50.7 ***
Fading Margin			
Tx Output Power	Pt	dBm	37.0
Rx Input Level(50%)	Pri	dBm	-56.9 ***
Threshold Level	Pth	dBm	-90.0
Margin to Threshold(50%)(≥ 33 dB)	Mth	dB	33.1 ***

Program No.
120 ch, 5W : T301
24 ch, 5W : T302
24 ch, 100W : T303

Mux Noise(pWOp)
460 SG/380 G
310 GC/230 R

Antenna Gain(dBi)		
14 ele. Yagi		15
1.2 mφ	Para.	18
1.8	"	21
2.4	"	23.5
3.0	"	26
4.2	"	28.5
6.0	"	32
8.0	"	34.5

Feeder Loss(dB/m)	
RG-17 /U	0.14
H13	0.091
H20	0.052
A20	0.048
A39	0.026

UHF SYSTEM PERFORMANCE CALCULATION

(900 MHz, 24 ch/~~120 ch~~, 5 W/~~100 W~~)

Path No. 7711-8

Station P	Khiri Ratthanikhom	T.~~R~~	Station Q	Ban Takhun	T.~~R~~

Path Type: L/S (~~no~~ reflection), ~~No Diffraction~~			P	Q
Antenna Height	ha	m	58	33
Antenna Type & Size (~~Yagi~~, Parabolic)		mϕ	1.2	1.8
Antenna Gain	Ga	dBi	18	21
Feeder Type			H20	H20
Feeder Length	lf	m	68	43
Feeder Loss(ha + 10) x ΔLf	Lf	dB	3.5	2.2

Antenna Height at P	ha1	m	58.0 ***
Antenna Height at Q	ha2	m	33.0 ***
Path Loss			
Path Distance	d	km	14.2 ***
Free Space Propagation Loss	Lo	dB	114.5 ***
Additional Propagation Loss(50%)	La	dB	12.0 ***
Total Propagation Loss(50%)	Lp	dB	126.5 ***
Required Antenna Gain	Ga	dB	78.3 ***
Antenna Gain at P	Ga1	dBi	18.0 ***
Antenna Gain at Q	Ga2	dBi	21.0 ***
Branching Loss	Lb	dB	5.0
Feeder Loss at P	Lf1	dB	3.5 ***
Feeder Loss at Q	Lf2	dB	2.2 ***
Net Loss(50%)	Ln	dB	98.3 ***
Median Noise(50%)			
Figure of Merit	Fm	dB	165.0
Signal/Thermal Noise	S/Nta	dB	66.7 ***
Thermal Noise	Nta	pWOp	214.0 ***
Equipment Thermal Noise	Nte	pWOp	100.0
Intermodulation Noise	Nim	pWOp	200.0
Interference Noise	Nif	pWOp	240.0
Radio Link Noise	Npr	pWOp	754.0 ***
Carrier Multiplex Noise	Npm	pWOp	230.0 ***
Total Noise	Np	pWOp	984.0 ***
Signal/Total Noise(≥ 57/50 dB)	S/Np	dB	60.1 ***
Short Period Noise(99.9%)			
Fading Depth	Af	dB	12.0 ***
Signal/Thermal Noise	S/Nta	dB	54.7 ***
Thermal Noise	Nta	pWOp	3388.0 ***
Radio Link Noise	Npr	pWOp	3928.0 ***
Total Noise	Np	pWOp	4158.0 ***
Signal/Total Noise	S/Np	dB	53.8 ***
Fading Margin			
Tx Output Power	Pt	dBm	37.0
Rx Input Level(50%)	Pri	dBm	-61.3 ***
Threshold Level	Pth	dBm	-95.0
Margin to Threshold(50%)(≥ 33 dB)	Mth	dB	33.7 ***

Program No.
- 120 ch, 5W : T301
- 24 ch, 5W : T302
- 24 ch, 100W : T303

Mux Noise(pWOp)
- 460 SG/380 G
- 310 GC/230 R

Antenna Gain (dBi)		
14 ele.	Yagi	15
1.2 mØ	Para.	18
1.8	"	21
2.4	"	23.5
3.0	"	26
4.2	"	28.5
6.0	"	32
8.0	"	34.5

Feeder Loss(dB/m)	
RG-17 /U	0.14
H13	0.091
H20	0.052
A20	0.048
A39	0.026

UHF SYSTEM PERFORMANCE CALCULATION (900 MHz, 24 ch/~~120 ch,~~ 5 W/~~100 W~~)			Path No. 7711-9	
Station P Khiri Ratthanikhom	T ~~R~~		Station Q Phanom	T ~~R~~
Path Type: L/S (~~no~~ reflection), ~~No. Diffraction~~			P	Q
Antenna Height	ha	m	68	43
Antenna Type & Size (~~Yagi~~, Parabolic)		mØ	1.8	1.8
Antenna Gain	Ga	dBi	21	21
Feeder Type			H20	H20
Feeder Length	lf	m	78	53
Feeder Loss(ha + 10) x ΔLf	Lf	dB	4.1	2.8
Antenna Height at P	ha1	m	68.0 ***	
Antenna Height at Q	ha2	m	43.0 ***	
Path Loss				
Path Distance	d	km	27.5 ***	
Free Space Propagation Loss	Lo	dB	120.3 ***	
Additional Propagation Loss(50%)	La	dB	6.0 ***	
Total Propagation Loss(50%)	Lp	dB	126.3 ***	
Required Antenna Gain	Ga	dB	39.1 ***	
Antenna Gain at P	Ga1	dBi	21.0 ***	
Antenna Gain at Q	Ga2	dBi	21.0 ***	
Branching Loss	Lb	dB	5.0	
Feeder Loss at P	Lf1	dB	4.1 ***	
Feeder Loss at Q	Lf2	dB	2.8 ***	
Net Loss(50%)	Ln	dB	96.1 ***	
Median Noise(50%)				
Figure of Merit	Fm	dB	155.0	
Signal/Thermal Noise	S/Nta	dB	68.9 ***	
Thermal Noise	Nta	pWOp	129.0 ***	
Equipment Thermal Noise	Nte	pWOp	100.0	
Intermodulation Noise	Nim	pWOp	200.0	
Interference Noise	Nif	pWOp	240.0	
Radio Link Noise	Npr	pWOp	669.0 ***	
Carrier Multiplex Noise	Npm	pWOp	230.0 ***	
Total Noise	Np	pWOp	899.0 ***	
Signal/Total Noise(≥ 57/50 dB)	S/Np	dB	60.5 ***	
Short Period Noise(99.9%)				
Fading Depth	Af	dB	14.0 ***	
Signal/Thermal Noise	S/Nta	dB	54.5 ***	
Thermal Noise	Nta	pWOp	3236.0 ***	
Radio Link Noise	Npr	pWOp	3776.0 ***	
Total Noise	Np	pWOp	4006.0 ***	
Signal/Total Noise	S/Np	dB	54.0 ***	
Fading Margin				
Tx Output Power	Pt	dBm	37.0	
Rx Input Level(50%)	Pri	dBm	-59.1 ***	
Threshold Level	Pth	dBm	-95.0	
Margin to Threshold(50%)(≥ 33 dB)	Mth	dB	35.9 ***	

Program No.
- 120 ch, 5W : T301
- 24 ch, 5W : T302
- 24 ch, 100W : T303

Mux Noise(pWOp)
- 460 SG/380 G
- 310 GC/230 R

Antenna Gain (dBi)		
14 ele.	Yagi	15
1.2 mØ	Para.	18
1.8	"	21
2.4	"	23.5
3.0	"	26
4.2	"	28.5
6.0	"	32
8.0	"	34.5

Feeder Loss(dB/m)	
RG-17 /U	0.14
H13	0.091
H20	0.052
A20	0.048
A39	0.026

UHF SYSTEM PERFORMANCE CALCULATION

(900 MHz, 24 ch/120 ch, 5 W/100 W)

Path No. 7711-10

Station P	Ban Na San	T ~~R~~	Station Q	Khian Sa	T ~~R~~

Path Type: ~~L/S (no reflection)~~, Mt. Diffraction			P	Q
Antenna Height	ha	m	55	63
Antenna Type & Size (~~Yagi~~, Parabolic)		mφ	1.2	1.8
Antenna Gain	Ga	dBi	18	21
Feeder Type			H20	H20
Feeder Length	lf	m	65	73
Feeder Loss(ha + 10) x ΔLf	Lf	dB	3.4	3.8
Antenna Height at P	ha1	m	55.0 ***	
Antenna Height at Q	ha2	m	63.0 ***	
Path Loss				
Path Distance	d	km	17.6 ***	
Free Space Propagation Loss	Lo	dB	116.4 ***	
Additional Propagation Loss(50%)	La	dB	9.0 ***	
Total Propagation Loss(50%)	Lp	dB	125.4 ***	
Required Antenna Gain	Ga	dB	38.6 ***	
Antenna Gain at P	Ga1	dBi	18.0 ***	
Antenna Gain at Q	Ga2	dBi	21.0 ***	
Branching Loss	Lb	dB	5.0	
Feeder Loss at P	Lf1	dB	3.4 ***	
Feeder Loss at Q	Lf2	dB	3.8 ***	
Net Loss(50%)	Ln	dB	98.5 ***	
Median Noise(50%)				
Figure of Merit	Fm	dB	165.0	
Signal/Thermal Noise	S/Nta	dB	66.4 ***	
Thermal Noise	Nta	pWOp	229.0 ***	
Equipment Thermal Noise	Nte	pWOp	100.0	
Intermodulation Noise	Nim	pWOp	200.0	
Interference Noise	Nif	pWOp	240.0	
Radio Link Noise	Npr	pWOp	769.0 ***	
Carrier Multiplex Noise	Npm	pWOp	380.0 ***	
Total Noise	Np	pWOp	1149.0 ***	
Signal/Total Noise(≥ 57/50 dB)	S/Np	dB	59.4 ***	
Short Period Noise(99.9%)				
Fading Depth	Af	dB	12.0 ***	
Signal/Thermal Noise	S/Nta	dB	54.4 ***	
Thermal Noise	Nta	pWOp	3631.0 ***	
Radio Link Noise	Npr	pWOp	4171.0 ***	
Total Noise	Np	pWOp	4551.0 ***	
Signal/Total Noise	S/Np	dB	53.4 ***	
Fading Margin				
Tx Output Power	Pt	dBm	37.0	
Rx Input Level(50%)	Pri	dBm	-[illegible].6 ***	
Threshold Level	Pth	dBm	-95.6	
Margin to Threshold(50%)(≥ 33 dB)	Mth	dB	37.[illegible] ***	

Program No.:
120 ch, 5W : T301
24 ch, 5W : T302
24 ch, 100W : T303

Mux Noise(pWOp)
460 SG/380 G
310 GC/230 R

Antenna Gain (dBi)		
14 ele.	Yagi	15
1.2 mØ	Para.	18
1.8	"	21
2.4	"	23.5
3.0	"	26
4.2	"	28.5
6.0	"	32
8.0	"	34.5

Feeder Loss (dB/m)	
RG-17 /U	0.14
H13	0.091
H20	0.052
A20	0.048
A39	0.026

UHF SYSTEM PERFORMANCE CALCULATION

(900 MHz, 24 ch/~~120 ch,~~ 5 W/~~100 W~~)

Path No. 7711-11

Station P	T ~~R~~	Station Q	T ~~R~~
Ban Na San		Ban Na Doem	

Path Type: ~~L/S (no reflection),~~ Mt. Diffraction			P	Q
Antenna Height	ha	m	55	48
Antenna Type & Size (~~Yagi~~,Parabolic)		m∅	1.8	1.8
Antenna Gain	Ga	dBi	21	21
Feeder Type			H20	H20
Feeder Length	lf	m	65	58
Feeder Loss(ha + 10) x ΔLf	Lf	dB	3.4	3.0
Antenna Height at P	ha1	m	55.0 **	
Antenna Height at Q	ha2	m	48.0 **	
Path Loss				
Path Distance	d	km	11.0 ***	
Free Space Propagation Loss	Lo	dB	112.3 ***	
Additional Propagation Loss(50%)	La	dB	15.0 ***	
Total Propagation Loss(50%)	Lp	dB	127.3 ***	
Required Antenna Gain	Ga	dB	39.7 ***	
Antenna Gain at P	Ga1	dBi	21.0 ***	
Antenna Gain at Q	Ga2	dBi	21.0 ***	
Branching Loss	Lb	dB	5.0	
Feeder Loss at P	Lf1	dB	3.4 ***	
Feeder Loss at Q	Lf2	dB	3.0 ***	
Net Loss(50%)	Ln	dB	96.7 ***	
Median Noise(50%)				
Figure of Merit	Fm	dB	165.0	
Signal/Thermal Noise	S/Nta	dB	68.3 ***	
Thermal Noise	Nta	pWOp	148.0 ***	
Equipment Thermal Noise	Nte	pWOp	100.0	
Intermodulation Noise	Nim	pWOp	200.0	
Interference Noise	Nif	pWOp	240.0	
Radio Link Noise	Npr	pWOp	688.0 ***	
Carrier Multiplex Noise	Npm	pWOp	380.0 ***	
Total Noise	Np	pWOp	1068.0 ***	
Signal/Total Noise(≥ 57/50 dB)	S/Np	dB	59.7 ***	
Short Period Noise(99.9%)				
Fading Depth	Af	dB	10.6 ***	
Signal/Thermal Noise	S/Nta	dB	58.3 ***	
Thermal Noise	Nta	pWOp	1479.0 ***	
Radio Link Noise	Npr	pWOp	2219.0 ***	
Total Noise	Np	pWOp	2399.0 ***	
Signal/Total Noise	S/Np	dB	56.2 ***	
Fading Margin				
Tx Output Power	Pt	dBm	37.0	
Rx Input Level(50%)	Pri	dBm	-59.7 ***	
Threshold Level	Pth	dBm	-95.6	
Margin to Threshold(50%)(≥ 33 dB)	Mth	dB	35.3 ***	

Program No.
- 120 ch, 5W : T301
- 24 ch, 5W : T302
- 24 ch, 100W : T303

Mux Noise(pWOp)
- 460 SG/380 G
- 310 GC/230 R

Antenna Gain (dBi)		
14 ele.	Yagi	15
1.2 m∅	Para.	18
1.8	"	21
2.4	"	23.5
3.0	"	26
4.2	"	28.5
6.0	"	32
8.0	"	34.5

Feeder Loss(dB/m)	
RG-17/U	0.14
H13	0.091
H20	0.052
A20	0.048
A39	0.026

UHF SYSTEM PERFORMANCE CALCULATION (900 MHz, ~~24 ch~~/120 ch, 5 W/~~100 W~~)	Path No. 7711-12

Station P Bàn Na San	T.~~R~~	Station Q Wiang Sa	T.~~R~~

Path Type: L/S (~~no~~ reflection), ~~No. Diffraction~~			P	Q
Antenna Height	ha	m	43	33
Antenna Type & Size (~~Yagi~~, Parabolic)		mφ	1.8	2.4
Antenna Gain	Ga	dBi	21	23.5
Feeder Type			H20	H20
Feeder Length	lf	m	53	43
Feeder Loss(ha + 10) x ΔLf	Lf	dB	2.8	2.2

Antenna Height at P	ha1	m	43.0 ***
Antenna Height at Q	ha2	m	33.0 ***
Path Loss			
Path Distance	d	km	19.1 ***
Free Space Propagation Loss	Lo	dB	116.7 ***
Additional Propagation Loss(50%)	La	dB	11.0 ***
Total Propagation Loss(50%)	Lp	dB	127.7 ***
Required Antenna Gain	Ga	dB	43.7 ***
Antenna Gain at P	Ga1	dBi	21.0 ***
Antenna Gain at Q	Ga2	dBi	23.5 ***
Branching Loss	Lb	dB	5.0
Feeder Loss at P	Lf1	dB	2.8 ***
Feeder Loss at Q	Lf2	dB	2.2 ***
Net Loss(50%)	Ln	dB	93.2 ***
Median Noise(50%)			
Figure of Merit	Fm	dB	160.0
Signal/Thermal Noise	S/Nta	dB	66.8 ***
Thermal Noise	Nta	pWOp	209.0 ***
Equipment Thermal Noise	Nte	pWOp	100.0
Intermodulation Noise	Nim	pWOp	200.0
Interference Noise	Nif	pWOp	240.0
Radio Link Noise	Npr	pWOp	745.0 ***
Carrier Multiplex Noise	Npm	pWOp	460.0 ***
Total Noise	Np	pWOp	1209.0 ***
Signal/Total Noise(≥ 57/50 dB)	S/Np	dB	59.2 ***
Short Period Noise(99.9%)			
Fading Depth	Af	dB	13.0 ***
Signal/Thermal Noise	S/Nta	dB	53.8 ***
Thermal Noise	Nta	pWOp	4159.0 ***
Radio Link Noise	Npr	pWOp	4709.0 ***
Total Noise	Np	pWOp	5159.0 ***
Signal/Total Noise	S/Np	dB	52.9 ***
Fading Margin			
Tx Output Power	Pt	dBm	37.0
Rx Input Level(50%)	Pri	dBm	-56.2 ***
Threshold Level	Pth	dBm	-90.0
Margin to Threshold(50%)(≥ 33 dB)	Mth	dB	33.8 ***

Program No.
- 120 ch, 5W : T301
- 24 ch, 5W : T302
- 24 ch, 100W : T303

Mux Noise(pWOp)
- 460 SG/380 G
- 310 GC/230 R

Antenna Gain (dBi)		
14 ele.	Yagi	15
1.2 mØ	Para.	18
1.8	"	21
2.4	"	23.5
3.0	"	26
4.2	"	28.5
6.0	"	32
8.0	"	34.5

Feeder Loss(dB/m)	
RG-17 /U	0.14
H13	0.091
H20	0.052
A20	0.048
A39	0.026

UHF SYSTEM PERFORMANCE CALCULATION (900 MHz, 24 ch/~~120 ch~~, 5 W/~~100 W~~)			Path No. 7711-13
Station P Ban Na San	T ~~R~~	Station Q Prasaeng	T ~~R~~

Path Type: L/S (~~no~~ reflection), ~~Mt. Diffraction~~			P	Q
Antenna Height	ha	m	58	33
Antenna Type & Size (~~Yagi~~, Parabolic)		mφ	2.4	2.4
Antenna Gain	Ga	dBi	23.5	23.5
Feeder Type			H20	H20
Feeder Length	lf	m	68	43
Feeder Loss(ha + 10) x ΔLf	Lf	dB	3.5	2.2
Antenna Height at P	ha1	m	58.0 ***	
Antenna Height at Q	ha2	m	33.0 ***	
Path Loss				
Path Distance	d	km	27.7 ***	
Free Space Propagation Loss	Lo	dB	120.3 ***	
Additional Propagation Loss(50%)	La	dB	13.[illegible] ***	
Total Propagation Loss(50%)	Lp	dB	133.[illegible] ***	
Required Antenna Gain	Ga	dB	45.1 ***	
Antenna Gain at P	Ga1	dBi	23.5 ***	
Antenna Gain at Q	Ga2	dBi	23.5 ***	
Branching Loss	Lb	dB	5.0	
Feeder Loss at P	Lf1	dB	3.5 ***	
Feeder Loss at Q	Lf2	dB	2.2 ***	
Net Loss(50%)	Ln	dB	97.1 ***	
Median Noise(50%)				
Figure of Merit	Fm	dB	165.0	
Signal/Thermal Noise	S/Nta	dB	67.9 ***	
Thermal Noise	Nta	pWOp	162.0 ***	
Equipment Thermal Noise	Nte	pWOp	100.0	
Intermodulation Noise	Nim	pWOp	200.0	
Interference Noise	Nif	pWOp	240.0	
Radio Link Noise	Npr	pWOp	702.0 ***	
Carrier Multiplex Noise	Npm	pWOp	380.0 ***	
Total Noise	Np	pWOp	1082.0 ***	
Signal/Total Noise(≥ 57/50 dB)	S/Np	dB	59.7 ***	
Short Period Noise(99.9%)				
Fading Depth	Af	dB	14.0 ***	
Signal/Thermal Noise	S/Nta	dB	53.9 ***	
Thermal Noise	Nta	pWOp	4074.0 ***	
Radio Link Noise	Npr	pWOp	4614.0 ***	
Total Noise	Np	pWOp	4994.0 ***	
Signal/Total Noise	S/Np	dB	53.0 ***	
Fading Margin				
Tx Output Power	Pt	dBm	37.0	
Rx Input Level(50%)	Pri	dBm	-60.1 ***	
Threshold Level	Pth	dBm	-95.0	
Margin to Threshold(50%)(≥ 33 dB)	Mth	dB	34.9 ***	

Program No.
- 120 ch, 5W : T301
- 24 ch, 5W : T302
- 24 ch, 100W : T303

Mux Noise(pWOp)
- 460 SG/380 G
- 310 GC/230 R

Antenna Gain (dBi)		
14 ele.	Yagi	15
1.2 mφ	Para.	18
1.8	"	21
2.4	"	23.5
3.0	"	26
4.2	"	28.5
6.0	"	32
8.0	"	34.5

Feeder Loss(dB/m)	
RG-17 /U	0.14
H13	0.091
H20	0.052
A20	0.048
A39	0.026

UHF SYSTEM PERFORMANCE CALCULATION (900 MHz, ~~24 ch~~/120 ch, 5 W/~~100 W~~)	Path No. 7711-14

Station P	Phun Phin (Tex)	T ~~R~~	Station Q	Phun Phin (Radio)	T ~~R~~

Path Type: L/S (~~no~~ reflection), ~~No Diffraction~~			P	Q
Antenna Height	ha	m	25	10
Antenna Type & Size (Yagi, ~~Parabolic~~)		Ele.	8	8
Antenna Gain	Ga	dBi	10	10
Feeder Type			H20	H20
Feeder Length	lf	m	35	20
Feeder Loss(ha + 10) x ΔLf	Lf	dB	1.8	1.0
Antenna Height at P	ha1	m	25.0 ***	
Antenna Height at Q	ha2	m	10.0 ***	
Path Loss				
Path Distance	d	km	4.9 ***	
Free Space Propagation Loss	Lo	dB	105.3 ***	
Additional Propagation Loss(50%)	La	dB	0.0 ***	
Total Propagation Loss(50%)	Lp	dB	105.3 ***	
Required Antenna Gain	Ga	dB	14.2 ***	
Antenna Gain at P	Ga1	dBi	12.0 ***	
Antenna Gain at Q	Ga2	dBi	12.0 ***	
Branching Loss	Lb	dB	5.0	
Feeder Loss at P	Lf1	dB	1.8 ***	
Feeder Loss at Q	Lf2	dB	1.0 ***	
Net Loss(50%)	Ln	dB	89.2 ***	
Median Noise(50%)				
Figure of Merit	Fm	dB	165.0	
Signal/Thermal Noise	S/Nta	dB	75.8 ***	
Thermal Noise	Nta	pWOp	26.0 ***	
Equipment Thermal Noise	Nte	pWOp	100.0	
Intermodulation Noise	Nim	pWOp	200.0	
Interference Noise	Nif	pWOp	240.0	
Radio Link Noise	Npr	pWOp	566.0 ***	
Carrier Multiplex Noise	Npm	pWOp	190.0 ***	
Total Noise	Np	pWOp	756.0 ***	
Signal/Total Noise(≥ 57/50 dB)	S/Np	dB	61.2 ***	
Short Period Noise(99.9%)				
Fading Depth	Af	dB	7.0 ***	
Signal/Thermal Noise	S/Nta	dB	68.8 ***	
Thermal Noise	Nta	pWOp	132.0 ***	
Radio Link Noise	Npr	pWOp	672.0 ***	
Total Noise	Np	pWOp	862.0 ***	
Signal/Total Noise	S/Np	dB	60.6 ***	
Fading Margin				
Tx Output Power	Pt	dBm	37.0	
Rx Input Level(50%)	Pri	dBm	-52.2 ***	
Threshold Level	Pth	dBm	-95.0	
Margin to Threshold(50%)(≥ 33 dB)	Mth	dB	42.8 ***	

Program No.

120 ch, 5W	:	T301
24 ch, 5W	:	T302
24 ch, 100W	:	T303

Mux Noise(pWOp)

460 SG/380 G

310 GC/230 R

Antenna Gain (dBi)

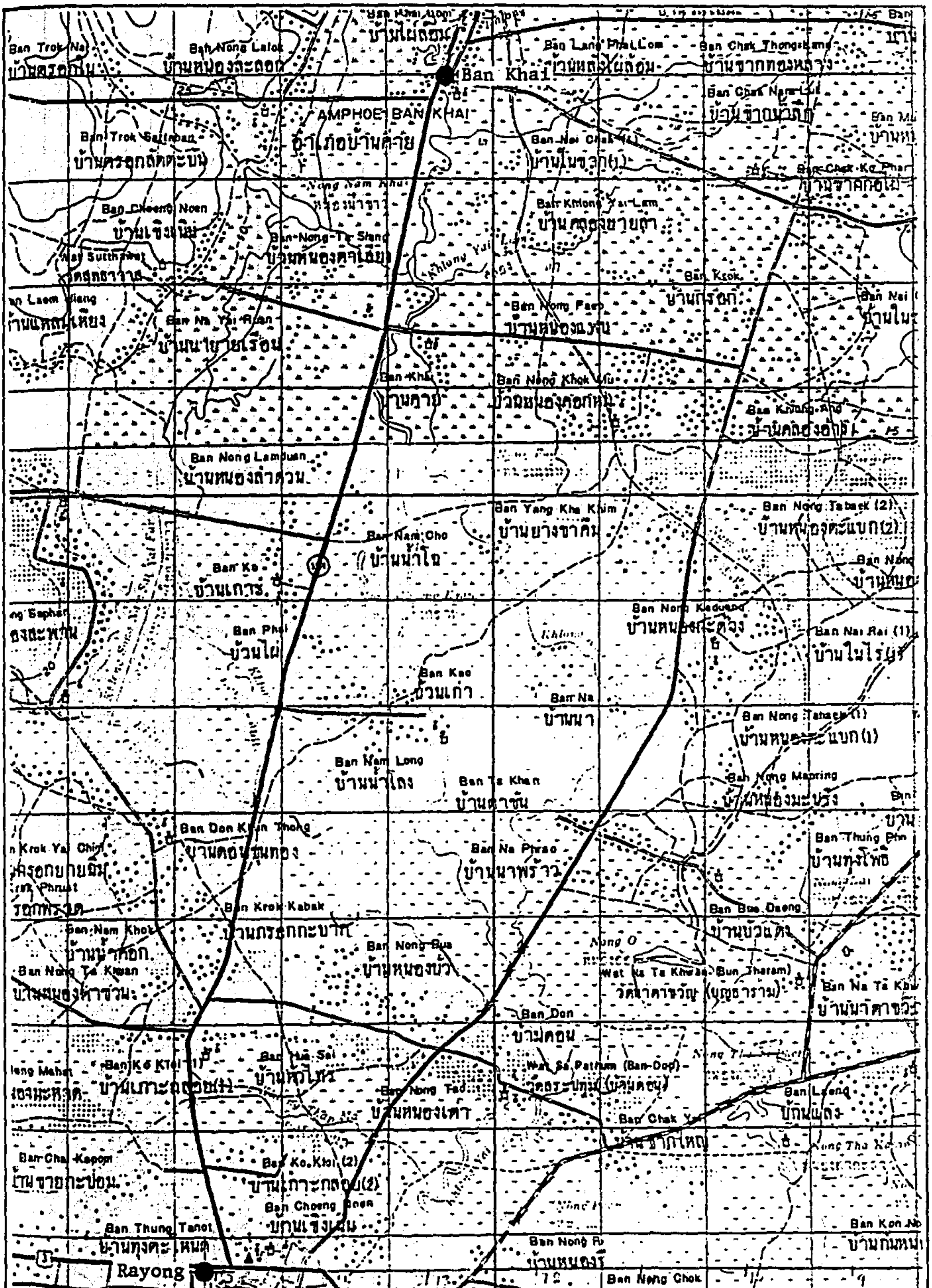
14 ele.	Yagi	15
1.2 mØ	Para.	18
1.8	"	21
2.4	"	23.5
3.0	"	26
4.2	"	28.5
6.0	"	32
8.0	"	34.5

Feeder Loss(dB/m)

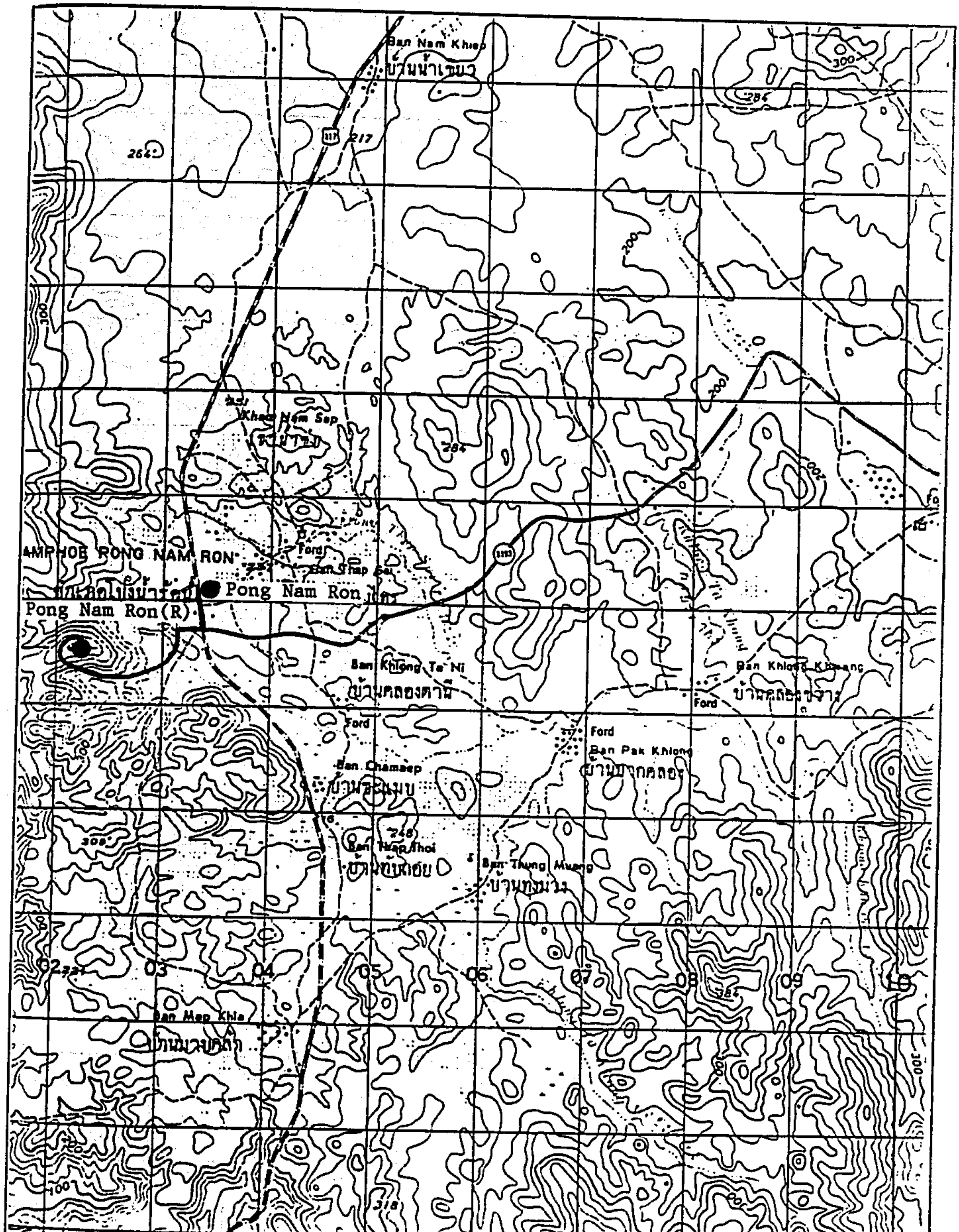
RG-17 /U	0.14
H13	0.091
H20	0.052
A20	0.048
A39	0.026

15. Cable Layout Plan

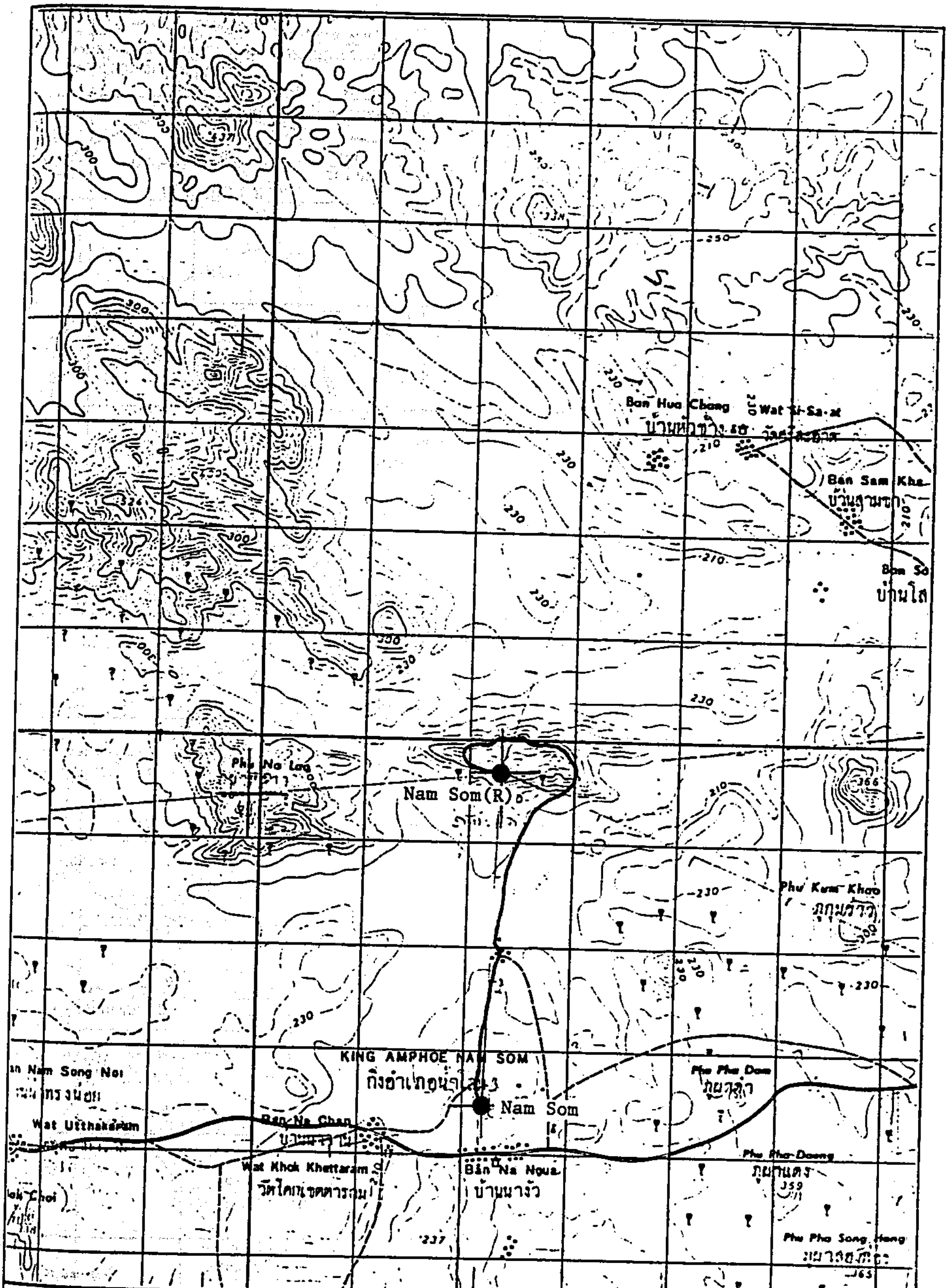
Contents for Cable Layout Plan



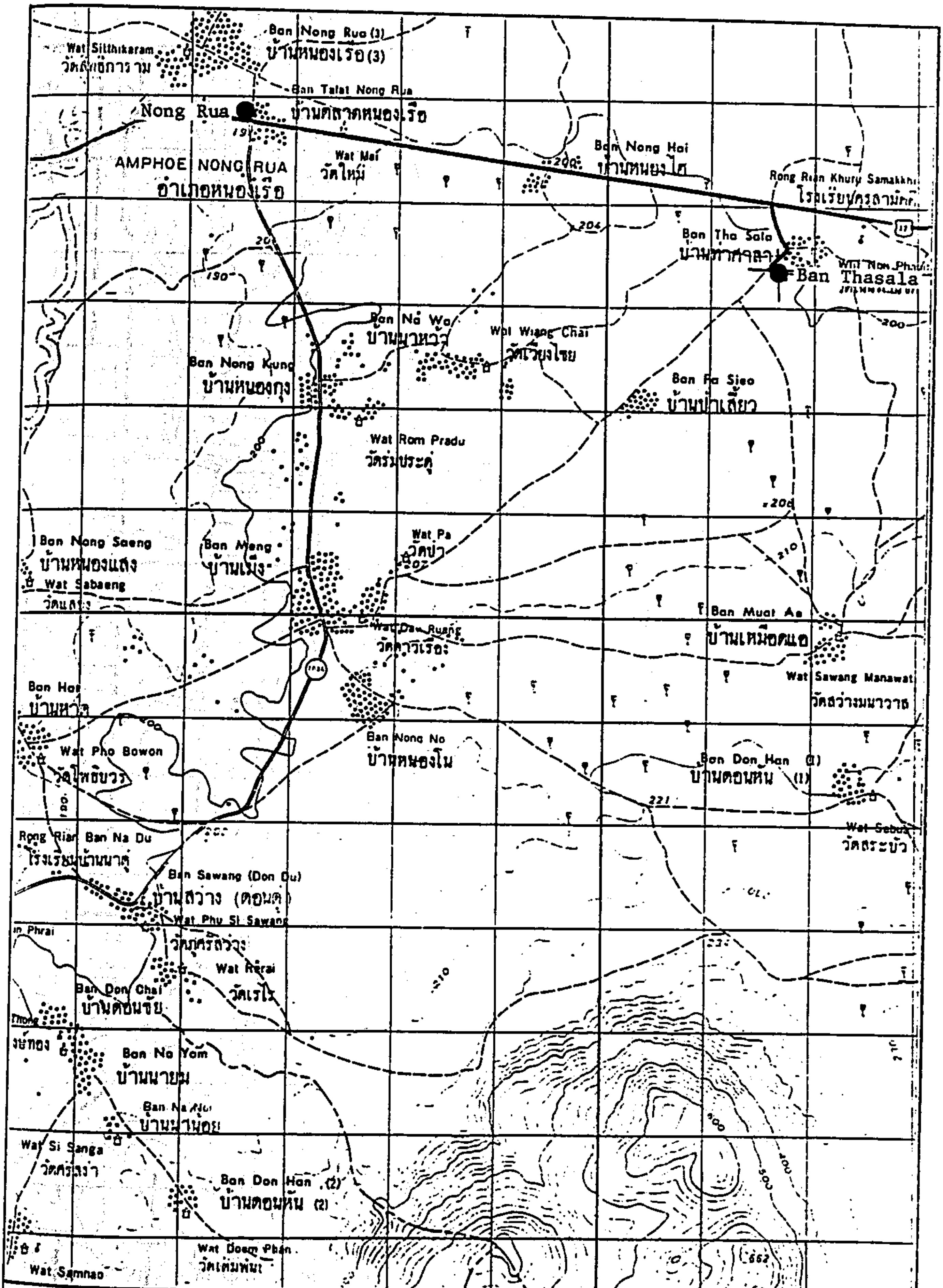
Cable Layout Plan	Ban Khai - Rayong Rayong Area(3808)



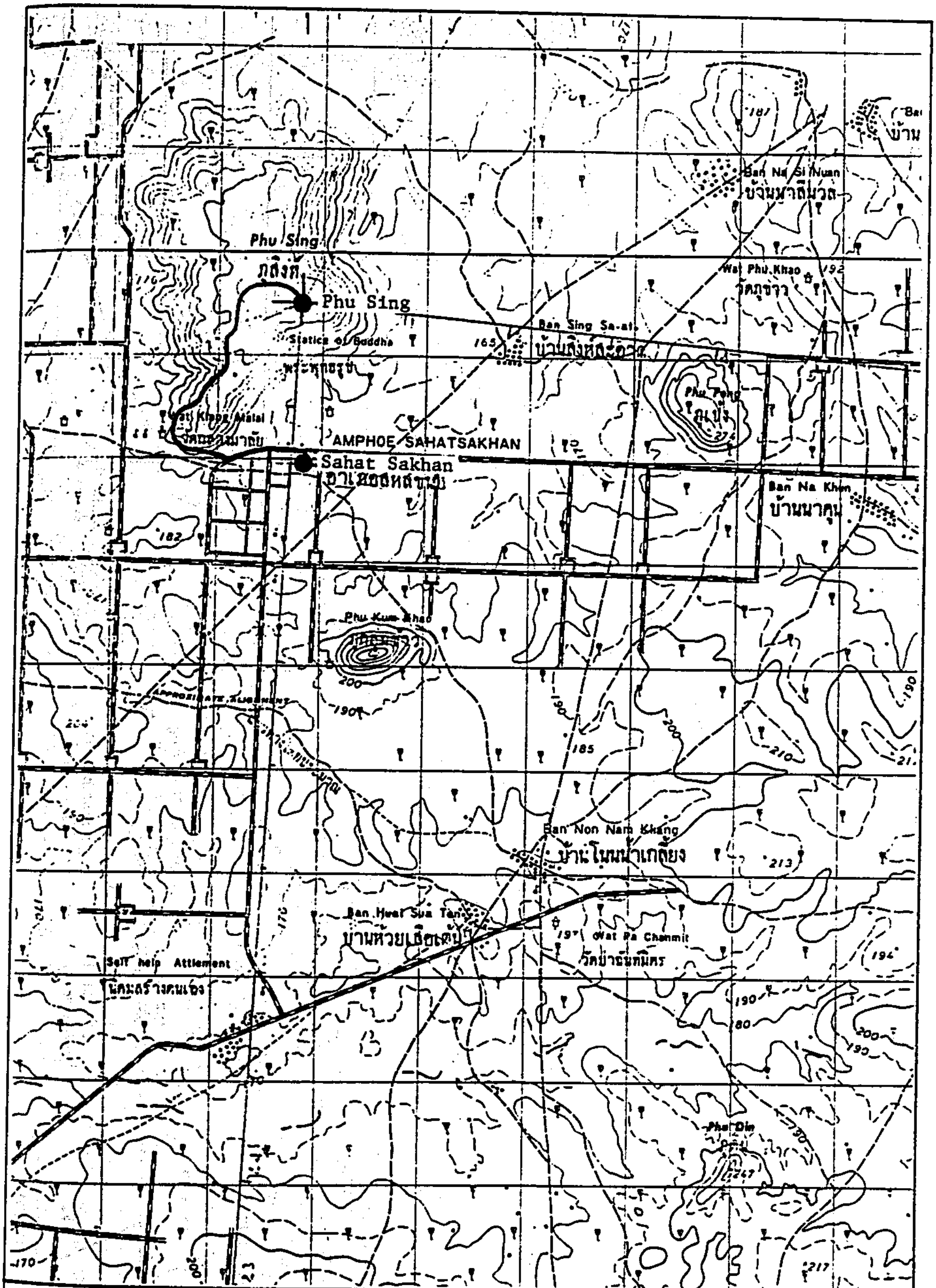
Cable Layout Plan	Pong Nam Ron - Pong Nam Ron(R) Chantaburi Area(3905)



Cable Layout Plan	Nam Som - Nam Som(R) Udon Thani Area(4201)



Cable Layout Plan	Nong Rua - Ban Tha Sala Khon Kaen Area(4309)



Cable Layout Plan	Sahat Sakhan - Phu Sing Kalasin Area(4321)