KINGDOM OF THAILAND

DETAILED DESIGN REPORT

of the

BANGKOK TELEPHONE NETWORK PROJECT

(JUNCTION LINES)

SEPTEMBER, 1977

JAPAN INTERNATIONAL COOPERATION AGENCY

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PREFACE

In compliance with the request of the Government of the Kingdom of Thailand, the Government of Japan as part of its overseas technical cooperation has decided to make detailed designs of the junction and local cable networks for the Bangkok Telephone Network Project.

The Japan International Cooperation Agency (JICA), organized two survey teams: one for the junction cable lines and the other for the local cable lines.

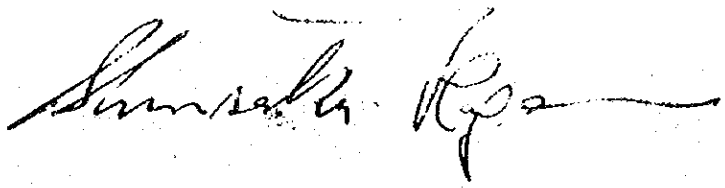
An eight-member survey team for the junction cable lines was dispatched to Thailand on February 28, 1977, and carried out a field survey for approximately four months, in close cooperation with all perties and organizations concerned in Bangkok.

After returning to Japan, the survey team finalized the design report, based on the results of the survey and discussions made in Bangkok with all the persons concerned.

We sincerely hope that the report will be useful to the expansion and improvement of the telephone network in Bangkok and thereby contribute to social and economic development of the Kingdom of Thailand and to further enhance the friendly relationship between our two countries.

Finally, I should like to express my deep appreciation to all the staff members who participated in this study, as well as my heartfelt gratitude to the staff members concerned of the Government of Thailand and the Telephone Organization of Thailand for the full cooperation extended to the team.

October 1977



Shinsaku Hogen
President
Japan International Cooperation Agency

LETTER OF TRANSMITTAL

Mr. Shinsaku Hogen
President
Japan International Cooperation Agency

We have the honor to present herewith the detailed design report on the junction cable lines for the Bangkok Telephone Network Project.

Our junction cable line survey team carried out the field survey in Bangkok for approximately four months from February 28 to June 30, 1977.

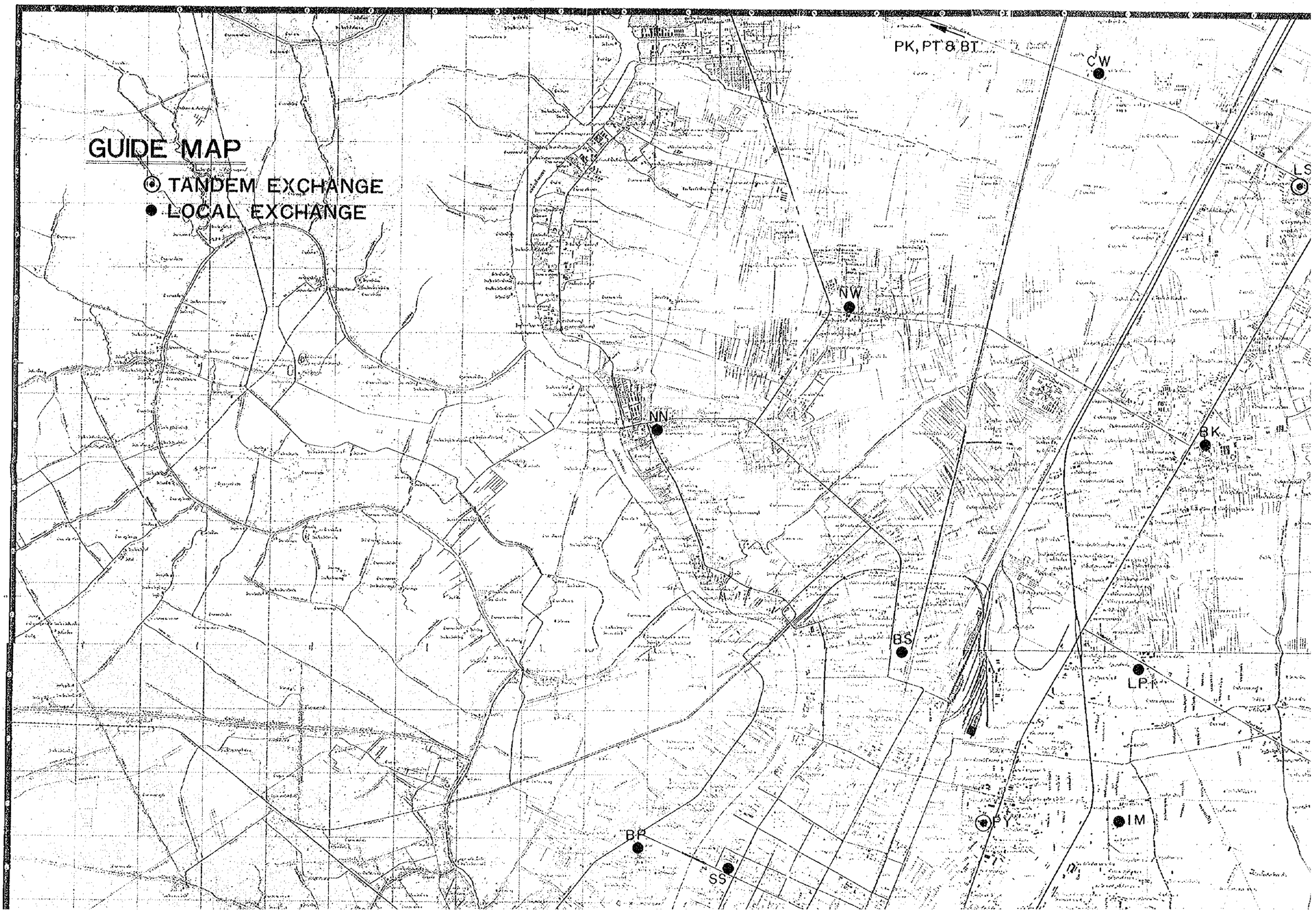
During the survey period in Bangkok, a very close liaison was maintained with all the persons concerned in the Telephone Organization of Thailand (TOT), so as to incorporate their desires and suggestions concerning every point in the detailed design.

After returning to Japan, the survey team further studied the survey results, and consulted the opinions of other experts in Japan when necessary. We believe, therefore, the design thus completed is the optimum one for the envisaged expansion and improvement of the telephone network in Metropolitan Bangkok.

In closing, we wish to express our sincere gratitude to the Government of Thailand Telephone Organization of Thailand, Japanese Embassy, representatives of Japan International Cooperation Agency in Bangkok, Japanese Ministry of Foreign Affairs and Ministry of Posts and Telecommunications, Nippon Telegraph and Telephone Public Corporation and Work Supervisory Committee, for their warm support and cooperation.

September 1977

Nobuo Yoshida
Study Team Leader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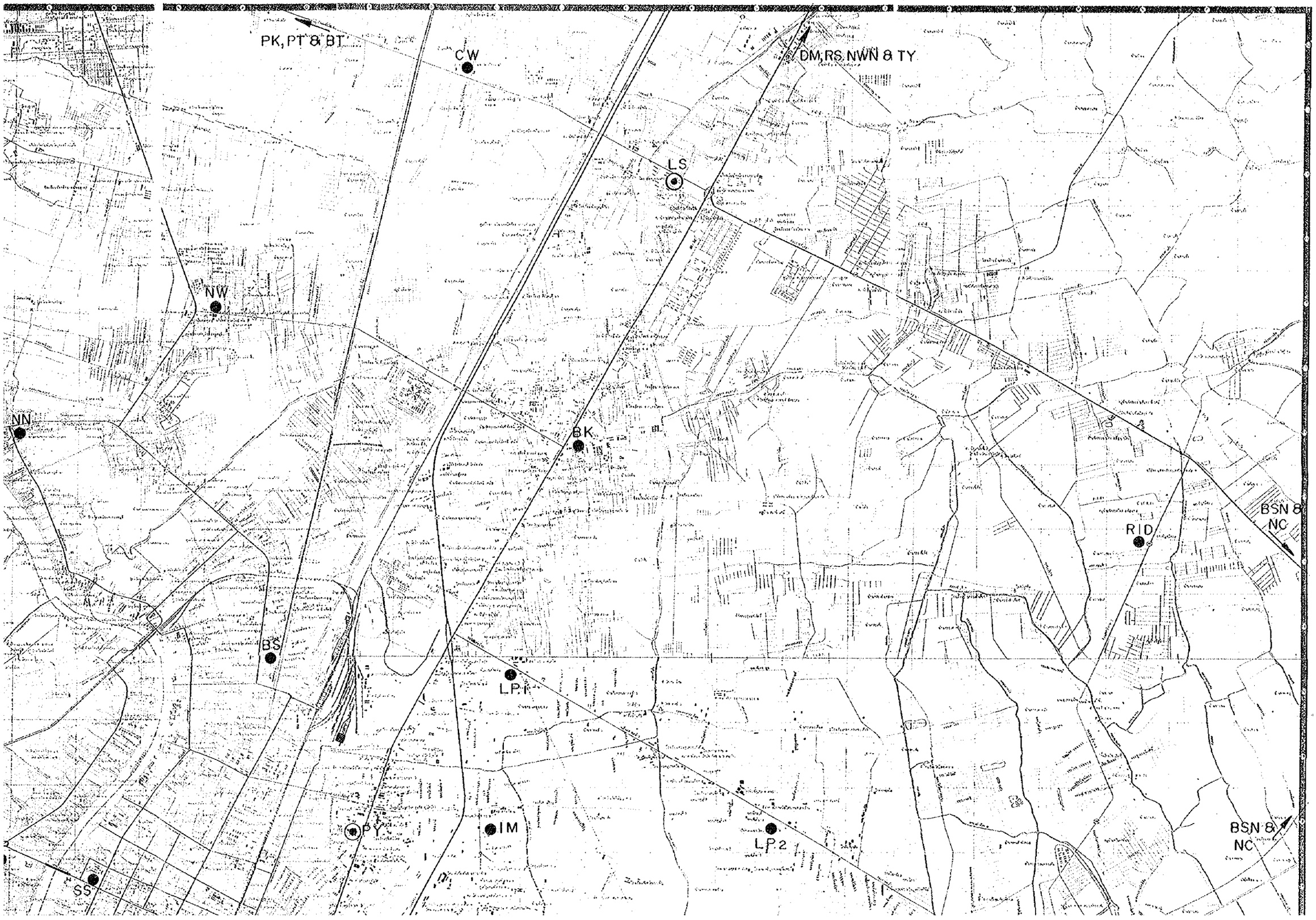
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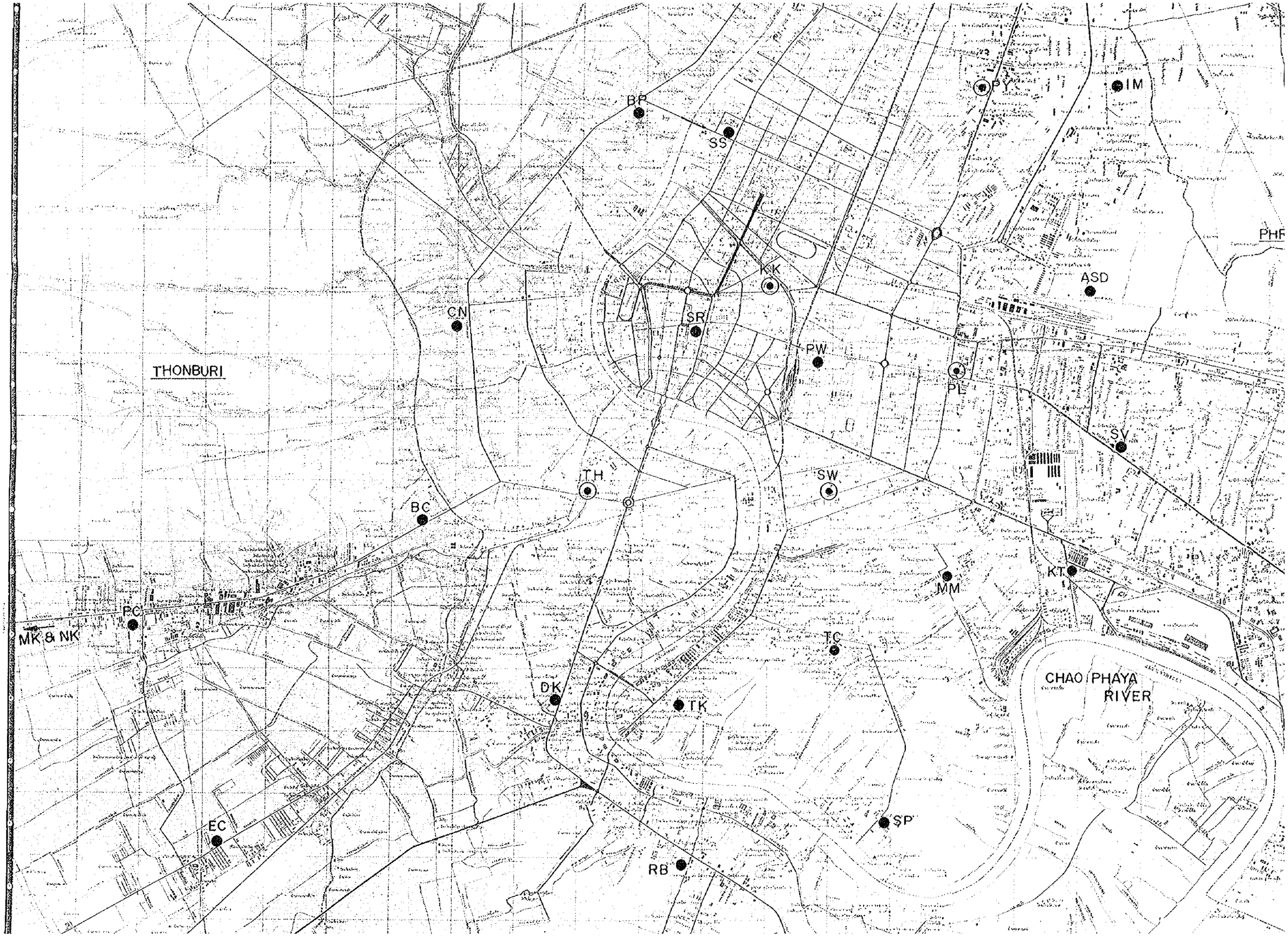
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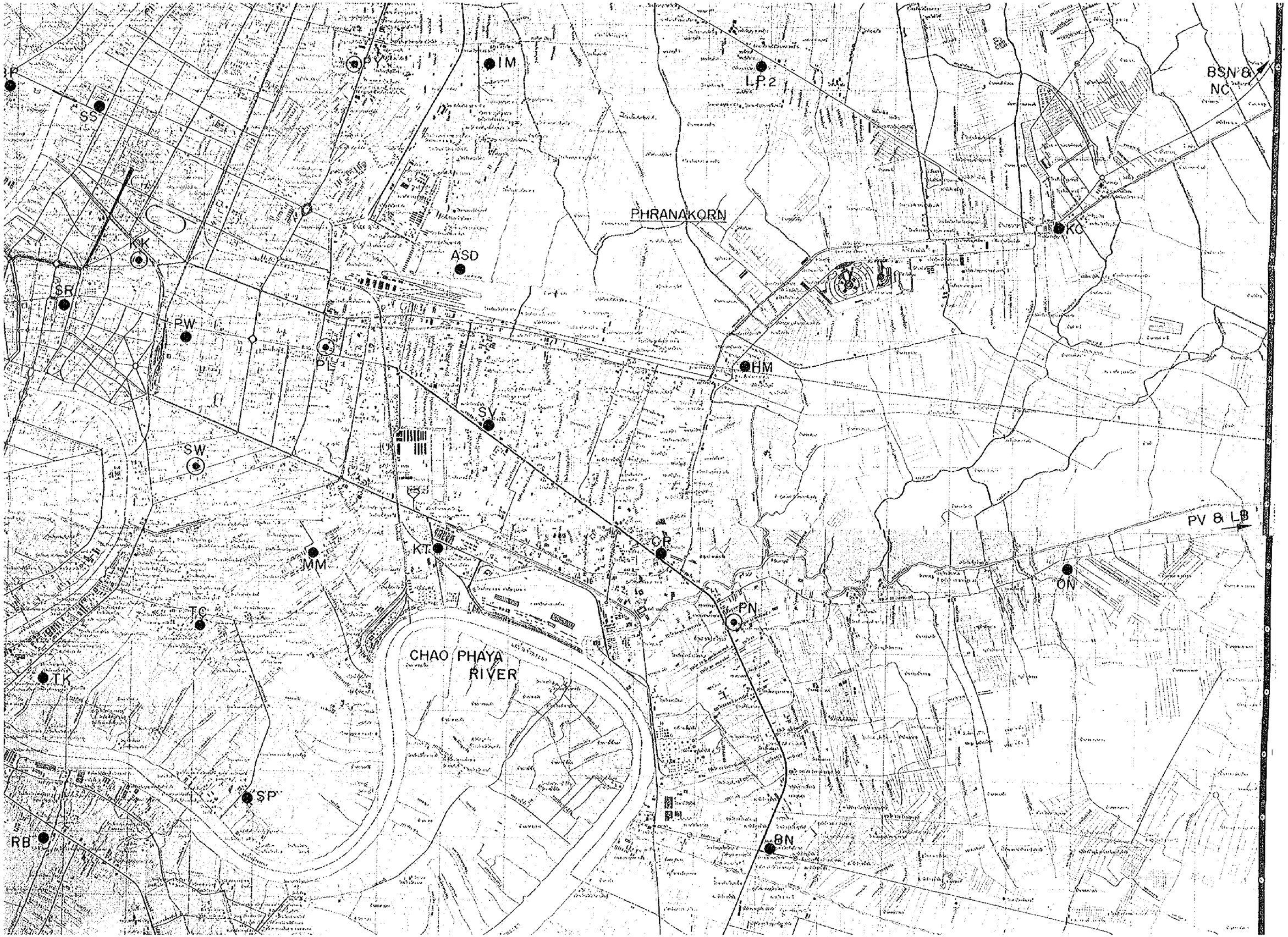
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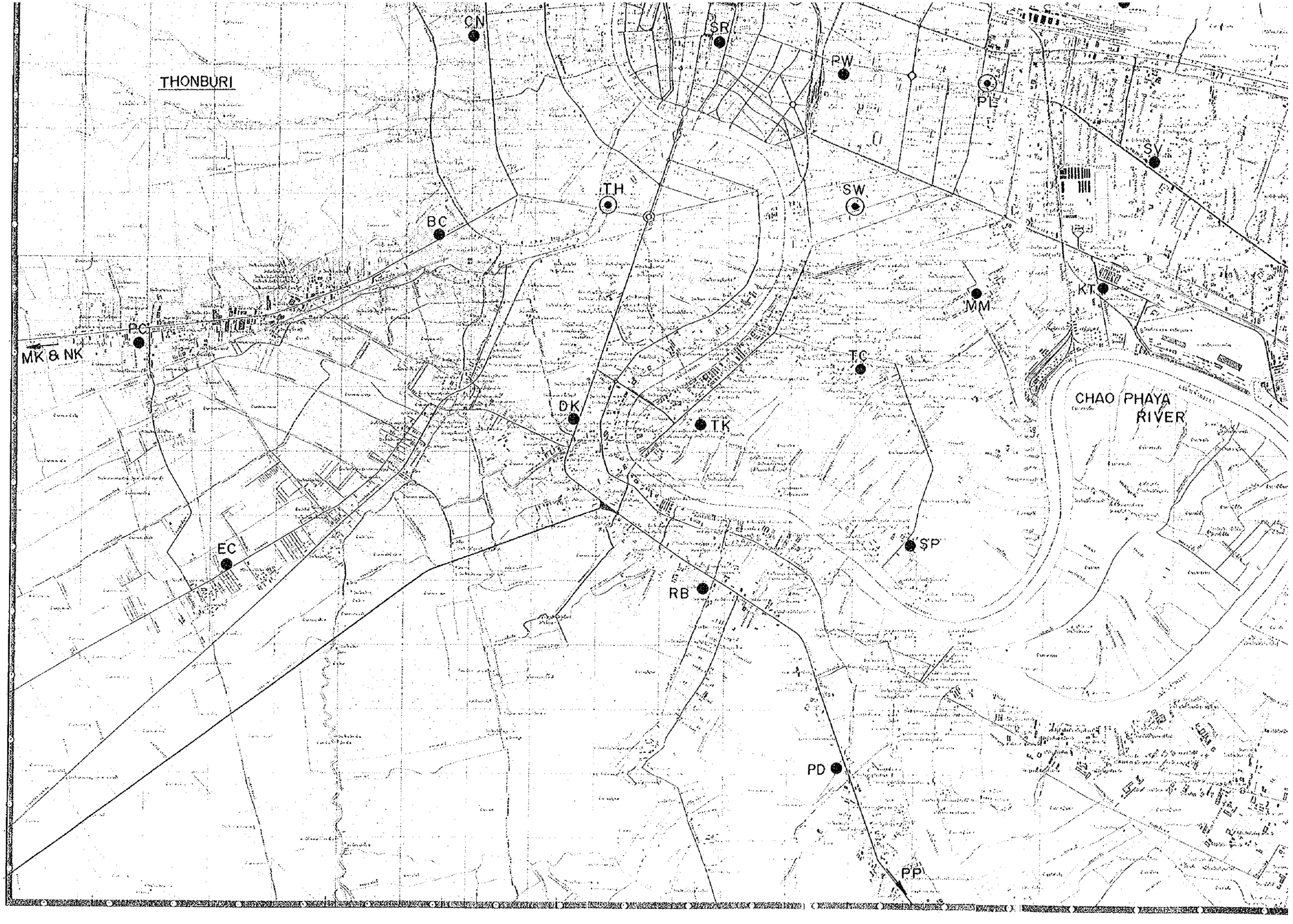
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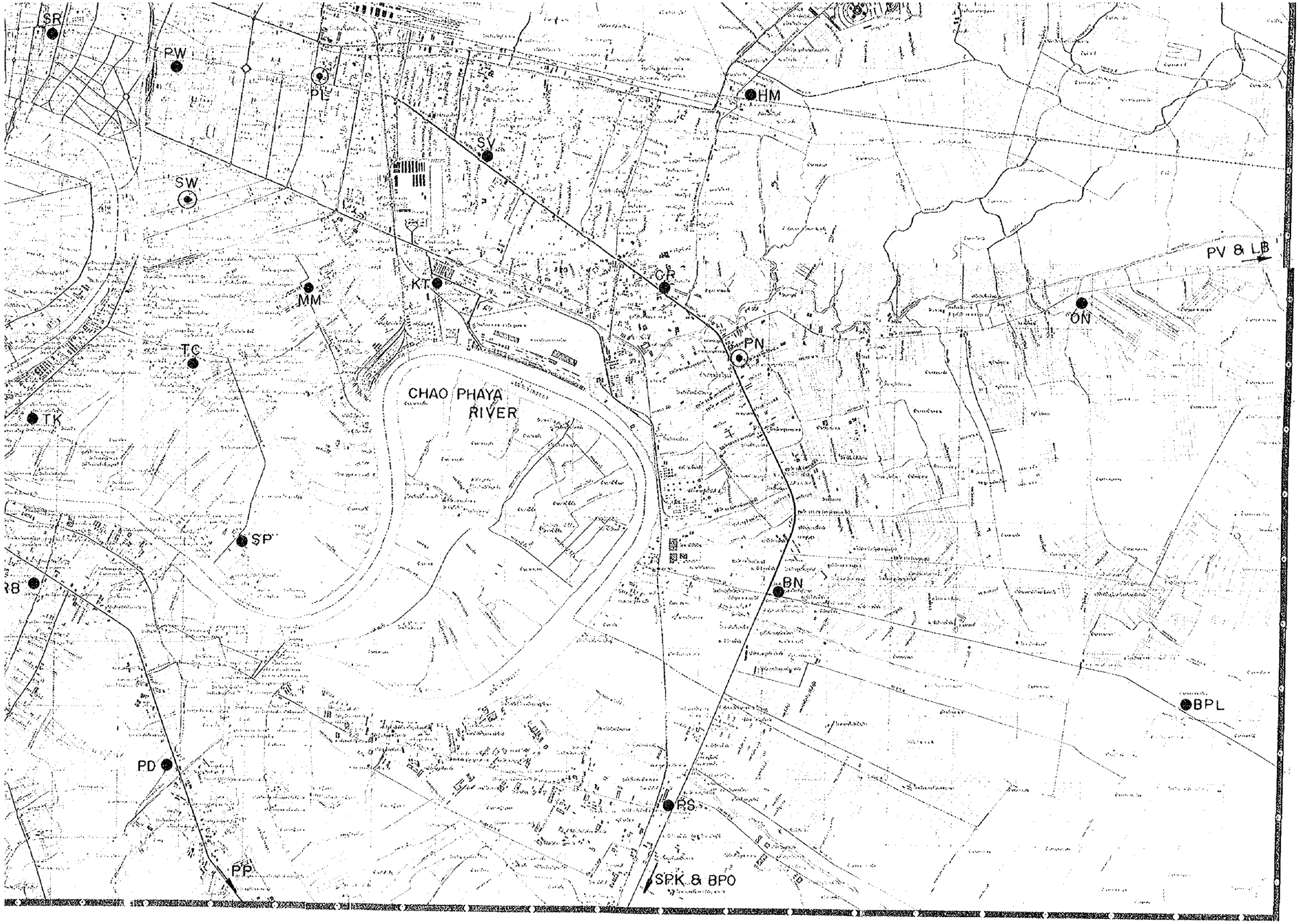
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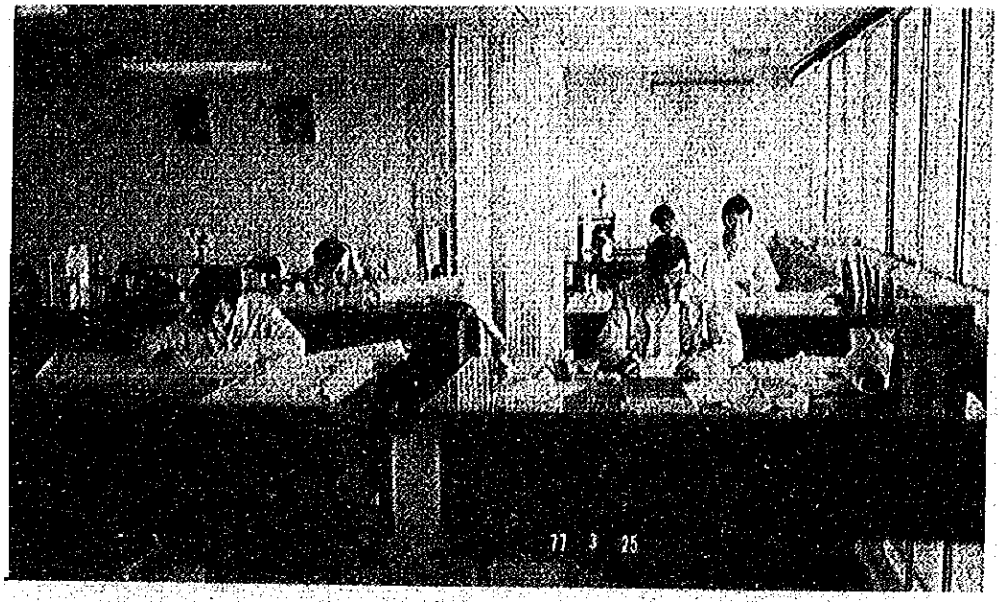
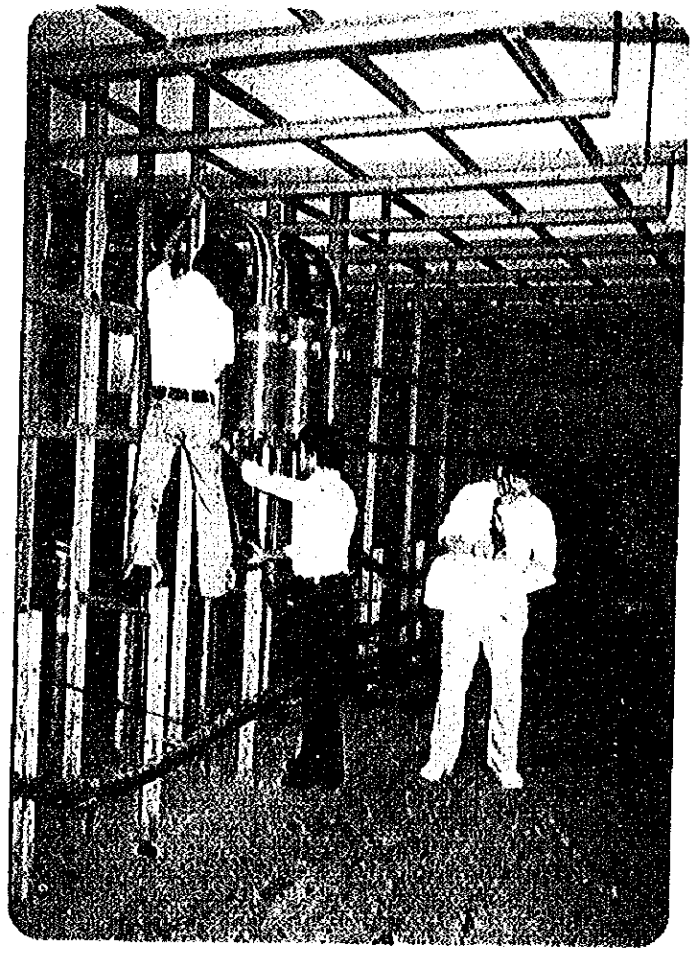


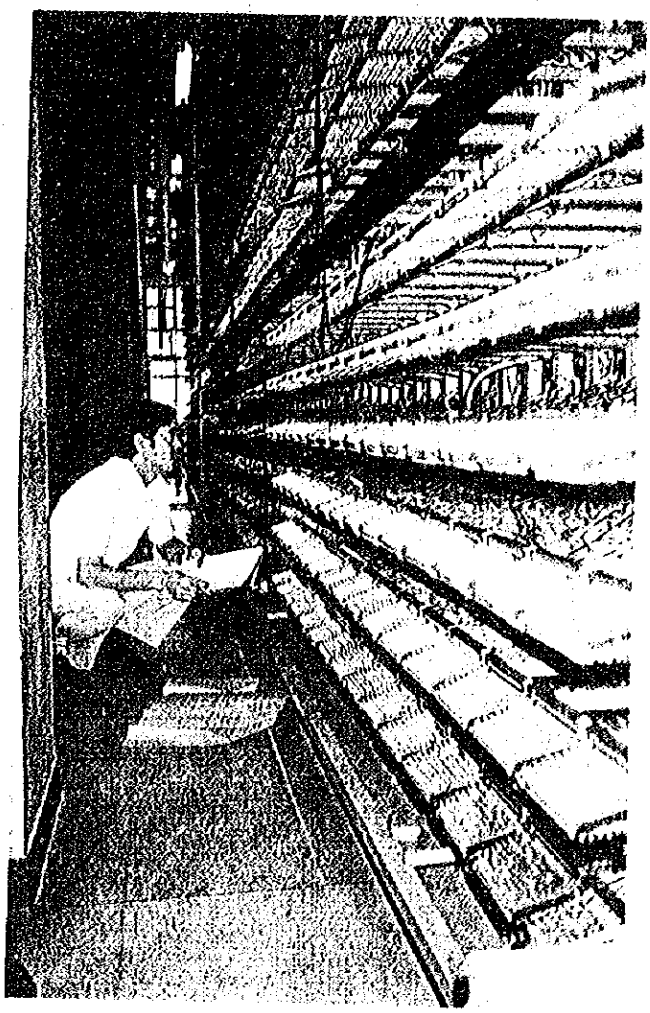
1. NTC members and TOT counterparts at NTC Bangkok Office.

2. Survey of Aerial Route between SPK and BPO Exchanges.

3. Survey of Aerial Route in the canal between PK and BT Exchanges.

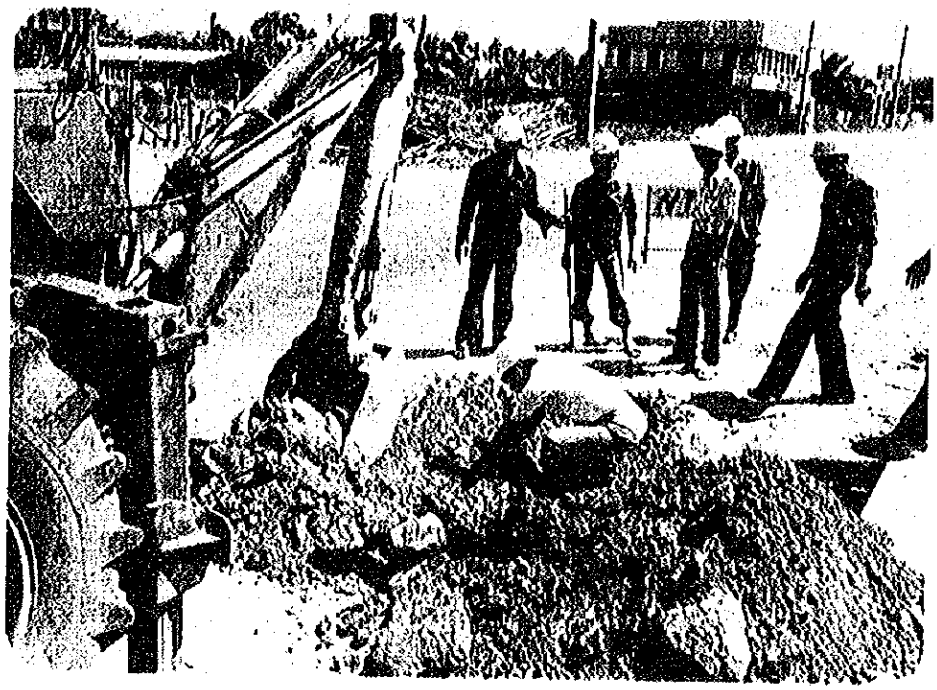


4. Investigation of Cable Vault at BK Exchange.

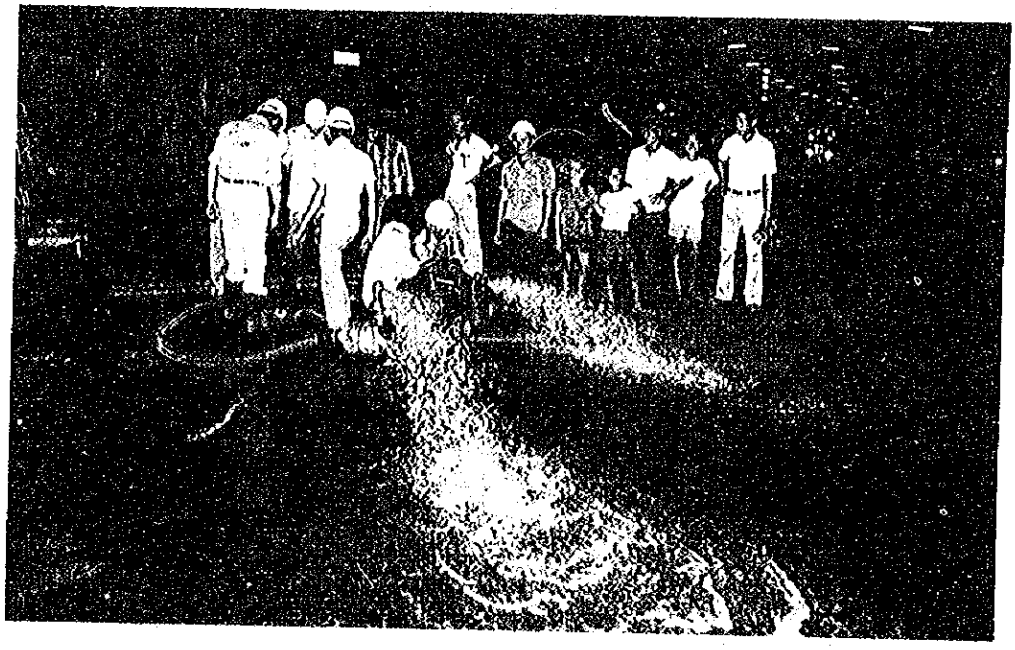


5. Investigation of MDF at SR Exchange.

6. Investigation of Manhole at Sukhumvit Rd.



7. Investigation of Manhole at Sukhumvit Rd.
   Working for digging the road about 40 cm by use of shovel car because the manhole to be investigated is buried due to the road width expansion construction.



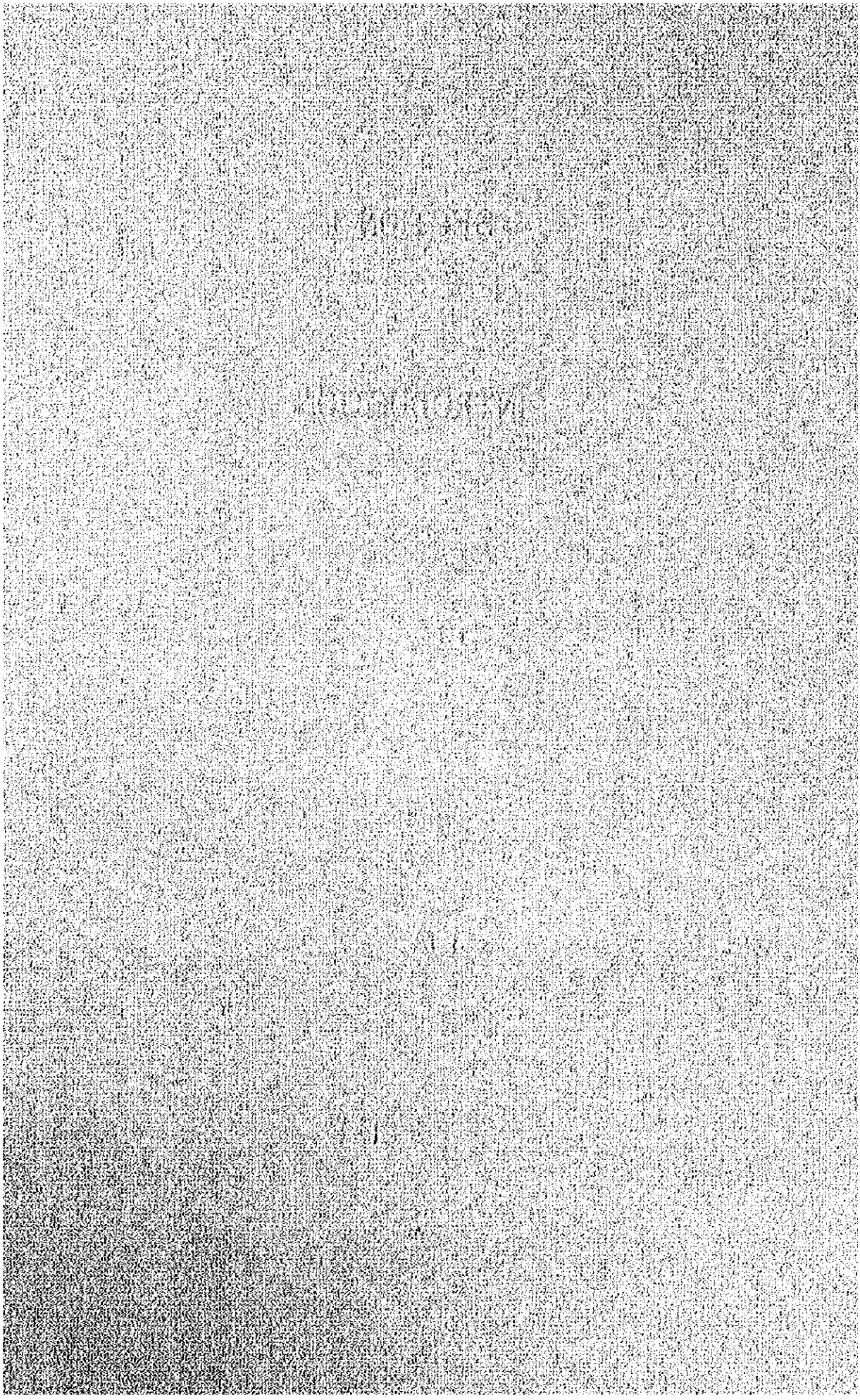
8. Investigation of Manhole at the Crossing of Chakawat Rd at Night Time (Using 2 sets of pumps to decrease the drainage time)

CONTENTS

ANNEXED SHEETS

SECTION 1

INTRODUCTION



SECTION 1, INTRODUCTION

1-1 Background

The Telephone Organization of Thailand (TOT) is now pursuing telephone expansion programs for the whole country, based on the long-term plan, i.e., "The Economic Development Project 1977 - 1984 of TOT." This is a sub-project of the "Fourth National Economic Development Plan 1977 - 1981 for the Whole Kingdom." This long-term project consists of the following two phases:

Phase I (1977 - 1982)

(a) In the Bangkok Metropolitan Area

1) Installation of 103,200 terminals in 34 local exchanges.
2) Construction of 136,200 local cable pairs.
3) Construction of 250,000 pair-km junction cable.
4) Installation of subscriber facilities.

(b) In the Provincial Area

1) Installation of 32,800 terminals in 19 local exchanges.
2) Construction of 39,000 local cable pairs.
3) Installation of subscriber facilities.

(c) Installation of 7,398 channel-ends for long distance circuits.

(d) Installation of a long distance transmission system to provide a long distance service in 131 remote rural districts.

(e) Construction of approximately 10,275 STD transit switching circuits at 30 centers.

Phase II (1981 - 1984)

(a) In the Bangkok Metropolitan Area

1) Installation of 120,000 terminals in 28 local exchanges.
2) Construction of 168,500 local cable pairs.
3) Installation of subscriber facilities.

(b) In the Provincial Area

1) Installation of 41,600 terminals in 88 local exchanges.
2) Construction of 51,700 local cable pairs.
3) Installation of subscriber facilities.

(c) Installation of 3,625 channel-ends for long distance circuits.

(d) Construction of 3,466 STD transit switching circuits at 57 centers.

When this project is completed in 1984, the telephone density will be improved as follows:

	1976	1984	Increase Rate
Nationwide	0.87	1.31	50.6%
Bangkok Metropolitan Area	5.18	6.35	22.6%
Provincial Area	0.25	0.39	56.0%

TOT requested the Government of Japan, through the Government of Thailand, to provide the technical cooperation with respect to the engineering of junction cable network and five local cable networks in the Bangkok Metropolitan Area of this project, because a sufficient number of TOT engineers are not available for this work.

The Government of Japan decided to accept this request and the matter was commissioned to the Japan International Cooperation Agency (JICA), the official agency responsible for implementation of the Japanese Government technical cooperation programme.

On 9 February, 1977, JICA dispatched a preliminary survey team to Bangkok to confirm the scope of work and the survey schedule, as well as the local support available in Thailand. After discussion with TOT, the survey team finalized the scope of work and exchanged with TOT the "Minutes of the Meeting on the Scope of Work for the Detailed Design of Bangkok Telephone Network Project 1977."

The detailed design of the junction and local cable networks was then entrusted to The Nippon Telecommunications Consulting Co., Ltd. (NTC), a firm having rich and long experience in designing the telephone facilities in Bangkok, as well as the supervision of construction work thereof.

To carry out the entrusted work, NTC organized two teams, one for junction network design and the other for local network design. This report covers the junction network design work only. The local network design work is now under way and its report will be submitted in March 1978.

1-2 Method of Approach

After studying TOT's requirements and the scope of work specified in the Minutes, NTC divided the junction network design work into two categories: inside plant design work and outside plant design work. The following is the method of approach pursued in the work for each category.

1-2-1 Inside Plant Design Work

(1) Preliminary study based on TOT's data

1) List of circuit assemblies based on traffic data

Drawing up of a list of circuit assemblies, after a study of the traffic data and trunking scheme prepared by TOT.

2) Floor layout plan based on plant record

- Study of a floor layout plan for junction equipment to be increased, such as impedance matching coils, negative impedance repeater and PCM equipment prepared by TOT.

- Study of a terminal block accommodation plan for termination of new junction cables at MDF, and an MDF layout plan, if necessary, based on the plant record prepared by TOT.

* Note: The required number of junction equipments is to be decided after discussion with the engineers in charge of the outside plant design work.

(2) Discussion with TOT

Discussion with TOT on the following, based on the traffic data and trunking scheme prepared by TOT;

Kinds of circuits.

Required number of circuits.

Traffic routing.

Homing arrangement.

(3) Field survey

Investigation of an MDF room and junction equipment in each exchange.

Confirmation of the installation positions and quantity of the existing MDFs and junction equipments, as well as the positions for additional installation, in an MDF room and, if necessary, other rooms.

(4) Works after survey

1) Compiling of the survey data and drawing up of the following diagrams:

Line assignment for the junction network, and

Layout plan for the junction equipments.

2) Calculation of the amount of work

3) Estimate of the quantity of main materials

1-2-2 Outside Plant Design Work

(1) Preliminary study

1) An overall study of the following:

a) Exchange office site plan

b) Telephone network plan

c) Transmission loss distribution plan

d) Present state of roads, bridges, etc. and future plans involving them

e) Introduction of new techniques and economization of facilities

f) Relation with existing plants

2) Determination of the cable conductor diameter and the number of cable pairs based on the foregoing studies and according to the following procedures:

a) Determination of the cable conductor diameter

i) After an overall study of the required number of circuits, kinds of circuits, existing cable conductor diameter, and the number of circuits in use, as well as the possibility of existing cable pair transfer, the cable conductor diameter is determined.

ii) Usually, a cable has circuits each having different allowable transmission loss. In principle, the conductor diameter of a cable is determined, based on the minimum allowable transmission loss.

iii) A comparison study is made between the negative impedance repeater and the PCM system, in consideration of the required number of circuits, signalling system, cable section length and the junction cable type (aerial or underground). Then, the economically favourable one should be adopted.

b) Determination of the number of cable pairs

The number of cable pairs is determined on the following principles:

i) Since there is a shortage of underground conduits in Bangkok, the maximum number of cable pairs for the required conductor gauge is to be installed in principle.

ii) The design provisioning periods are tentatively determined as follows. They will be finalized after discussion with TOT.

Aerial Cable

15 years after service-in

Underground Cable

5 ∿ 15 years after service-in

In the case of the expansion at the existing conduit routes, the period will be changed after an economic study in consideration of the conduit usage plan and the time of expansion.

3) Determination of junction cable type

The junction cable type is determined according to the TOT standard, depending upon the scale of junction cable and the junction route.

4) Selection of junction route

The junction routes are selected in consideration of the following:

a) Selection of the shortest route in consideration of effective use of the existing facilities.

b) Selection of the road for new junction route where there is not much traffic and exist not many underground facilities such as the water supply and sewer pipes.

c) Study of the road construction plan according to the city planning.

d) Study of new exchange site plan

5) Layout of loading spacing

The layout of loading spacing is arranged by the type H-88 loading system which is adopted by TOT, according to the following standards:

Standard (So)	1,830 m
Deviation between Standard (So) and Average (S)	$\pm 2\% > \frac{So-S}{So} \times 100$
Individual deviation from Average (S)	$\pm 2\% > \frac{S-Si}{S} \times 100$
End Section	$\frac{So}{4} < S \text{ half} < \frac{3}{4} So$

In case the above standards cannot be satisfied, compensation by B.O.N. or other methods will be made.

6) Design of PCM system

The repeating point is selected, based on the repeater spacing designed according to the type of junction cable, kind of cable and the number of systems required 15 years hence.

(2) Field survey

Based on the design plan made from the preliminary study, the following field surveys are carried out:

1) Route selection

After comparison studies of the proposed routes from various viewpoints, the optimal routes are selected.

2) Underground and aerial cables

In regard to the underground cables, both the existing and new routes are surveyed, and the locations of loading manholes, PCM manholes, etc. will be determined.

In regard to aerial cables, studies are made on the method of cable placement. Where there is the fear of inductive interference, a study is made as to its countermeasure. Surveys are also made on the location of poles and guys, etc., and on the pole mounting method, etc., for loading poles, PCM poles, etc.

3) Manhole

The duct position in which cables are placed is investigated, and the cable placement method, cable bending method and location of cable splicing, etc., are determined.

In addition, the space for installation of loading coils, impedance compensators and PCM repeaters is checked, and, if necessary, a comparison study between the modification of existing manhole and new manhole construction is made.

4) MDF and cable vault

The riser position of the entrance cables and way of cable placement in the cable vault are investigated and studies are made for preparation of a plan for junction cable termination at MDF.

5) Discussion with TOT

Upon completion of the field survey, discussion will be held with the senior members of TOT with respect to the survey results.

(3) Preparation of drawings

Based on the survey results and the plant records prepared by TOT, the following drawings are prepared:

1) Key map
2) Duct scheme plan
3) General junction cable plan
4) Layout plan for junction equipment
5) Junction cable terminating plan at MDF
6) Layout plan for loading spacing
7) Jointing diagram
8) Junction cable construction detail
9) Manhole racking diagram
10) Gas pressurization system
11) Line assignment for junction network
12) Computed transmission performance & line resistance

(4) Calculation of amount of work and estimate of quantity of main materials.

The amount of work and the quantity of main materials will be calculated from the above drawings.

1-3 Organization of Survey Team

Members of the survey team for the junction network design work and their survey periods, are as follows:

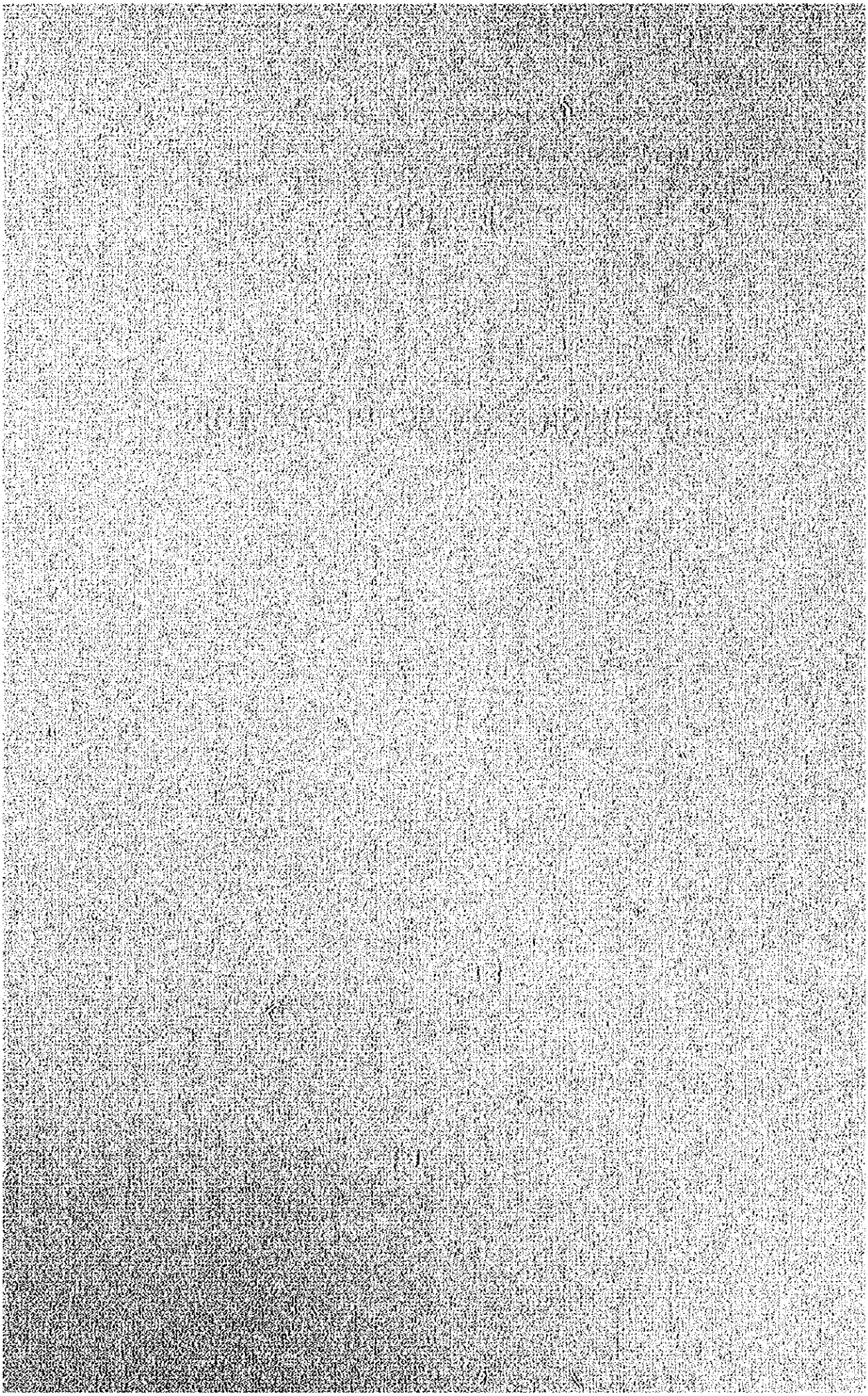
	Survey Period (1977)
Nobuo YOSHIDA (Team leader) NTC Overseas Dept.	Feb. 28 - June 30
Tadamasa KOMURA (In charge of outside plant) NTC Overseas Dept.	Feb. 28 - Apr. 19
Hideyasu IMAIZUMI (In charge of inside plant) NTC Overseas Dept.	Feb. 28 - Mar. 31
Tadashi KOGAWA (In charge of outside plant) NTC Nagoya Branch Office	Feb. 28 - June 30
Katsuji NAKA (In charge of outside plant) NTC Osaka Branch Office	Feb. 28 - June 30
Tadayoshi OTA (In charge of inside plant) NTC Overseas Dept.	Feb. 28 - June 30
Nobuo NAKAJIMA (In charge of inside plant) NTC Overseas Dept.	Feb. 28 - June 30
Katsuya ASAKA (In charge of outside plant) NTC Overseas Dept.	Apr. 1 - June 30

1-4 Establishment of Work Supervisory Committee

For the smooth execution of the detailed design work and the supervision thereof, a work supervisory committee was established.

SECTION 2

DISCUSSION ON SCOPE OF WORK



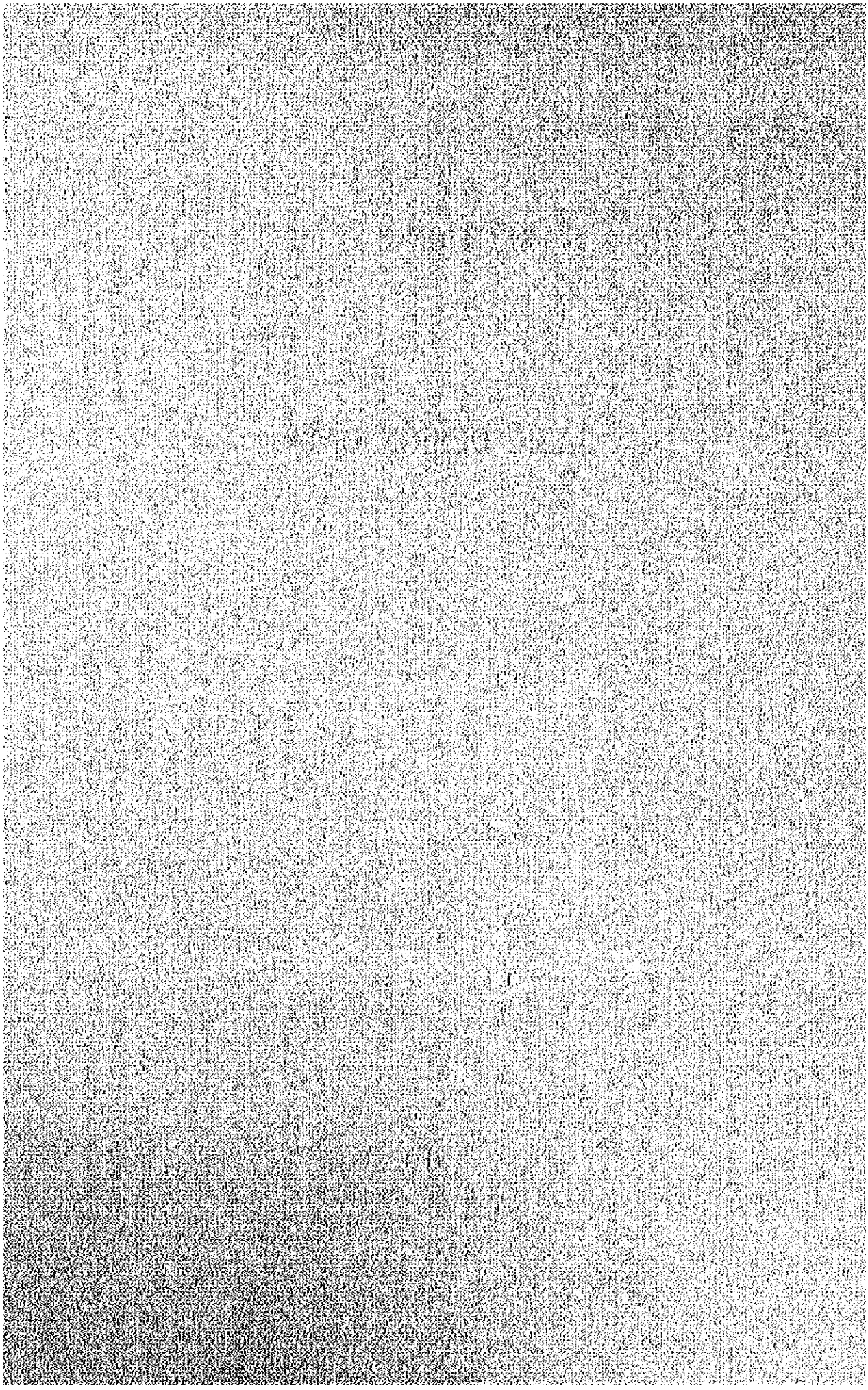
SECTION 2. DISCUSSION ON SCOPE OF WORK

2-1 Negotiations with the Government of Thailand and TOT

On February 9, 1977, a preliminary survey team, consisting of Mr. M. Iijima and Mr. S. Saito, members of the Work Supervisory Committee, and Mr. N. Yoshida and Mr. H. Imaizumi, NTC Engineers, was dispatched to Bangkok, to hold discussions with officials of the Government of Thailand and TOT regarding the scope of work for the detailed design. Through these discussions, the scope of work was finalized, and on February 21, 1977, Mr. Surin of TOT and Mr. Iijima, chief of the work supervisory committee signed the "Minutes of the Meeting on the Scope of Work for the Detailed Design of Bangkok Telephone Network Project 1977."
(Refer to Annex 1.)

SECTION 3

BASIC DESIGN DATA



SECTION 3. BASIC DESIGN DATA

3-1 Telephone Exchange Site Plan and Planned Number of Lines

The telephone exchange site plan and the planned number of lines prepared by TOT are shown in Figs. 1 and 2, respectively.

In 1979, with the completion of the EDP Project (1972 - 1979) which is now under way, the number of subscriber lines will be increased to 310,584, and the number of local exchanges to 40, and the telephone network with 7 local tandem exchanges will be realized in the Bangkok Metropolitan Area.

According to the EDP Project (1977 - 1984), the number of subscriber lines will be increased to 538,000 and the number of local exchanges to 57 in 1984. The increase rate of the subscriber lines is 1.73.

12 out of the 17 local exchanges to be installed by this Project are sited outside the subscriber area to be expanded by 1979, so that in 1984 the final exchange area will be approximately 76 km east to west and 90 km north to south.

3-2 Traffic Data

The traffic data prepared by TOT (refer to annexed sheets A) is based on the two-tandem alternative routing plan, while the existing system employs one-tandem alternative routing plan. The change was made aiming at the increase of circuit efficiency.

The routing and transmission loss distribution plans based on the two-tandem alternative routing plan are as follows:

3-2-1 Local Call Connection

Fig. 3 shows the routing and transmission loss distribution plans for local call connection.

The priority of the local call connection order between any two local exchanges at which high-usage circuits are provided is as follows:

1 ---- LE $\frac{\text{H.U. Circuit}}{11\ \text{dB}}$ LE

2 ---- LE $\frac{\text{TDM-1 Circuit}}{4\ \text{dB}}$ TDM $\frac{\text{TDM-2 Circuit}}{6\ \text{dB}}$ LE

3 ---- LE $\frac{\text{TDM-1 Circuit}}{4\ \text{dB}}$ TDM $\frac{\text{TDM-3 Circuit}}{2\ \text{dB}}$ TDM $\frac{\text{TDM-1 Circuit}}{4\ \text{dB}}$ LE

The connection order priority when a high-usage circuit is not provided is equivalent to dropping '1' above and replacing '2' to '1' and '3' to '2', respectively.

3-2-2 Long Distance Call Connection (STD service)

As shown in Figs. 4 & 5, two types of routing and transmission loss distribution plans are adopted for the long distance call connection of STD service. The routing and transmission loss distribution plans shown in Fig. 4 apply to local exchanges having office codes starting with "2", that is, KK, SS, SR, PW, IM, PL, ASD, SV, KT, MM, SW, TC, SP, KT, and PY local exchanges.

As for the STD circuits from these 15 local exchanges, 2-wire/4 dB circuits are provided to connect them with both KK and PY toll exchanges. The routing and transmission loss distribution plans shown in Fig. 5 apply to the local exchanges having the office codes starting with a number other than "2", that is, all the local exchanges in LS, TH and PN tandem areas and BS, LP1, LP2, NN and BSN. In this case, the local tandem exchanges of LS, TH and PN operate as primary centers and accommodate STD circuits from the local exchanges in their respective tandem areas. However, BP is accommodated in TH tandem exchange, BS, LP1, LP2 and NN in LS tandem exchange and BSN in PN tandem exchange respectively depending upon their assigned office codes.

2-wire/4 dB STD circuits are provided between these local exchanges and their tandem exchanges and, at the same time, 0 dB circuits are provided between LS, TH and PN tandem exchanges and KK and PY toll exchanges by means of PCM 2W - 4W circuit.

3-2-3 Long Distance Call Connection (OTD service)

As shown in Fig. 6, a toll manual board is installed in KK exchange and OTD circuits from all the local exchanges are directly connected to this KK exchange on 2-wire/4 dB basis.

3-2-4 Special Service Call Connection

Routing and transmission loss distribution plans for special service call connection are shown in Fig. 7.

As for the telephone number inquiry call between a local exchange and its parent tandem exchange, a 4-dB tandem circuit is used in common with a local call, and 6-dB circuits are provided between each local tandem exchange and the special service exchange at SW exchange.

For handling complaint calls, four maintenance centers (MC) are planned. 6-dB circuits are provided between four maintenance centers and the local exchanges in their respective maintenance areas. In addition, 4-dB circuits are provided between any two maintenance centers to handle the complaint call originating from any local exchange.

3-3 Homing Arrangement

Homing arrangements for local call, and STD call, as well as those for the maintenance area, are shown in Figs. 8 and 9.

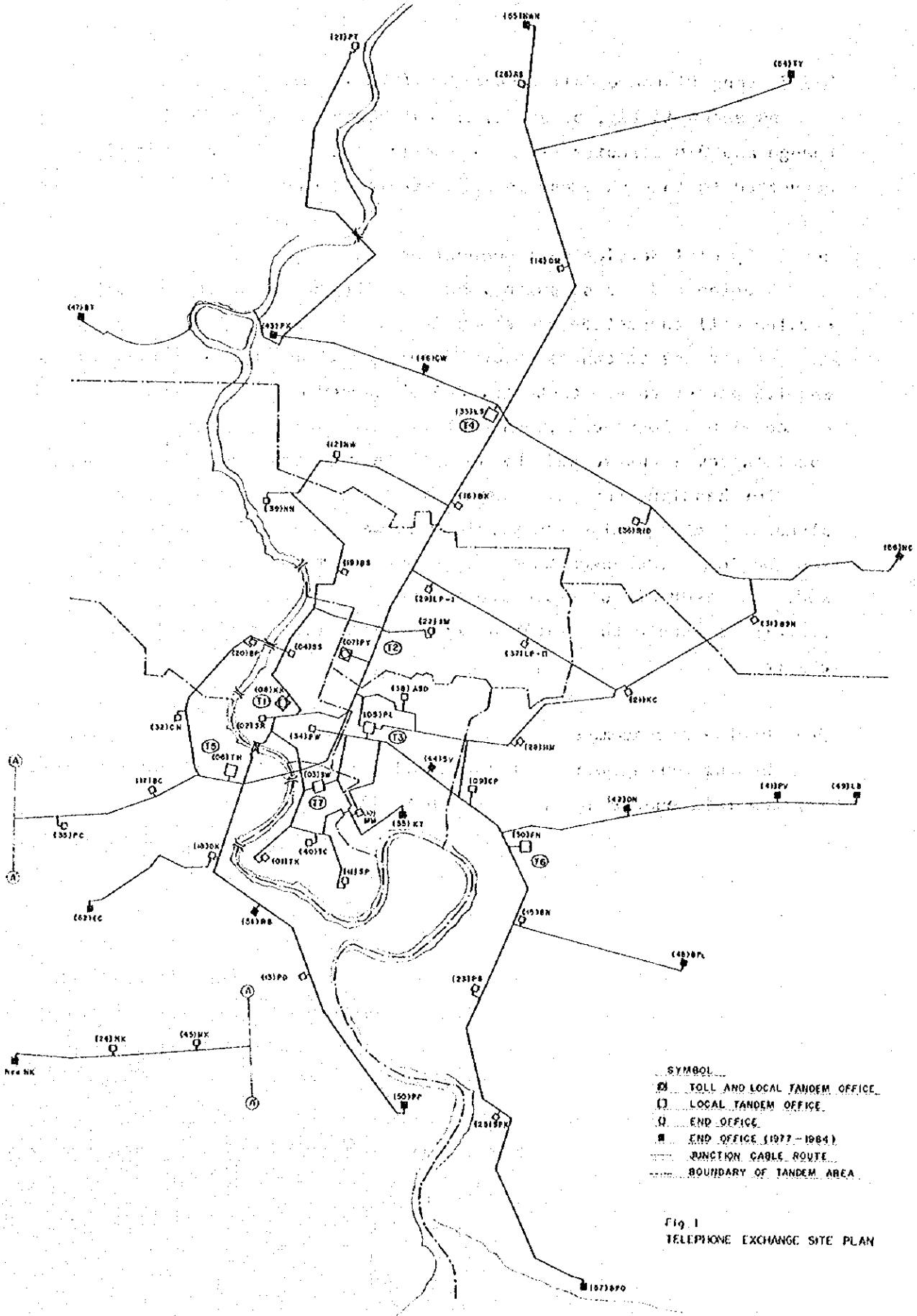


Fig. 1
TELEPHONE EXCHANGE SITE PLAN

Fig.2 NO. OF LINES

TDM NO	EXCHANGE NO	ABB	NAME	NO. OF LINES 1972-1979	1977-1984	TOTAL
T1	08	KK	KRUNGKASEM	20000	—	20000
	02	SR	SAMRANRAT	30000	10000	40000
	04	SS	SAMSEN	5000	5000	10000
	20	BP	BANGPLAD	8000	3000	11000
	34	PW	PATHUMWAN	5000	18000	23000
T2	07	PY	PHAHONYOTHIN	15000	5000	20000
	19	BS	BANGSUE	10000	3000	13000
	22	IM	INTAMARA	6000	4000	10000
	29	LP-1	LADPRAO-1	5000	4000	9000
	37	LP-2	LADPRAO-2	3000	6000	9000
	39	NN	NONTHABURI	3000	2000	5000
T3	05	PL	PLOENCHIT	20000	6000	26000
	10	MM	MAHAMEK	10000	—	10000
	38	ASD	ASOKDINDAENG	5000	10000	15000
	44	SV	SUKHUMVIT	—	11000	11000
	53	KT	KHLONGTOEI	—	10000	10000
T4	33	LS	LAKSI	2000	4000	6000
	14	DM	DONMUANG	3000	4000	7000
	16	BK	BANGKHEN	5000	5000	10000
	26	RS	RANGSIT	800※	2000	2000
	27	PT	PATHUMTHANI	800※	2000	2000
	31	BSN	BANGSHUN	800※	3000	3000
	36	RID	RAMINDRA	800※	10000	10000
	43	PK	PAKKRET	—	2000	2000
	46	CW	CHAENGWATANA	—	5000	5000
	47	BT	BANGBUATHONG	—	1000※	1000
	54	TY	THANYABURI	—	1000※	1000
	55	NWN	NAWANAKHON	—	2000	2000
	56	NC	NONGCHOK	—	1000※	1000
	12	NW	NGAMWONGWAN	5000	10000	15000
T5	06	TH	THONBURI	20000	—	20000
	13	PD	PHRAPRADAENG	3000	7000	10000
	17	BC	BANGCAE	6000	4000	10000
	18	DK	DAOKANONG	8000	2000	10000
	24	NK	NONGKHAEM	1184※	2000	2000
	32	CN	CHARUNSANITWONG	5000	4000	9000
	35	PC	PHASEECHAROEN	2000	3000	5000
	45	MK	MUBANSETHAKIT	—	2000	2000
	50	PP	PHOMPRACHOOL	—	1000※	1000
	51	RB	RACHBURANA	—	4000	4000
	52	EC	EKACHAI	—	4000	4000
T6	30	PN	PHRAKANONG	5000	3000	8000
	09	CP	CHAIYAPRUK	20000	—	20000
	15	BN	BANGNA	10000	5000	15000
	21	KC	KLONGCHAN	8000	7000	15000
	23	PS	POOCHAOSAMINGPRAI	5000	2000	7000
	25	SPK	SAMUTPRAKAN	5000	—	5000
	28	HM	HUAMAK	8000	4000	12000
	41	PV	PRAVET	—	1000※	1000
	42	ON	ONNUT	—	5000	5000
	48	BPL	BANGPHLI	—	1000※	1000
	49	LB	LADKABANG	—	1000※	1000
	57	BPO	BANGPOO	—	1000※	1000
T7	03	SW	SURAWONG	30000	6000	36000
	01	TK	TANONTOK	3000	2000	5000
	11	SP	SATHUPRADIT	3000	2000	5000
	40	TC	TROKCHAN	5000	10000	15000
TOTAL				310584	232000	538000

NOTE ※ — MOBILE UNIT

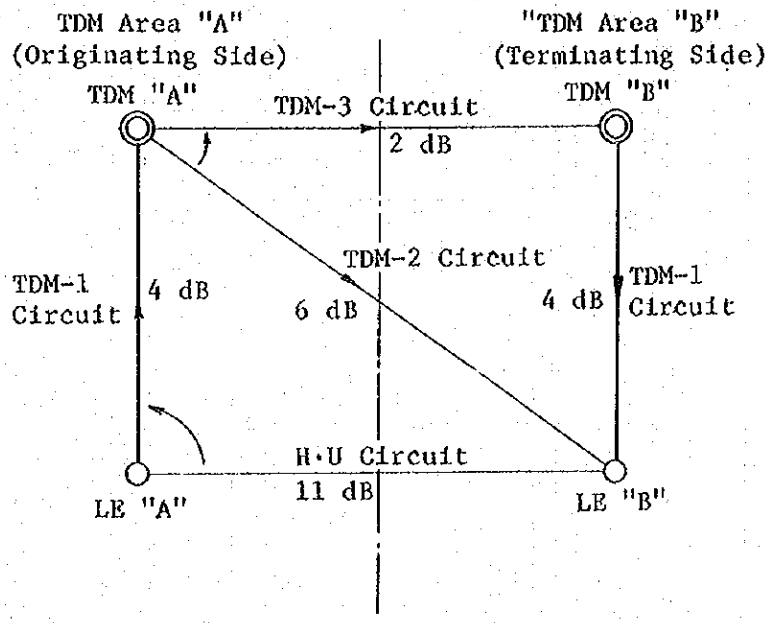


Fig. 3 Local Call Connection

Note: H·U Circuit : High-usage circuit

TDM-1 Circuit : Circuit between Local Exchange and its parent Tandem Exchange

TDM-2 Circuit : Circuit between Local Exchange and Tandem Exchange in other Tandem Area

TDM-3 Circuit : Circuit between any two Tandem Exchanges

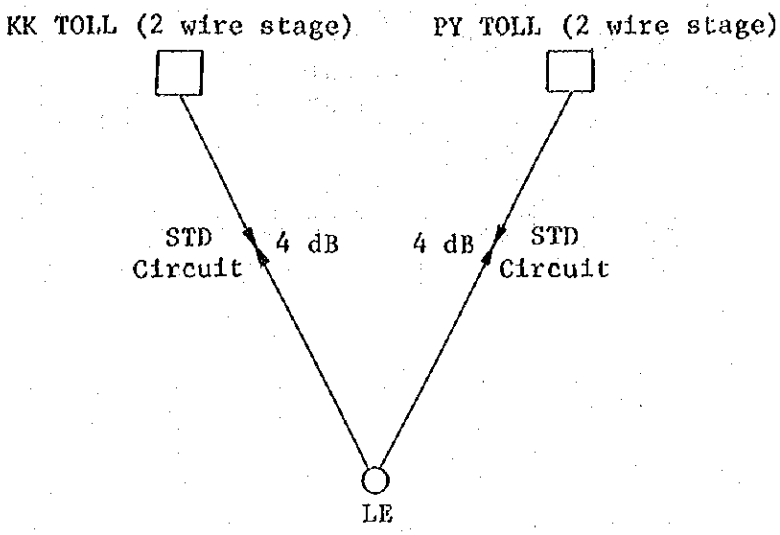


Fig. 4 Long-distance Call Connection (STD Service) - 1

Note: This figure applies to Local Exchanges having office codes starting with "2", that is, KK, SS, SR, PW, IM, PL, ASD, SV, KT, MM, SW, TC, SP, TK and PY Local Exchanges.
STD circuit is established on 2 wire-4 dB basis.

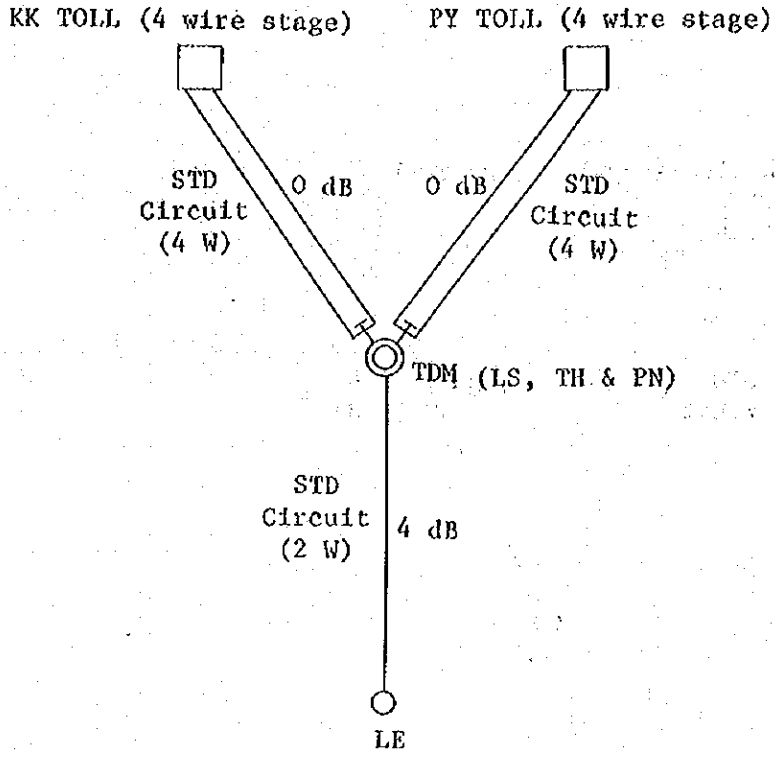


Fig. 5 Long-distance Call Connection (STD Service) - 2

Note: This figure applies to LS, TH & PN Tandem Exchanges and Local Exchanges in their Tandem Areas as well as BP, BS, LP 1, LP 2, NN & BSN Local Exchanges.
0 dB on STD circuit (4 W) from Tandem Exchanges to KK & PY TOLL (4 wire stage) and vice versa is ensured by means of PCM 2W - 4W channel.

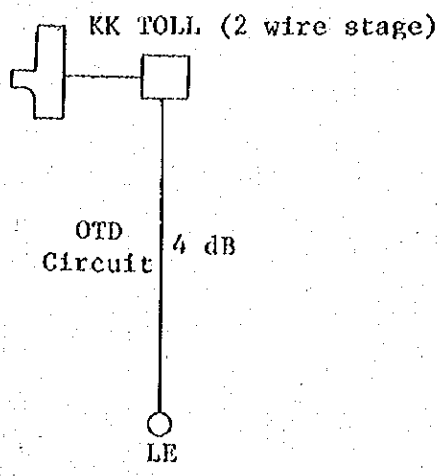


Fig. 6 Long-distance Call Connection (OTD Service)

Note: OTD circuit is established from all Local Exchanges to KK TOLL (2 wire stage) on 2 wire-4 dB basis.

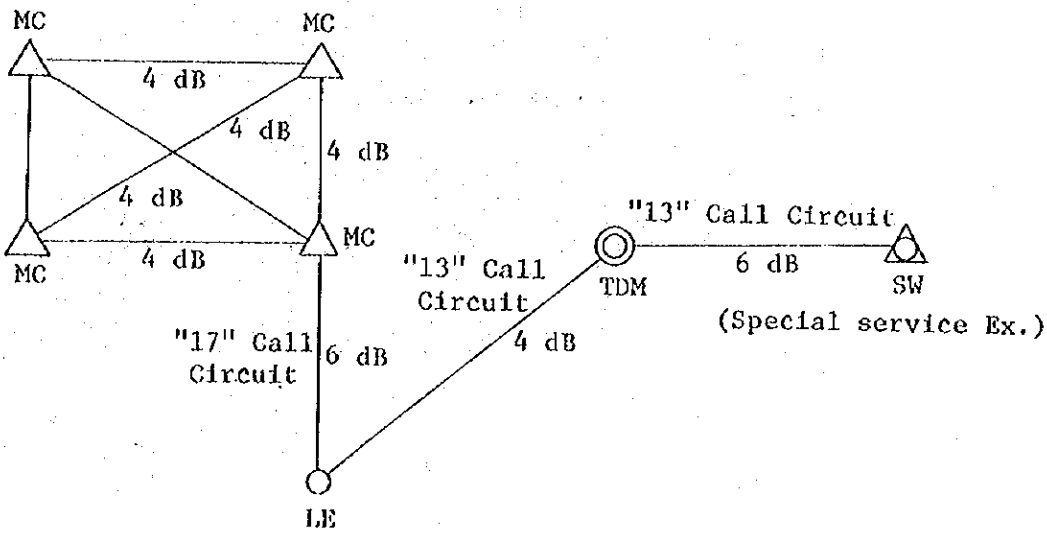


Fig. 7 Special Service Call Connection

Note: "13" call circuit from Local Exchange to its parent Tandem Exchange is not prepared, but, "13" call is carried on TDM-1 circuit shown in Fig. 3, in the same way as Local Call Connection.

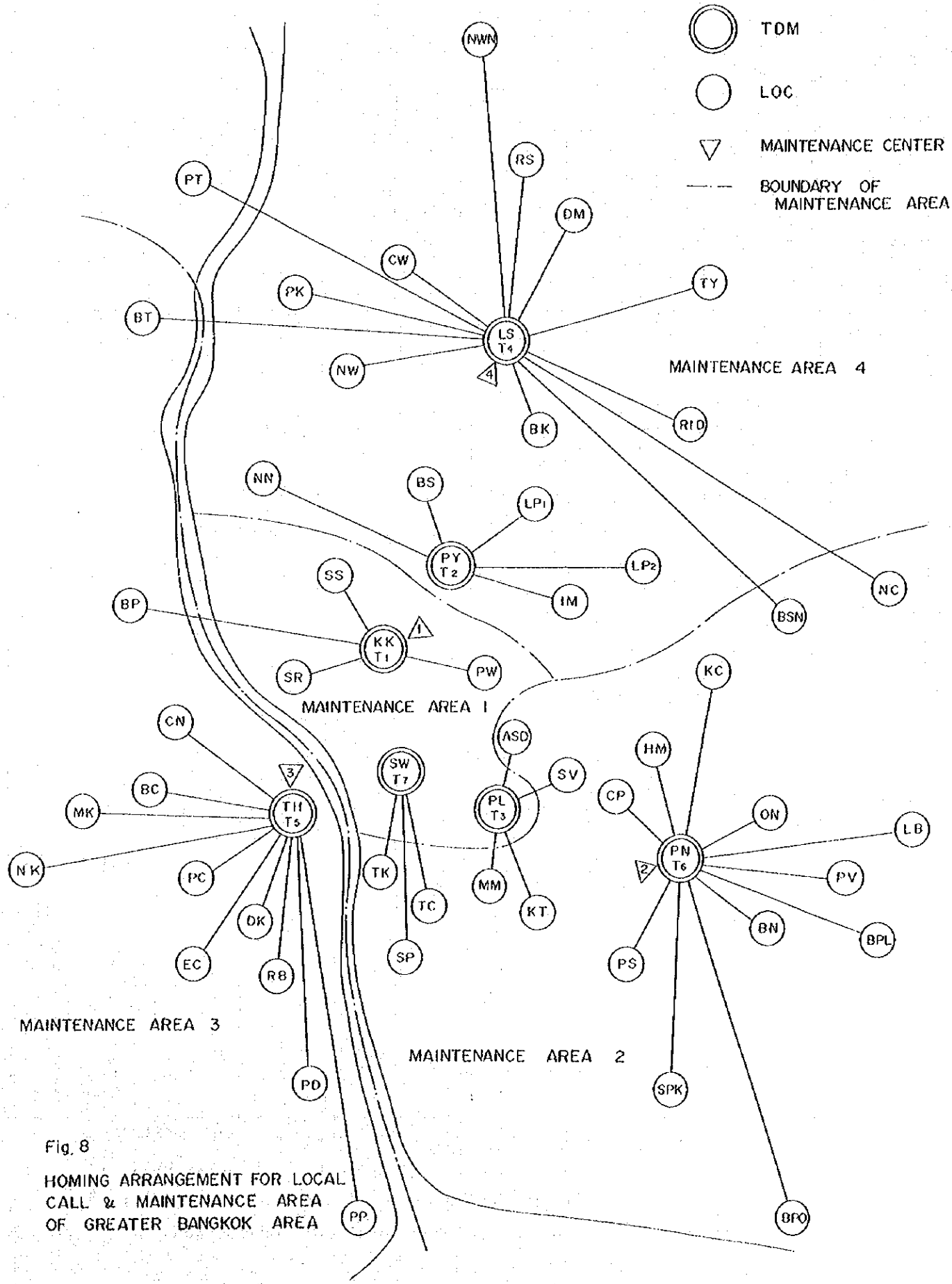


Fig. 8

HOMING ARRANGEMENT FOR LOCAL CALL & MAINTENANCE AREA OF GREATER BANGKOK AREA

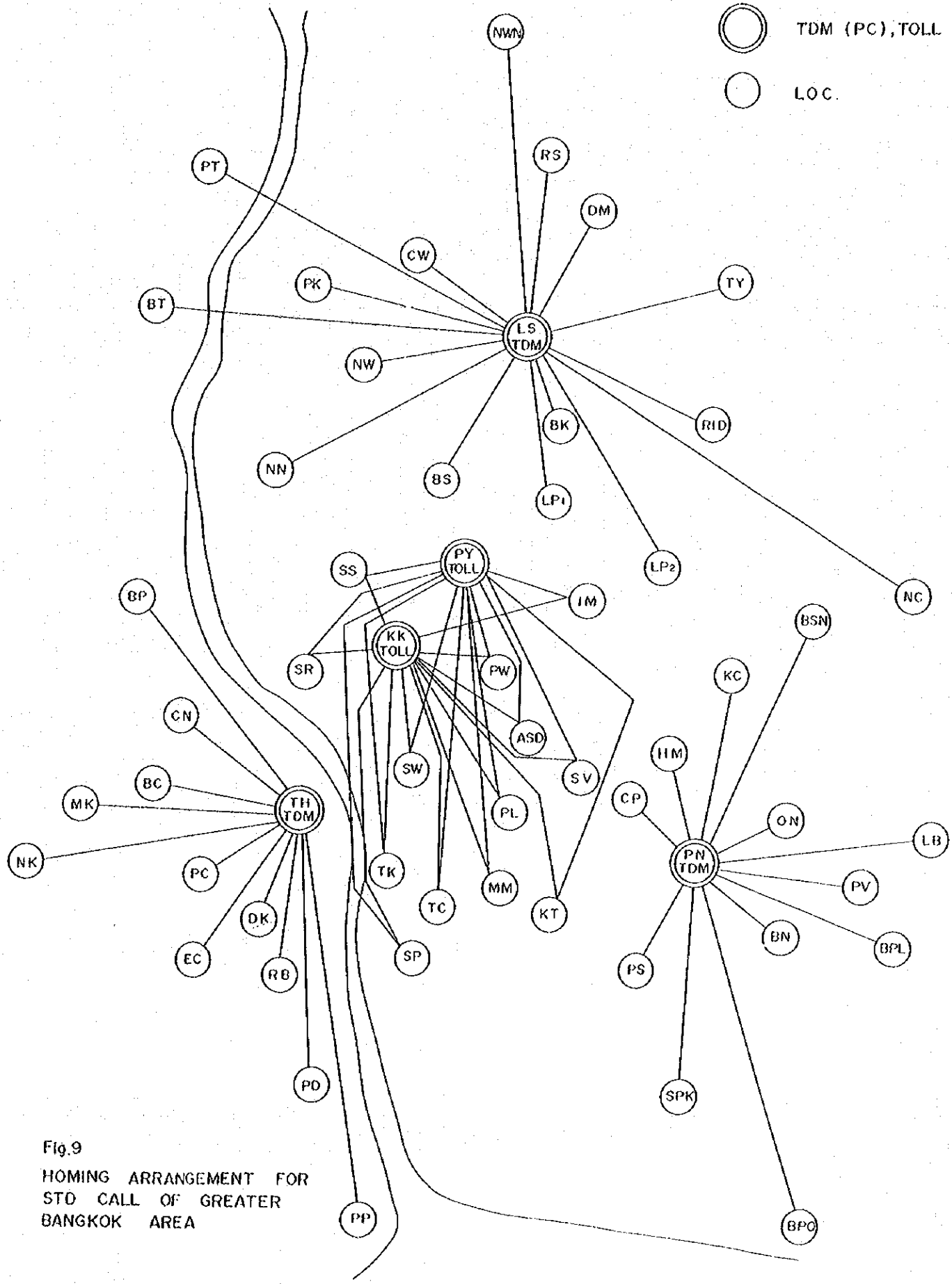
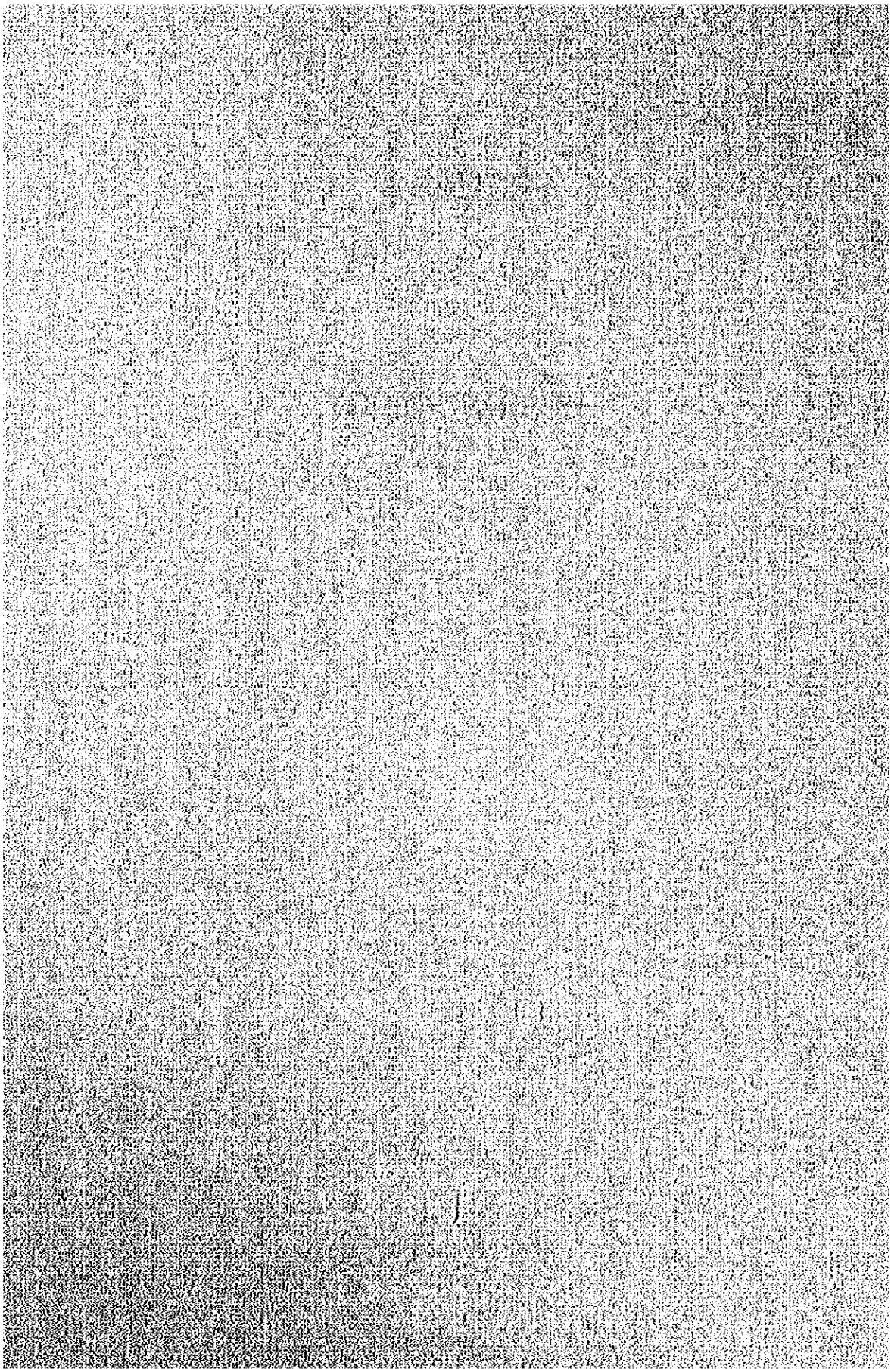


Fig.9
HOMING ARRANGEMENT FOR STD CALL OF GREATER BANGKOK AREA

SECTION 4

DESIGN POLICY



SECTION 4. DESIGN POLICY

4-1 Basic Idea

The objective of this detailed design is to establish the junction network in the Bangkok Metropolitan Area to realize the demand-fulfillment program and local exchange site plan covered by The EDP Project (1977 - 1984).

The EDP Project (1972 - 1979) which is in progress will be completed in 1979 and, after that the telephone service will be operated by 7 tandem exchanges instead of the existing 3 tandem exchanges.

In the EDP Project (1977 - 1984), the number of tandem exchanges does not change, but the number of local exchanges is increased by 17. Therefore, the 14 new junction routes from each newly planned local exchange are designed to connect it with its parent tandem exchange and adjacent local exchange in the same tandem area.

In order to conform to the change in routing and transmission loss distribution plans, PCM 2W - 4W circuit was adopted for the STD circuit between KK and PY toll exchanges and LS, TH and PN tandem exchanges.

Other required circuits are accommodated in the new or existing cables in the existing junction routes.

4-2 Determination of Number of Cable Pairs

On the basis of the traffic data as well as the basic idea, the circuit assembly list is prepared.

This circuit assembly list is arranged by separating the circuits within the same tandem area and the circuits to the exchange in another tandem area, and by deciding the transmission loss and transmission system from the economical viewpoint.

From this list, the number of circuits between exchanges is calculated, based on the kind of transmission system, and the number of cable pairs is determined. This cable pair determination is based on the number of circuits required in 1994 (70% increase in the number of circuits required in 1984). The quantity of cables required for the next project (five year hence) is also calculated.

However, the construction of underground conduits is difficult because of the special conditions in Bangkok. Therefore, it is planned, for efficient use of the conduits, that the cables be placed with the maximum number of cable pairs in consideration of the existing plant and road conditions of the junction routes.

4-3 Adoption of PCM System

As stated in the foregoing, in line with the expansion of the exchange area, the length of the junction circuit becomes longer, so that the PCM system is adopted to keep the transmission loss and line resistance within the limits (line resistance limit: 2,000 ohm maximum). Since the civil works for increasing conduits are difficult in Bangkok, the PCM system is also adopted for effective use of the existing cables.

4-4 Adoption of Toll PEF-P Cable

There are two kinds of cables to be used for the PCM system operation, i.e., the ASP cable and the toll PEF-P cable. The toll PEF-P cable is adopted even though it is higher in cost because it has the following advantages:

(1) PCM system accommodation ratio is high, and

(2) The number of repeating points can be reduced by lengthening the distance between the repeaters.

4-5 Selection of Routes

(1) Bangbuathong route

After a comparison study of the following three routes, (a), (b) and (c) for the junction routes between newly planned Bangbuathong exchange and the Laksi tandem exchange, the route (a) has been chosen for reason of economy even though it runs along the canal.

(a)	BT-13.3-PK-6.5-CW-4.2-LS	24 km
(b)	BT-17.6-NN-4.2-NW-5.3-BK-4.7-LS	31.8 km
(c)	BT-17.6-NN-5.4-BS-6.8-LS	29.8 km

(2) Khlong Toei route

There exists a conduit route via Rama IV road between newly planned Khlong Toei exchange and the existing Mahamek exchange.

However, since no vacant conduit was available, and there exists difficulty in constructing additional conduits due to the traffic congestion along the route, Nang Linchi - Nonsi road route is selected although the new route is approximately 800 meters longer than the existing route.

(3) KK - PL route

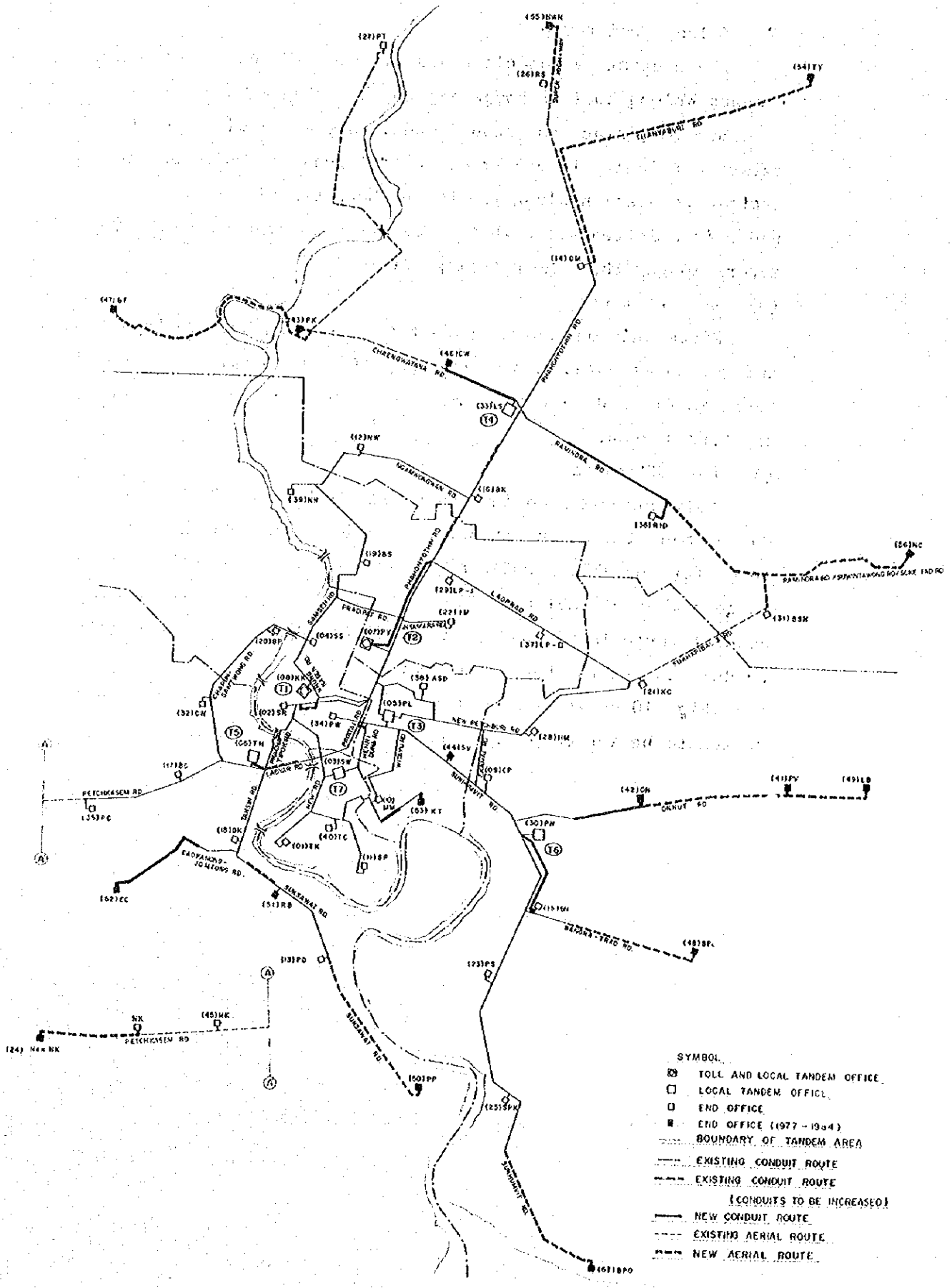
Since only one spare conduit is available between PL No. 32 and No. 58 manholes on the existing KK - PL route, a new conduit route is planned between PL No. 63 and No. 147 manholes along the Rama I road.

(4) KK - SR route

Only one spare conduit is available between KK No. 46 and No. 50 manholes on the existing KK - SR route, and there is no space for installing coils and repeaters in manholes because a large number of cables run in this section. Therefore, a new conduit route is planned from KK No. 128 manhole to the existing conduit in Chakra Phad Phong road.

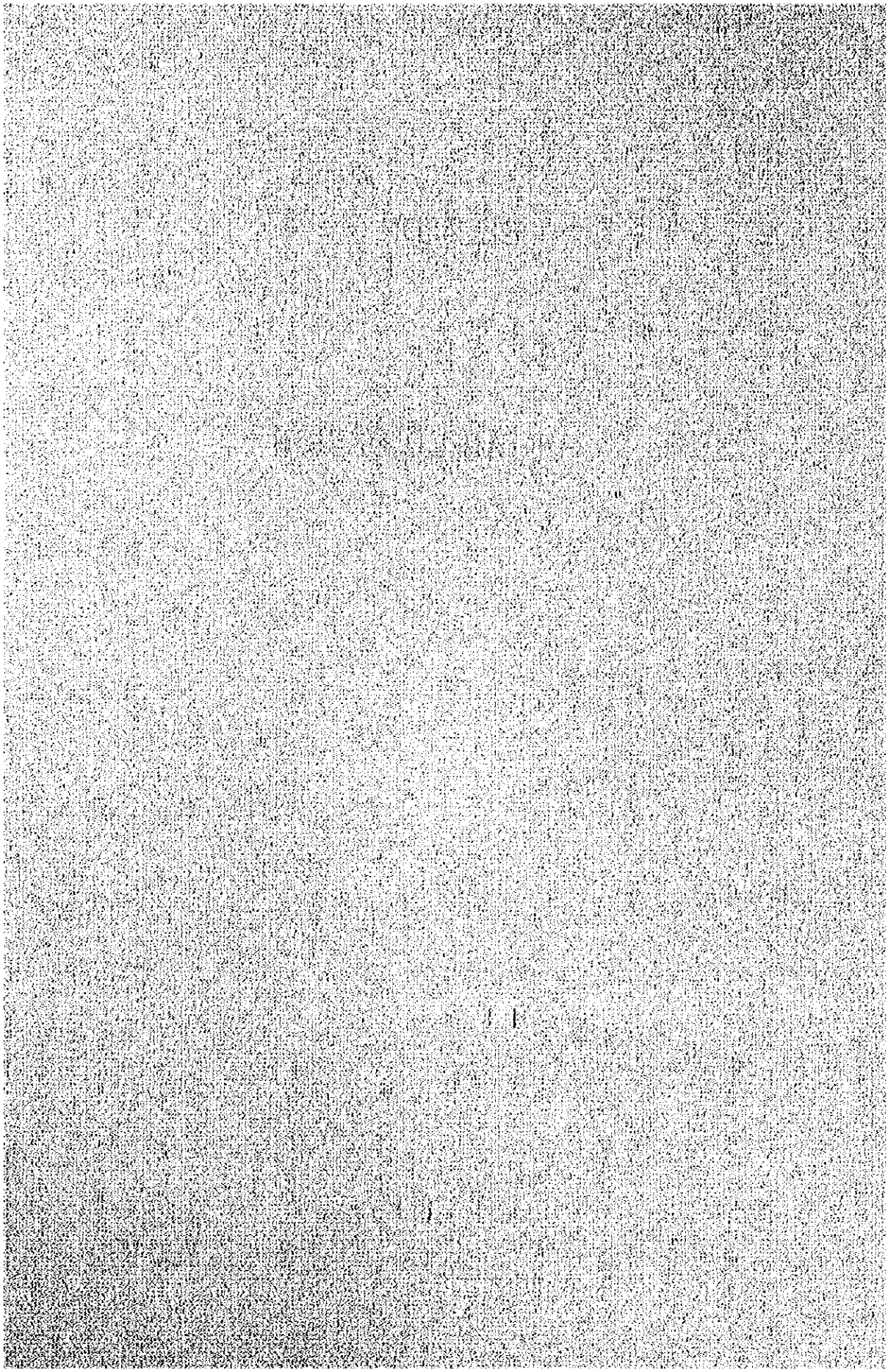
(5) Fig. 10 shows the new conduits routes, the existing conduit routes to be increased and the new aerial cable routes.

Fig 10 GREATER BANGKOK JUNCTION NETWORK



SECTION 5

DETAILED DESIGN



SECTION 5. DETAILED DESIGN

5-1 Loading Layout

The loading layout is arranged by type H-88 loading system which the TOT employs as the standard loading system.

The design principles of loading system are as follows:

5-1-1 Number of Loaded Pairs

The number of loaded pairs will meet the requirement in 1984.

5-1-2 Loading Spacing

(1) The starting point of loading spacing is the higher ranking exchange, such as toll or tandem exchange in principle.

(2) In case the new exchange site is undecided, the starting point of loading spacing is the existing exchange, and rearrangement of loading spacing is made at the new exchange site when the site is determined.

5-1-3 Compensation for Loading Spacing

(1) Compensation for full loading spacing section

Should the standard loading spacing not satisfy the allowable minimum values, then it must be compensated by the capacitance equivalent to the required length of cable.

(2) Compensation for half loading spacing section

In case of a non-active circuit, should the end section be smaller than So/4, the Building-Out-Capacitor (B.O.C.) is inserted and should it be larger than 3/4·So, the compensating network is inserted.

The active circuit is inserted with either the B.O.C. or compensating network in order to maintain a complete half section.

(3) Loading layout for toll PEF-P cable

Since the mutual capacitance of ASP cable is 52 nF/km while that of toll PEF-P cable is 38.5 nF/km, the loading spacing of toll PEF-P cable differs from that of ASP cable.

The standards are as follows:

1) Inductance of loading coil 88 mH
2) Standard loading spacing (So) 2470 m
3) Half loading spacing (So/2) 1235 m
4) Deviation from standard loading spacing

(So-S)/So x 100 ------ within ±2%

(S-Si)/S x 100 ------ within ±2%

Where, S: average loading spacing

Si: individual loading spacing

5-1-4 Data for Determining Loading Spacing

The study data for loading layout for each section are given in the annexed sheets.

5-2 Cable Design for PCM System

TOT adopts the PCM-24 channel system in the Bangkok junction network as one of the transmission media. Therefore, in this detailed design, the same system applies to new and existing sections.

The design principles for the PCM system are as follows:

5-2-1 Application of PCM System

(1) Use of existing system

For the existing PCM system sections, the effective use of PCM circuits is considered.

(2) Application to 0 dB circuit

The PCM 2W - 4W circuit is applied to the 0 dB circuit linking LS, TH and PN tandem exchanges and KK and PY Toll exchanges.

(3) Application to other circuits

The PCM circuit is adopted to keep the transmission loss and line resistance within the limits (2,000 ohm) in consideration of the existing junction cables and PCM circuits, as well as the economy of new junction cables installed for newly planned exchanges.

5-2-2 Repeater Spacing

The repeater spacing is arranged in consideration of the kind of cable, type of junction cable and number of PCM systems required 15 years hence, as well as the following points:

(1) Existing PCM system cable

As for the existing PCM system cable, the repeater spacing is not changed in principle.

In case the number of systems required 15 years hence cannot be accommodated without alteration of existing repeater spacing and the cable pairs for PCM operation are insufficient, the required PCM systems are planned to be operated by use of other existing cables or new cables.

(2) New PCM operated cable

Some allowance is provided in the repeater spacing in consideration of the change in the number of PCM systems required 15 years hence and the condition that the new exchange sites remain undecided.

5-2-3 Line Assignment for PCM System

(1) ASP cable

Line assignment for PCM system is made from the first pair of each unit placed in the central layer, but the units in outer-most layer are not used.

The line assignments of the west to east group and the east to west group are arranged in different units separated as far as possible.

(2) Toll PEF-P cable

Line assignments are made for the west to east group from the No. 1 quad of the center layer. For the east to west group, considerations are made on the number of systems, number of loaded pairs, etc. required 15 years hence. A shielding layer is provided between the two groups.

In case the line assignments are made in the same layer for east to west and west to east groups, more than 2 quads are provided as shielding quad between groups.

5-2-4 Calculation of Number of PCM Systems

(1) The required number of systems is calculated according to the equation below:

$X = C/24$ (Fractions to be raised to next round number)

where, X: No. of PCM systems

C: No. of circuits

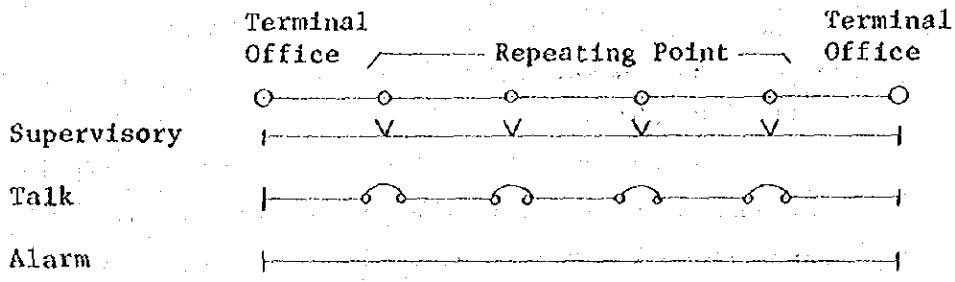
(2) Spare system

1 spare system is provided in each PCM operated cable section.

In case the PCM systems are operated by use of more than 2 cables in 1 section, the number of spare systems is equal to the number of cables.

(3) Maintenance pairs

The maintenance pairs for supervisory, talk and alarm (in case of unattended office) are provided according to the diagram shown below:



5-3 Comments on the Cable Routes

In this detailed design, aerial cables are provided in the sections listed below. In case the conduits are required for the local network designed by TOT, alteration to underground cable is needed.

(1) DM exchange - TY exchange From DM exchange

(2) BSN exchange - NC exchange From BSN exchange

(3) ON exchange - PV exchange From ON exchange

(4) PD exchange - PP exchange From PD exchange

(5) RID exchange - BSN exchange From RID exchange

5-4 Design for Gas Pressurization of Cables

New underground and aerial cables will be all gas pressurized cables, as the existing junction cables are.

For this purpose, test valves, gas dams, by-pass valves and contactors will have to be installed on the junction cables.

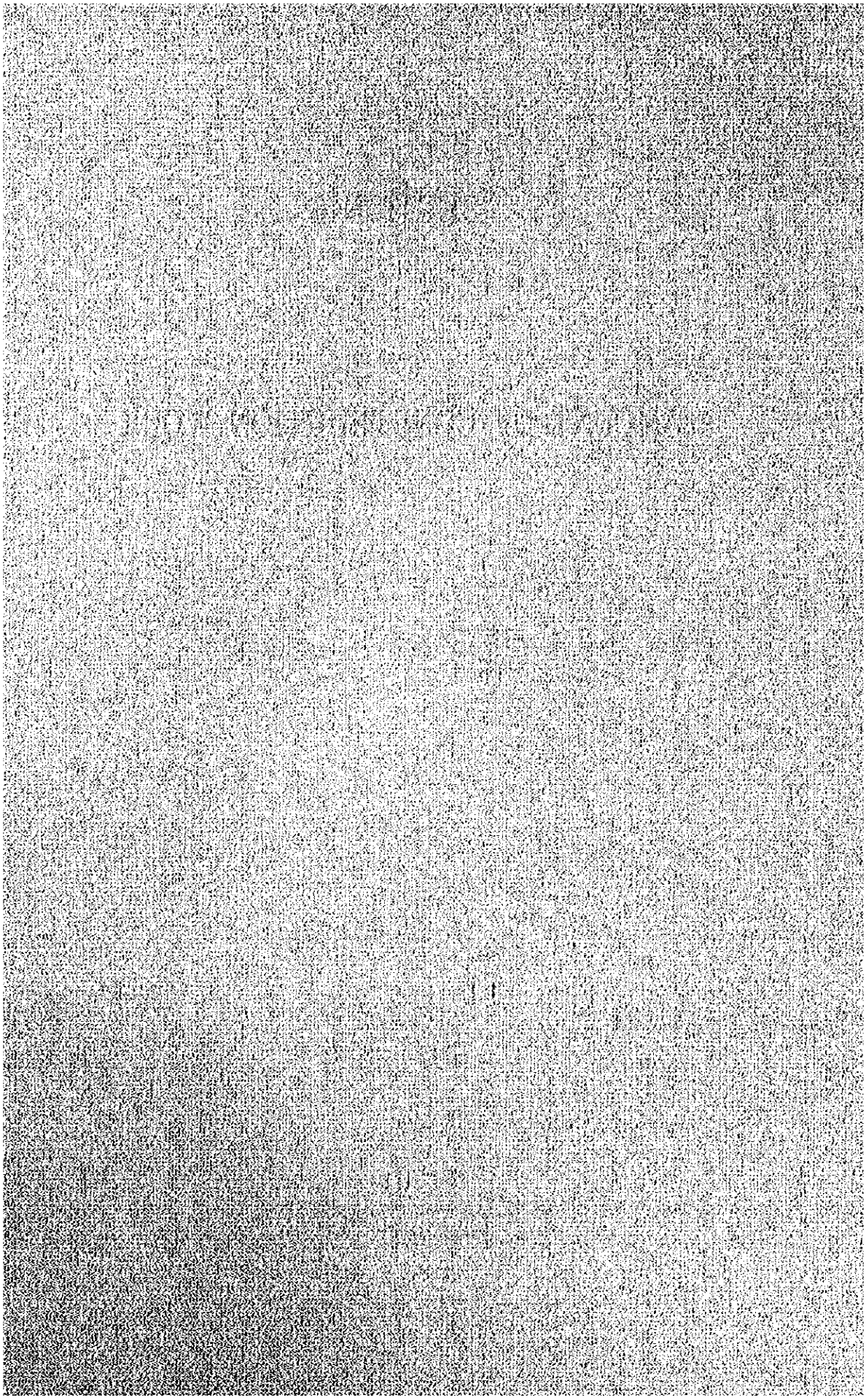
However, since the equipments in the exchange offices, such as air dryer equipment, etc., will be used jointly with the subscribers cables, they are excluded from this project.

5-5 Engineering Data

Engineering data concerning the design of this project are attached hereto.

SECTION 6

AMOUNT OF CONSTRUCTION WORK



Amount of Construction Work

SECTION	UNIT DESIGNATION	UNIT	NO. OF UNITS	REMARKS
A	A - 7	ea	86	
	A - 8	"	108	
	A - 12	"	44	Joint-Pole
	Section "A" Total	"	238	
B	B1BS	ea	34	
	B1CS	"	63	
	B1DS	"	13	
	B2BS	"	14	
	Section "B" Total	"	124	
C	C1 - 2A	ea	34	
	C1 - 1A	"	53	
	C2 - 1A	"	13	
	C3 - 1A	"	5	
	Section "C" Total	"	105	
E	E 100 . 9 B1	100 m	46	
	E 200 . 9 B1	"	2	
	E 50 . 65 PEF 1	"	218	
	E 100 . 65 PEF 1	"	132	
	E 50 . 9 PEF 1	"	541	
	E 100 . 9 PEF 1	"	49	
	E 150 . 9 PEF 1	"	94	
	E 300 . 9 PEF 1	"	80	
	Section "E" Total	"	1,162	

SECTION	UNIT DESIGNATION	UNIT	NO. OF UNITS	REMARKS
F	F 50 . 9 PEF 1	100 m	3	} Submarine-Cable
	F 300 . 9 PEF 1	"	6	
	Section "F" Total	"	9	
G	G 900 . 5 B1	100 m	41	
	G 1200 . 5 B1	"	22	
	G 1500 . 5 B1	"	3	
	G 1800 . 5 B1	"	41	
	G 600 . 65 B1	"	80	
	G 900 . 65 B1	"	87	
	G 1200 . 65 B1	"	232	
	G 300 . 9 B1	"	25	
	G 400 . 9 B1	"	54	
	G 600 . 9 B1	"	1,262	
	G 50 . 9 PEF 1	"	71	
	G 600 . 9 PEF 1	"	123	
	Section "G" Total	"	2,041	
J	J 100 . 5 P	10 m	2(2)	( ) No. of termination cable
	J 200 . 5 P	"	13(24)	
	J 300 . 5 P	"	130(166)	
	J 400 . 5 P	"	5(8)	
	J 50 . 65(PEF)	"	2(2)	
	J 100 . 65(PEF)	"	2(2)	
	J 50 . 9 (PEF)	"	6(10)	
	J 100 . 9 (PEF)	"	3(4)	
	J 150 . 9 (PEF)	"	2(2)	
	J 300 . 9 (PEF)	"	18(16)	
	Section "J" Total	"	183(236)	

SECTION	UNIT DESIGNATION	UNIT	NO. OF UNITS	REMARKS
M	M 1 A P	ea	52	
	M 1 B P	"	264	
	M 1 C P	"	58	
	M 3 B P	"	45	
	M 3 C P	"	1,283	
	Section "M" Total	"	1,702	
N	N	100 P	7,886	
O	O 1	ea	53	
	O 2	"	251	
	O 4	"	8	
	O 7	"	57	
	O 8	"	2	
	O 9	"	9	
S	S 8	ea	18	4Q Sleeve coil
	S 50	"	9	
	S 100	"	8	
	S 150	"	13	
	S 200	"	18	
	S 250	"	2	
	S 300	"	16	
	S 350	"	5	
	S 400	"	12	
	S 450	"	15	
	S 500	"	14	
	S 550	"	10	

SECTION	UNIT DESIGNATION	UNIT	NO. OF UNITS	REMARKS
S	S 600	ea	15	
	S 700	"	8	
	S 900	"	2	
	S 1200	"	1	
	S 8 (44mH)	"	2	4Q Sleeve coil
	S 100 (44mH)	"	3	
	S 200 (44mH)	"	4	
	S 300 (44mH)	"	3	
	S 350 (44mH)	"	1	
	S 400 (44mH)	"	2	
	S 450 (44mH)	"	2	
	S 500 (44mH)	"	3	
	S 550 (44mH)	"	1	
	S 700 (44mH)	"	3	
	S 50 - 007	"	1	
	S 50 - 040	"	1	
	S 100 - 005	"	1	
	S 100 - 019	"	1	
	S 150 - 008	"	1	
	S 150 - 027	"	1	
	S 150 - 060	"	1	
	S 200 - 006	"	1	
	S 200 - 010	"	1	
	S 200 - 022	"	1	
	S 200 - 025	"	1	
	S 300 - 006	"	1	
	S 300 - 011	"	1	
	S 300 - 033	"	1	
	S 300 - 060	"	1	
	S 300 - 066	"	1	
	S 300 - 072	"	1	
	S 400 - 005	"	1	

SECTION	UNIT DESIGNATION	UNIT	NO. OF UNITS	REMARKS
S	S 400 - 036	ea	1	
	S 450 - 041	"	1	
	S 450 - 069	"	1	
	S 450 - 073	"	1	
	S 500 - 016	"	1	
	S 500 - 033	"	1	
	S 550 - 011	"	1	
	S 550 - 015	"	1	
	S 550 - 030	"	1	
	S 600 - 005	"	2	
	S 600 - 016	"	1	
	S 600 - 041	"	1	
	S 700 - 030	"	2	
	S 900 - 011	"	2	
	S 900 - 033	"	2	
	S 1200 - 011	"	1	
	S 1200 - 033	"	1	
	Section "S" Total		229	
	S 300	ea	1	Removing
	S 900	"	2	"
	S 1200	"	1	"
	S 200 - 019	"	1	"
	S 300 - 059	"	1	"
	S 900 - 059	"	2	"
	S 1200 - 059	"	1	"
T	Negative impedance repeater	ea	870	Include removed sets
	Negative Impedance repeater	"	97	Removing

SECTION	UNIT DESIGNATION	UNIT	NO. OF UNITS	REMARKS
V	Impedance Matching Coil	ea	24,330	Include removed sets
	Impedance Matching Coil	"	1,720	Removing
X	X (1)	System	565	With office repeater
	X (2)	"	1,362	
	X (3)	"	586	
	X (4)	"	445	
	X (4)	"	61	For spare system termination
	X (2)	"	186	Removing
	X (3)	"	6	Removing

UNIT DESIGNATION

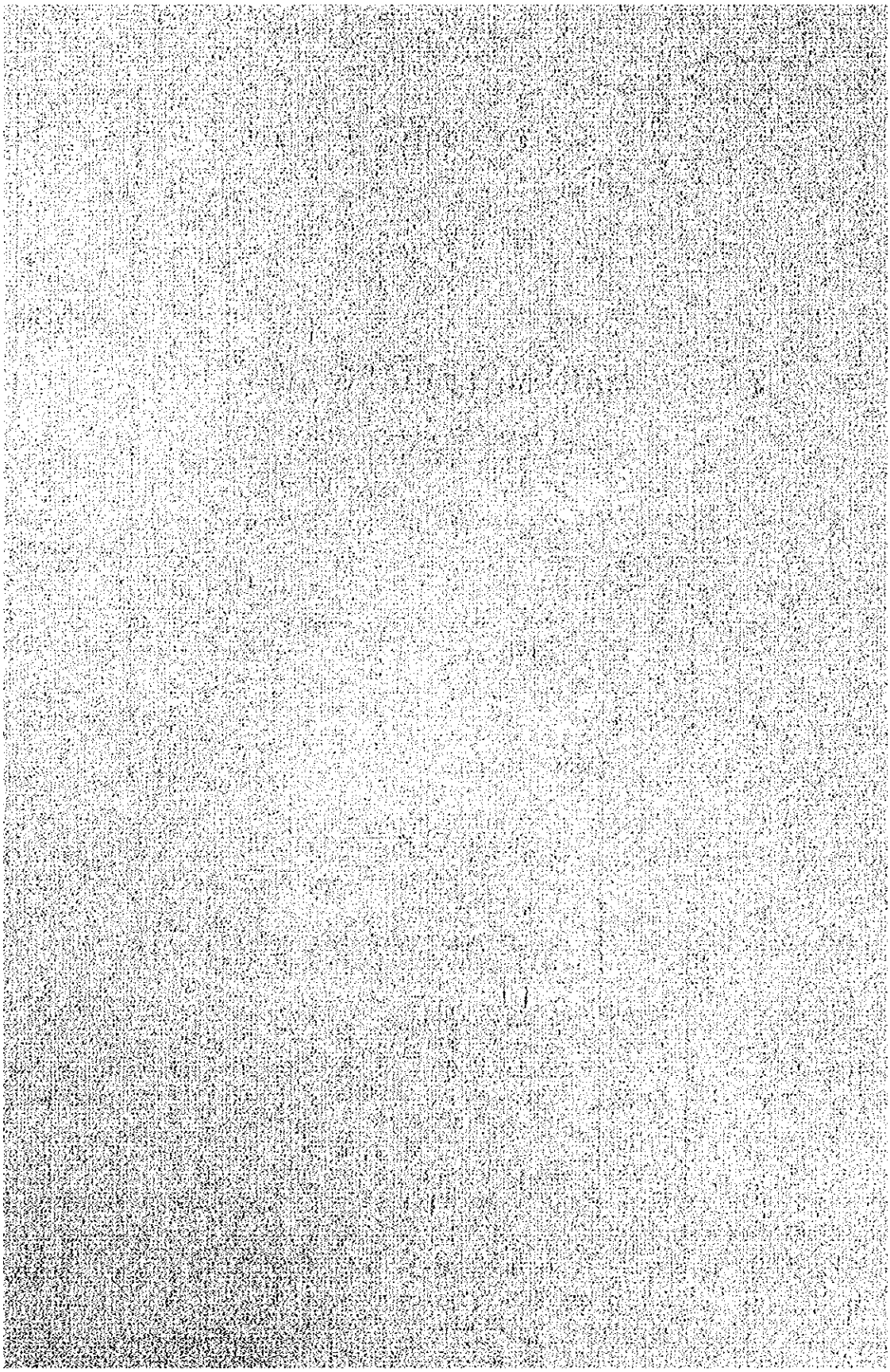
SECTION	KIND OF WORK	UNIT DESIGNATION	EXPLANATION	UNIT	REMARKS
A	POLE	A – 8	POLE LENGTH	EACH	
B	GUY	B BS	UPPER PORTION OF GUY DOWN GUY (POLE TO ANCHOR) KIND OF STRANDED WIRE STRAIN INSULATOR	EACH	
			DOWN GUY / OVERHEAD GUY 30° B / E 45° C / F 65° D / G		
		B 2 B	OVERHEAD GUY (POLE TO POLE)		
C	ANCHOR	C 2 – 1 A	LOWER PORTION OF GUY 1. PLANK ANCHOR 2. SCREW " 3. LOG " 1. 13ø SINGLE-EYE ROD 2. 16ø DOUBLE-EYE ROD 3. 19ø " " " A. 6 FOOT (LENGTH OF ROD) B. 7 " (" " ") C. 8 " (" " ")	EACH	
E F G	AERIAL CABLE DIRECT BURIED CABLE CONDUIT CABLE	E 50. 4 A 2	TYPE OF CABLE LAYING NUMBER OF CABLE PAIR DIAMETER OF CONDUCTOR CABLE SHEATH COMPOSITION CONDUCTOR INSULATION 1. PAPER OR PULP 2. POLYETHYLENE 3. POLYVINYL CLORIDE	100M	B1...STALPETH A2...ALPETH
J	TERMINATING AND CABLE	J200.5P3	TERMINATING CABLE SAME AS ITEM E.F.G.	10M	

UNIT DESIGNATION

SECTION	KIND OF WORK	UNIT DESIGNATION	EXPLANATION	UNIT	REMARKS
M	CABLE SPLICE ENCLOSURE	M | A P	CABLE SPLICE ENCLOSURE TYPE OF CABLE LAYING 1. AERIAL 2. DIRECT BURIED 3. CONDUIT 4. TROUGH DIAMETER OF CABLE A. 0-1 INCH B. 1-2 " C. 2- " (MORE THAN 2 INCH) KIND OF CABLE SHEATH L. LEAD P. POLYETHLENE	EACH	
N	CONDUCTOR SPLICE	N		100PAIR	
O	GAS SYSTEM	O |	GAS SYSTEM 1. GAS PIPE IN CABLE VAULT 2. PRESSURE TESTING VALVE 4. BYPASS VALVE 7. CONTACTOR(U.G. TYPE) 8. " (AERIAL TYPE) 9. GAS DAM 10 AIR DRYER 11 BONDING RIBBON	EACH	
S	COIL BON	S 300 S75.008	300 PAIR COIL NOMBER OF CAPACITOR VALUE OF CAPACITOR(μF)	EACH	
T	BOTHWAY REPEATOR		NEGATIVE IMPEDANCE REPEATER	EACH	
U	IMPEDANCE COMPENSATOR	U (1) U (2)	IMPEDANCE COMPENSATOR AND LOW FREQUENCY CORRECTOR IMPEDANCE COMPENSATOR	EACH	
V	MATCHING COIL	V	IMPEDANCE MATCHING TRANSFORMER	EACH	
X	PCM	X	(1) TERMINAL EQUIPMENT (2) MANHOLE TYP REPEATER (3) POLE-MOUNTED TYP REPEATER (4) OFFICE TYPE REPEATER	SYSTEM " " "	

SECTION 7

MAIN MATERIALS LIST



Main Materials List

NAME OF MATERIAL			UNIT	QUANTITY	REMARKS
CABLE	(1) DUCT CABLE				
		900 - 5 ASP	100 m	42	
		1200 - 5 "	"	22	
		1500 - 5 "	"	3	
		1800 - 5 "	"	41	
		600 - 65 "	"	81	
		900 - 65 "	"	88	
		1200 - 65 "	"	235	
		300 - 9 "	"	25	
		400 - 9 "	"	55	
		600 - 9 "	"	1,277	
		50 - 9 PEF-P	"	72	
		600 - 9 PEF-P	"	125	
		Sub Total	"	2,066	
	(2) SUBMARINE CABLE				
		50 - 9 PEF-Sub	100 m	3	
		300 - 9 "	"	6	
		Sub Total	"	9	
	(3) AERIAL CABLE				
		100 - 9 ASP	100 m	47	
		200 - 9 "	"	2	
		50 - 65 PEF-P	"	221	
		100 - 65 "	"	134	
		50 - 9 "	"	462	
		100 - 9 "	"	51	
		150 - 9 "	"	96	
		300 - 9 "	"	82	
		50 - 9 PEF-AL	"	85	(PD-PP)
		Sub Total	"	1,180	
	TOTAL		"	3,255	

NAME OF MATERIAL	UNIT	QUANTITY	REMARKS
TERMINATING CABLE			
100 - 5 P	10 m	14	
200 - 5 "	"	154	
300 - 5 "	"	1,464	
400 - 5 "	"	50	
50 - 65 PEF	"	15	
100 - 65 "	"	20	
50 - 9 "	"	60	
100 - 9 "	"	30	
150 - 9 "	"	15	
300 - 9 "	"	188	
TOTAL	"	2,010	
TERMINATING MATERIAL			
NO 75	Set	14	
NO 100	"	9	
NO 125	"	11	
NO 150	"	53	
NO 200	"	22	
TOTAL	"	109	
CONCRETE POLE 7 MC	ea	86	
" " 8 MC	"	152	
" " 5 MC	"	44	For Joint Pole
TOTAL	"	282	
GULVANIZED STEEL STRAND WIRE (6 M)	kg	21,200	
" " " " (10 M)	"	7,400	
" " " " (16 M)	"	4,600	

NAME OF MATERIAL		UNIT	QUANTITY	REMARKS
DRIVING ANCHOR	13 ϕ	ea	34	
ANCHOR ROD	13 ϕ	"	53	
" "	16 ϕ	"	13	
" "	19 ϕ	"	5	
TOTAL		"	229	
COIL (88mH)	8 P	ea	18	4Q Sleeve Coil
	50 P	"	9	
	100 P	"	8	
	150 P	"	13	
	200 P	"	18	
	250 P	"	2	
	300 P	"	16	
	350 P	"	5	
	400 P	"	12	
	450 P	"	15	
	500 P	"	14	
	550 P	"	10	
	600 P	"	15	
	700 P	"	8	
	900 P	"	2	
	1200 P	"	1	
HALF COIL (44mH)	8 P	ea	2	4Q Sleeve Coil
	100 P	"	3	
	200 P	"	4	
	300 P	"	3	
	350 P	"	1	
	400 P	"	2	
	450 P	"	2	
	500 P	"	3	
	550 P	"	1	
	700 P	"	3	

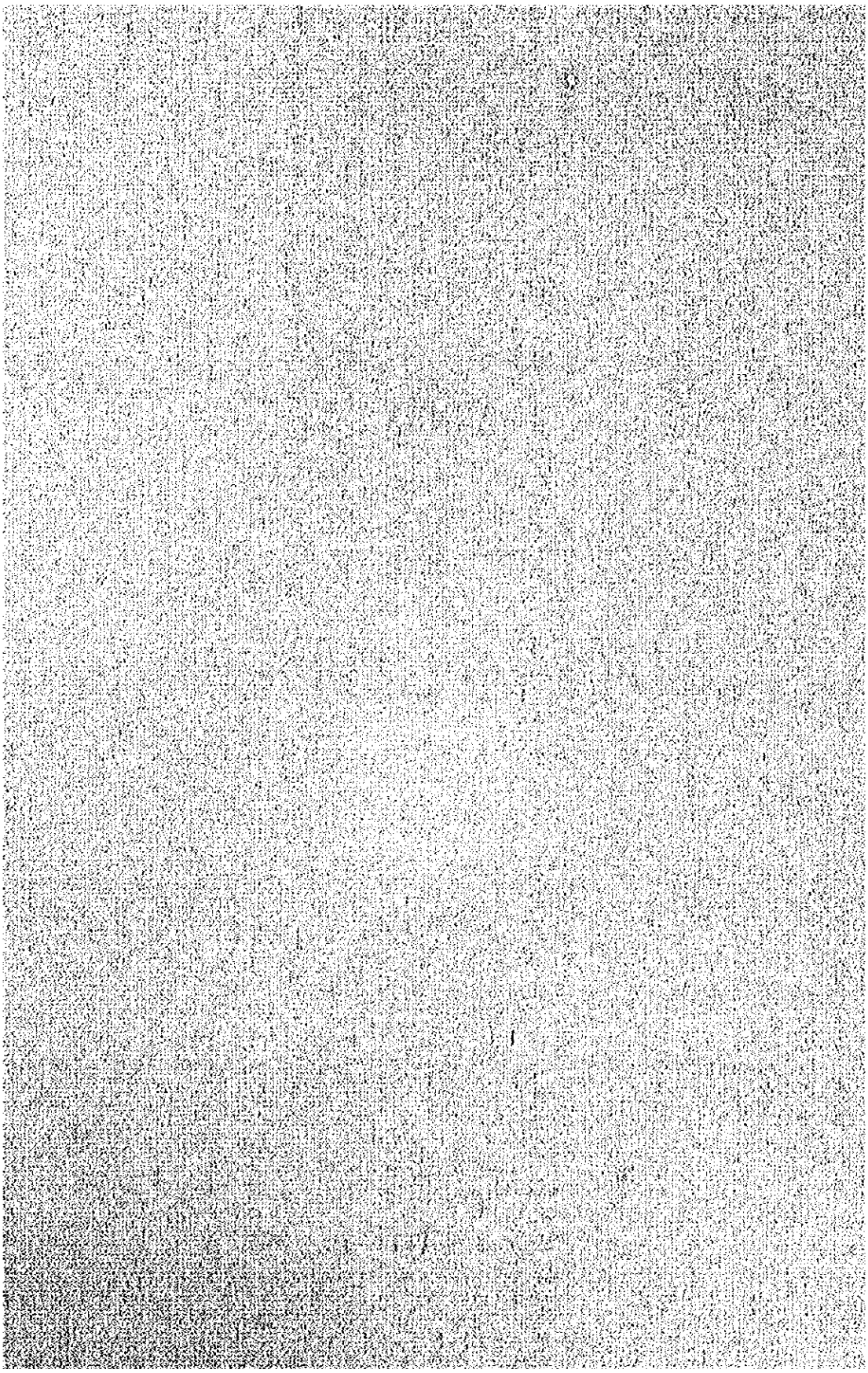
NAME OF MATERIAL		UNIT	QUANTITY	REMARKS
BOC	50 P - 7 mμF	ea	1	
	50 P - 40 mμF	"	1	
	100 P - 5 mμF	"	1	
	100 P - 19 mμF	"	1	
	150 P - 8 mμF	"	1	
	150 P - 27 mμF	"	1	
	150 P - 60 mμF	"	1	
	200 P - 6 mμF	"	1	
	200 P - 10 mμF	"	1	
	200 P - 22 mμF	"	1	
	200 P - 25 mμF	"	1	
	300 P - 6 mμF	"	1	
	300 P - 11 mμF	"	1	
	300 P - 33 mμF	"	1	
	300 P - 60 mμF	"	1	
	300 P - 66 mμF	"	1	
	300 P - 72 mμF	"	1	
	400 P - 5 mμF	"	1	
	400 P - 36 mμF	"	1	
	450 P - 41 mμF	"	1	
	450 P - 69 mμF	"	1	
	450 P - 73 mμF	"	1	
	500 P - 16 mμF	"	1	
	500 P - 33 mμF	"	1	
	550 P - 11 mμF	"	1	
	550 P - 15 mμF	"	1	
	550 P - 30 mμF	"	1	
	600 P - 5 mμF	"	2	
	600 P - 16 mμF	"	1	
	600 P - 41 mμF	"	1	
	700 - 30 mμF	"	2	
	900 - 11 mμF	"	2	
	900 - 33 mμF	"	2	
	1200 - 11 mμF	"	1	
	1200 - 33 mμF	"	1	
TOTAL			229	

NAME OF MATERIAL		UNIT	QUANTITY	REMARKS
GAS MATERIAL				
	GAS VALVE	ea	251	
	BY PASS VALVE	"	8	
	CONTACTOR	"	59	
MAIN LEAD SLEEVE				
LEAD SLEEVE	60 - 400	ea	173	
	70 - 500	"	53	
	80 - 500	"	39	
	90 - 500	"	37	
	100 - 500	"	35	
	110 - 500	"	97	
	120 - 500	"	68	
	120 - 600	"	33	
	130 - 500	"	182	
	140 - 500	"	665	
	140 - 600	"	85	
	150 - 500	"	18	
	150 - 600	"	5	
	160 - 500	"	54	
	160 - 600	"	23	
	170 - 500	"	95	
	170 - 600	"	16	
	180 - 500	"	16	
	200 - 600	"	18	
AUXILIARY LEAD SLEEVE				
	30 - 110	ea	104	
	50 - 110	"	448	
	60 - 110	"	4	
	70 - 110	"	102	
	80 - 110	"	222	
	60 - 130	"	42	
	70 - 130	"	44	

NAME OF MATERIAL	UNIT	QUANTITY	REMARKS
AUXILIARY LEAD SLEEVE			
80 - 130	ea	198	
85 - 130	"	32	
90 - 130	"	108	
95 - 130	"	87	
100 - 130	"	366	
105 - 130	"	1,513	
TOTAL	"	4,982	
PCM SYSTEM			
Terminal Equipment (with office repeater)	System	565	
Office Repeater	"	445	For Transit System
Office Repeater	"	61	For Spare System
Pole Mounted Type Repeater	"	580	
Manhole Type Repeater	"	1,176	
Aerial Repeater Housing (12 SYS)	Set	23	
Aerial Repeater Housing (36 SYS)	"	27	
Underground Repeater Housing (12 SYS)	"	3	
Underground Repeater Housing (36 SYS)	"	51	
Terminal Equipment Rack	Rack	62	
Office Repeater Equipment Rack	"	34	
Signalling Equipment Rack	"	120	

NAME OR MATERIAL	UNIT	QUANTITY	REMARKS
Impedance Matching Coil Rack	ea	29	VD
Impedance Matching Coil	"	22,610	
Negative Impedance Repeater Rack	Rack	11	NIC
Negative Impedance Repeater	ea	773	
Main Distribution Frame	Vertical	44	MDF
40 Pairs Test Jack	ea	80	
No. 256-R Terminal Block	"	51	
No. 258-R Terminal Block	"	1,269	

ANNEX



CONTENTS

1. THE SCOPE OF WORK FOR THE DETAILED DESIGN OF BANGKOK TELEPHONE NETWORK PROJECT 1977

Minutes of the Meeting on the Scope of Work
for the Detailed Design of Bangkok Telephone Network Project 1977

At the request of the Government of Thailand for a Group of experts, the Government of Japan had sent a preliminary survey teams headed by Mr. Mitsugi Iijima, Counsellor of Telecommunications, Ministry of Posts and Telecommunications, to discuss on the draft of the Scope of Work for the detailed design of Bangkok Telephone Network Project 1977.

Based on this decision, the Japan International Cooperation Agency (JICA), the official agency responsible for the implementations of government of Japan's Technical Cooperation Programmes, will carry out the study in close Cooperation with the Thailand authorities concerned.

The teams held a series of discussions and exchanged views with Thai Authorities Concerned on the Detailed Design study for Junction Network and Local Network of five exchange areas in Bangkok Metropolitan Area.

As a result of the survey and discussions both parties have reached agreement on the draft of the Scope of Work for the Detailed Design of Bangkok Telephone Network Project 1977. Minutes of the discussions and the draft of the Scope of Work are attached herewith.

Bangkok, February 21, 1977.

Mr. Surind Vanichseni
Director of The Office of
Planning and Project.
Telephone Organization of Thailand.

Mr. Mitsugi Iijima
Counsellor of the Telecommunications, Ministry of the Posts and Telecommunications.

SCOPE OF WORK

FOR

THE DETAILED DESIGN OF

BANGKOK TELEPHONE NETWORK PROJECT 1977

I. INTRODUCTION

The Government of Japan has, in response to the request of the Government of Thailand, decided to conduct a detailed design study for junction network and local network of five (5) exchange areas in Bangkok Metropolitan area, in accordance with laws and regulations in force in Japan.

Based on this decision, the Japan International Cooperation Agency (JICA), the official agency responsible for the implementation of Government of Japan's Technical Cooperation Programmes, will carry out the study in close cooperation with the Thailand authorities concerned.

The present document sets forth the Scope of Work for the Study.

II. OUTLINE OF SURVEY/STUDY

1. Junction Network

A. The following field survey with desk work will be undertaken for a period of about four (4) months by the Japanese Survey Team of about seven (7) experts.

(1) Route survey

Cable routes will be decided according to the results obtained from the investigation of the existing facilities, the study of future plans, and the comparison of several proposed routes.

1) Preliminary survey

Proposed routes will be plotted on a map taking the city plans and existing plant records into consideration.

2) General survey

General survey will be conducted at the sections where cables are to cross rivers or railways.

3) Detailed survey

Detailed survey will be made for all the newly proposed cable routes. Study of the existing cables will be made on the basis of the plant records, and if necessary, on-the-spot survey of the existing facilities will be carried out.

(2) Manhole investigation

Ducts to be used will be selected after checking cable placement and location of cable splices in the existing manholes.

(3) Survey of MDF and cable vault

Location of riser cables to MDF and way of cables placement in cable vaults will be investigated.

B. The last stage of the detailed design work, as indicated below, will be undertaken by the Survey Teams in Japan.

(1) Key Map

(2) Duct Scheme Plan

(3) General Junction Cable Plan

(4) Layout Plan for Junction Equipment

(5) Junction Cable Terminating Plan at MDF

(6) Layout Plan for Loading Spacing

(7) Jointing Diagram

(8) Junction Cable Construction Detail

(9) Manhole Racking Diagram

(10) Gas Pressurization System

(11) Line Assignment for Junction Network

(12) Computed Transmission Performance and Line Resistance

2. Local Network

A. The following field survey with desk work in the five (5) exchange areas i.e. (Sukhumvit, Phakhanong, Intamara, Klongchan, Ngamwongwan) will be undertaken for a period of about six (6) months by the Survey Team of about eleven (11) experts.

(1) Demand field survey

Subscriber forecasts at the micro-level will be conducted to design the cable distribution network, the final segment of which requires street-by-street forecasts.

(2) Detailed survey

Detailed survey will be made of all the newly proposed duct and cable route.

Study of the existing conduits and cables will be made on the basis of the plant records.

If necessary, on-the-spot survey of the existing facilities will be carried out.

(3) Manhole investigation

Same as II. 1. A. (2).

(4) Selection of new routes

Cable routes will be decided according to the results obtained from investigation of the existing facilities, the study of a future plan, and the comparison of several proposed routes.

(5) Dividing of cabinet area

Dividing of cabinet areas will be carried out according to the cable routes and the results of the demand survey, and then the location of cabinet boxes will be decided.

(6) Survey of MDF and cable vault

Same as II. A. (3).

(7) Field measurement

Field measurement will be conducted on all proposed cable routes and some existing cable routes. Levels and cross-sections of roads will be measured to determine the locations of the new conduits routes.

B. The last stage of the detailed design work, as indicated below, will be undertaken by the Survey Teams in Japan.

Cable Work:

(1) Key Plan

(2) Transmission Sheet Resistance Design Method

(3) Primary Cable Plan

(4) Secondary Cable Plan

(5) MDF and Cable Vault Plan

(6) Gas Pressurization Plan

(7) Duct Scheme Plan

(8) Manhole Racking Diagram

(9) Cabinet Jointing Plan

Civil Work:

(1) Guided Map

(2) Conduit Plan

(3) Plane

(4) Cross Section

(5) Manhole Diagram

(6) Special Design (if necessary)

III. REPORT

The following documents will be prepared in English and submitted to the Government of Thailand within about four (4) months after completing the field survey for the Junction Network and the Local Networks respectively.

(1)	Design Report	20 copies
(2)	Drawings	20 copies (plus 1 set of the original Tracings)
(3)	Amount of work	20 copies (in Assembly Unit)
(4)	List of Main Materials	20 copies

IV. COLLABORATION OF THE GOVERNMENT OF THAILAND

1. The Government will exempt the Survey Teams from taxes and duties for machinery, equipment and materials to be brought into Thailand by the Teams as the Government normally extends to the Colombo Plan experts.

2. The Government will exempt the members of the Teams from income tax and charges of any kind imposed on or in connection with the living allowances remitted from abroad and will exempt the members from import and export duties imposed on the members' personal effects.

3. The Government will prepare necessary permits for the implementation of the outdoor work.

4. The Government will assign counterpart personnels to the Teams during the survey period and will arrange necessary number of labourers (employment cost of labourers will be borne by the Teams).

5. The Government will provide the Teams with the relevant data, information and materials necessary for the Survey shown in Annex-I. The Government will also make arrangements for the Teams to take these data and materials back to Japan for the preparation of report.

Annex-1

Documents to be supplied by T.O.T.

For Junction Network

1) Planning of office establishment programme
2) Office ranks
3) Routing plan
4) Number of trunk lines
   (at the time of service-in, five years and ten years after service-in)
5) Transmission loss distribution plan
6) Existing leased circuit
7) Maps of greater Bangkok
8) Long-term plan of conduit lines
9) Agreement on joint use between T.O.T. and MEA
10) Construction and installation practice of T.O.T.
11) City planning in greater Bangkok
12) Plant records of existing facilities concerned
13) Data and records belonged to the other authorities

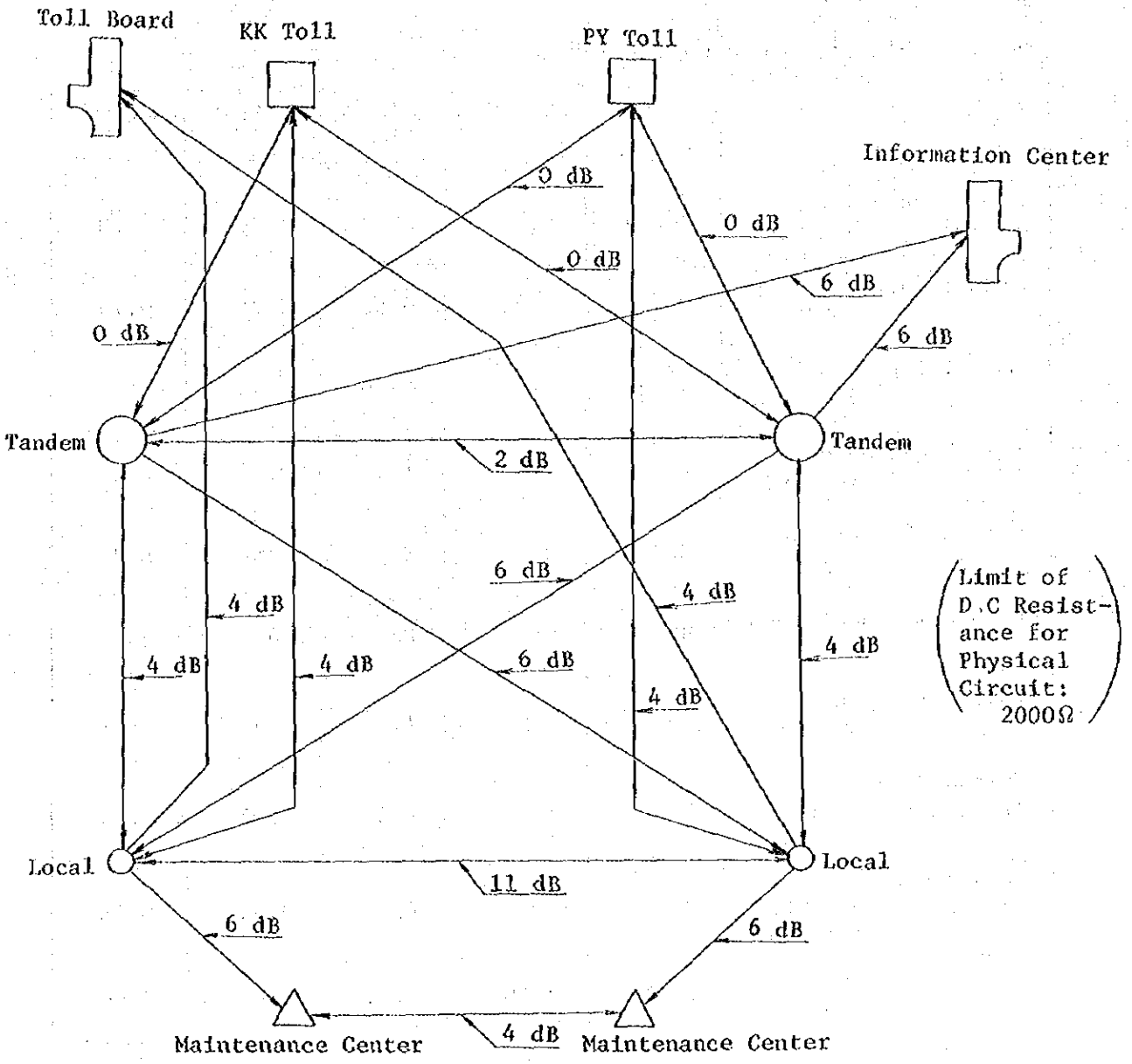
For Local Network

1) The bounderies of each ex. area
2) The forecast number of subscribers on each ex.
3) Layout of the proposed ex. office
4) List of waiting subscription and distribution map
5) Standard method of local network design

NOTE: T.O.T. is required to submit the above-mentioned documents for Junction Network by the beginning of March, and those for Local Network by the middle of May.

2. ENGINEERING STANDARDS CONCERNING THE DESIGN OF JUNCTION NETWORK

2-1. General Transmission Standard (at 1KHz)



Direct Junction Circuit	11 dB
Local-Tandem Junction Circuit	4 dB or 6 dB
Inter-Tandem Junction Circuit	2 dB
Trunk Circuit	0 dB (Note)
Trunk Junction Circuit (STD & OTD)	4 dB
Circuit between Local Exchanges and Maintenance Center	6 dB
Circuit between Maintenance Centers	4 dB
Circuit between TDM Exchanges and Information Center	6 dB

(Note Excluding HYB loss 3.5 dB)

2-2 Cable Characteristics

2-2-1 Table of Cable Characteristics

	ASP CABLE			PEF-P CABLE	
	0.5 mm	0.65 mm	0.9 mm	0.65 mm	0.9 mm
Line Loop Resistance at 30°C (Ω/km)	187.5	118.7	59.3	118.7	59.3
Mutual Inductance (mH/km)	0.58	0.58	0.58	0.75	0.75
Muturl Capacitance (mμF/km)	52.0	52.0	52.0	38.5	38.5
Leak Resistance (μΩ/km)	1.5	1.5	1.5	0.2	0.2
Load Coil Resistance (Ω)	8.9	8.9	8.9	8.9	8.9
Load Coil Inductance (mH)	88	88	88	88	88
Load Coil Spacing (km)	1.83	1.83	1.83	2.47	2.47
Unloaded Cable Attenuation at 1 kHz (dB/km)	1.52	1.21	0.85	1.04	0.74
Loaded Cable Attenuation at 1 kHz (dB/km)	0.85	0.55	0.29	0.55	0.28
Cut-off Frequency (kHz)	3.46	3.46	3.46	3.44	3.44

2-2-2 DC Line Resistance at 30°C

The average temperature in Bangkok is approximately 29°C throughout the year, so that, by using the following formula, DC line resistance at 30°C was calculated;

$$Rt = R_{20}\{1 + \alpha(t - 20)\}$$

where Rt = Line resistance at t°C ($t = 30°C$)

R_{20} = Line resistance at 20°C

0.5 mm cable	$R_{20} = 180.4\ \Omega/km$
0.65mm cable	$R_{20} = 114.2\ \Omega/km$
0.9 mm cable	$R_{20} = 57.0\ \Omega/km$

α = Temperature coefficient of copper (0.00393)

2-2-3 Calculation of Image Attenuation

(1) Unloaded cable

Image attenuation of unloaded cable is calculated by use of following formula;

$$\alpha = \left(\frac{W \cdot Ro \cdot Co}{2}\right)^{\frac{1}{2}} \quad (N_p)$$

where α = Image attenuation in N_p

$W = 2\pi f$ ($f = 1$ kHz)

Ro = Line resistance in Ω/km

Co = Mutual capacitance in nF/km

(2) Loaded cable

Image attenuation of loaded cable is calculated by use of following formula;

$$\alpha = \frac{1}{So}\left\{\left[\frac{So \cdot Ro}{2}\left(1 - \frac{2}{3}\left(\frac{W}{Wo}\right)^2\right) + \frac{Rp}{2}\right] \times \left(\frac{So \cdot Co}{So \cdot Lo + Lp}\right)^{\frac{1}{2}} + \frac{So \cdot Go}{2}\left(\frac{So \cdot Lo + Lp}{So \cdot Co}\right)^{\frac{1}{2}}\right\} \times \left\{1 - \left(\frac{W}{Wo}\right)^2\right\}^{-\frac{1}{2}} \quad (Np)$$

where α = Image attenuation in Np

$Wo = 2\{So \cdot Co(So \cdot Lo + Lp)\}^{\frac{1}{2}}$

Ro = Line resistance in Ω/km

Co = Mutual capacitance in nF/km

Lo = Mutual inductance in mH/km

Lp = Load coil inductance in mH

Rp = Load coil resistance in Ω

So = Load coil spacing in km

Go = Leak resistance in μ℧/km

2-3 Characteristics of Junction Equipment

2-3-1 Impedance Matching Coil

(1) Transmission frequency band

0.3 ∿ 3.4 kHz

(2) Impedance ratio

600 Ω : 1,000 Ω

(3) Transmission loss

0.3 kHz - less than 0.8 dB
0.8 kHz - less than 0.3 dB
1.5 kHz - less than 0.25 dB
3.4 kHz - less than 0.25 dB

(4) D.C. resistance

Less than 15 Ω at 20°C

2-3-2 Negative Impedance Repeater

(1) Gain

0.5 dB ∿ 6.0 dB at 800 Hz

(2) D.C. resistance

Less than 60 Ω at 20°C

2-3-3 Building Out Capacitor

(1) Capacitance

Nominal value ± 3% at 100 Hz

2-3-4 Loading Coil

(1) Inductance

88 mH ± 1.5% at 800 Hz, 1 mA

(2) D.C. resistance

Less than 8.9 Ω at 30°C

2-3-5 Impedance Compensating Equipment

(1) Coil inductance

44 mH ± 2% at 800 Hz, 1 mA

(2) D.C. Resistance

Less than 9.4 Ω at 30°C

2-4 PCM System

2-4-1 Determination of Repeater Spacing

The maximum design line loss in a repeater section should be limited to 42 dB.

Therefore, the following formula will be gained:

$(1 + \alpha \cdot \Delta t)(1 + 3 \cdot \sigma)\ Lod \leq 42$ dB

where α : Temperature co-efficient of cable loss (0.2%/1°C)

Δt : Range of cable temperature change (20°C for underground, 60°C for aerial)

σ : Standard deviation of cable loss (3%)

Lo : Cable loss/km at 772 kHz, 15°C

0.65	(Toll PEF)	12.5 dB
0.65	(Paper)	19.3 dB
0.9	(Toll REF)	9.2 dB
0.9	(Paper)	13.2 dB

d : Actual repeater spacing

Lod : Line loss per repeater section

The protected repeater units are used with aerial and buried cables as well as underground cable which is not accommodated in mettalic duct, so that 1.8 dB of arrester circuits provided in repeater units should be taken into account.

Calculation of Lod;

Lod for underground cable is obtained as follows:

$$Lod = (42 - 1.8) / (1 + 0.002 \times 20)\ (1 + 3 \times 0.03)$$
$$= 35.4 \text{ dB}$$

Lod for aerial cable is:

$$Lod = (42 - 1.8) / (1 + 0.002 \times 60)\ (1 + 3 \times 0.03)$$
$$= 32.9 \text{ dB}$$

Repeater spacing at the end section is restricted by the office noise. As the error rate assigned to end section is 2×10^{-7}, the additional loss becomes to be 10.2 dB, including arrester loss.

Hence, Lod is:

$$42.0 / (1 + 0.002 \times 20)\ (1 + 3 \times 0.03) - 10.2 = 26.8 \text{ dB}$$

which is adopted not only for underground cable and also for aerial cable since the effect due to the cable temperature change is taken into consideration in 10.2 dB.

Maximum Repeater Spacing

	Underground	Aerial	End section
0.65 mm (ASP)	1.83 km	1.70 km	1.38 km
0.65 mm (Toll PEF)	2.83 km	2.63 km	2.14 km
0.9 mm (ASP)	2.68 km	2.49 km	2.03 km
0.9 mm (Toll PEF)	3.84 km	3.57 km	2.91 km

2-4-2 Restriction of Repeater Spacing Due to Near End Crosstalk Attenuation (NEXT)

Equivalent NEXT frequency is to be 640 kHz in 24 ch PCM system, and NEXT attenuation VS frequency is at the gradient rate of 4.5 dB/Oct.

Hence, for underground cable,

$$M_n + 1.2 - \{(1 + \alpha \cdot \Delta t)\ (1 + 3 \cdot \sigma)\ Lod + (10 \log n + 2.5) + 2.33\ \acute{\sigma} + 28.1\} > 0$$

and for aerial cable,

$$M_n + 1.2 - \{(1 + \alpha \cdot \Delta t)\ (1 + 3 \cdot \sigma)\ Lod + (10 \log n + 2.5) + 2.33\ \acute{\sigma} + 30.0\} > 0$$

where, M_n : NEXT attenuation (mean value) at 772 kHz

α : Temperature co-efficient of cable loss (0.002)

Δt : Range of cable temperature change (20°C for underground cable, and 60°C for aerial cable)

σ : Pair to pair loss deviation (0.03)

Lod : Line loss (at 772 KHz) per repeater section

n : No. of PCM systems

$\acute{\sigma}$: Standard deviation of crosstalk characteristic (2.9 dB)

Therefore, restriction by NEXT effect in one cable operation is as follows:

for underground cable

$$dmax = (M_n - 10 \log n - 36.2) / 1.14\ Lo$$

and for aerial cable

$$dmax = (M_n - 10 \log n - 38.1) / 1.23\ Lo$$

Where : dmax : Maximum repeater spacing

2-4-3 Power Feeding

Since the power supply unit at the office has the automatic current regulator (ACR), the out-put current (I) is constant with accuracy of ± 20%, regardless of the load. The range of the voltage drop which occurs across the ACR in power supply unit is to be up to 235 V.

Therefore, the following formula is obtained:

$$\{Rt\ (1 + \alpha\ \Delta t) + 2n\ Ra\}\ Io\ (1 + \beta) + nV = 235$$

where, Rt : Total of D.C. resistance at 15°C.
(0.9 mm - 26.9 Ω/km, 0.65 mm - 51.4 Ω/km)

α : Temperature co-efficient of cable resistance (0.004)

Δt : Range of cable temperature change (20°C for underground, 60°C for aerial)

Ra : D.C. resistance of arrester circuit (6 Ω)

Io : Power feeding current (100 mA)

β : Current variation (20%)

n : No. of repeaters

V : Repeater voltage drop (11.2 V per repeater)

Hence, maximum No. of repeaters which can be fed the power from one power supply unit is obtained as follows:

For underground cable,

$$N(max) = 18.59 - 1.03\ Rt \times 10^{-2}$$

and for aerial cable,

$$N(max) = 18.59 - 1.18\ Rt \times 10^{-2}$$

ANNEXED SHEETS

A - 1	JUNCTION MATRIX
A - 2	JUNCTION CIRCUIT TABLE
B - 1	ROUTE MAP
B - 2	CIRCUIT ASSEMBLY LIST
B - 3	JUNCTION CIRCUIT IN SECTION
B - 4	DETERMINING DATA OF CABLE PAIRS
B - 5	PROPOSED-CABLE PLAN IN SECTION
C	LAYOUT PLAN FOR LOADING SPACING

ANNEX A - I

JUNCTION MATRIX METROPOLITAN AREA

PROJECT 1977 - 1984

ANNEX A - 2

JUNCTION CIRCUIT TABLE

PAGE

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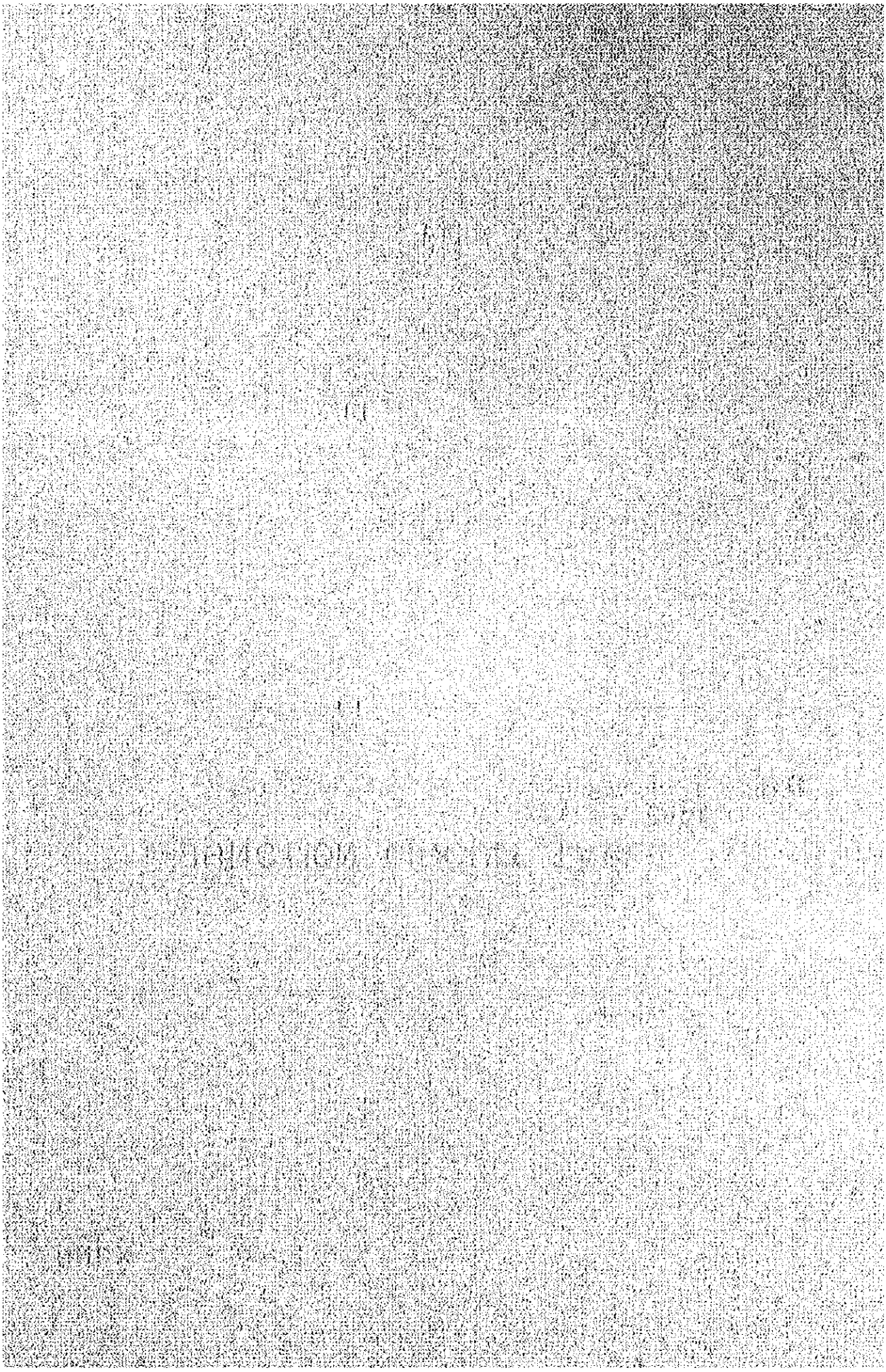

KK EX. (LOO) T 1 No. 1

DESTINATION		O/G			I/C			NOTE
TDM.	OFFICE	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	
1	SR	224	11	2000	208	11	2000	
〃	BP	42	〃	〃	40	〃	〃	
〃	PW	150	〃	〃	146	〃	〃	
〃	SS	30	〃	〃	36	〃	〃	
2	PY	52	〃	〃	48	〃	〃	
〃	BS	26	〃	〃	26	〃	〃	
〃	IM	18	〃	〃	20	〃	〃	
〃	LP1	18	〃	〃	12	〃	〃	
〃	LP2	16	〃	〃	16	〃	〃	
3	PL	110	〃	〃	100	〃	〃	
〃	MM	20	〃	〃	14	〃	〃	
〃	ASD	40	〃	〃	22	〃	〃	
〃	SV	26	〃	〃	20	〃	〃	
〃	KT	18	〃	〃	16	〃	〃	
4	NW	22	〃	〃	18	〃	〃	
〃	DM	16	〃	〃	18	〃	〃	
〃	BK	22	〃	〃	24	〃	〃	
〃	RID	14	〃	〃	16	〃	〃	
5	TH	44	〃	〃	44	〃	〃	
〃	PD	18	〃	〃	20	〃	〃	
〃	BC	16	〃	〃	14	〃	〃	
〃	DK	18	〃	〃	14	〃	〃	
〃	CN	26	〃	〃	22	〃	〃	
6	PN	12	〃	〃	—			
〃	OP	44	〃	〃	56	11	2000	
〃	BN	12	〃	〃	14	〃	〃	
〃	KC	16	〃	〃	18	〃	〃	
〃	PS	12	〃	〃	16	〃	〃	
〃	HM	20	〃	〃	22	〃	〃	
7	SW	144	〃	〃	144	〃	〃	
〃	TC	34	〃	〃	20	〃	〃	
2	PY	—			42	6	2000	TDM
3	PL	—			46	〃	〃	〃
4	LS	—			46	〃	〃	〃
5	TH	—			64	〃	〃	〃
6	PN	—			72	〃	〃	〃
7	SW	—			50	〃	〃	〃
2	PY	32	4	2000	44	4	2000	TOLL

NO. 1

KK EX, (TDM) T 1 No 2

DESTINATION		O/G			I/C			NOTE
TDM.	OFFICE	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	
1	SR	144	4	2000	632	4	2000	
〃	BP	45	〃	〃	172	〃	〃	
〃	PW	72	〃	〃	301	〃	〃	
〃	SS	42	〃	〃	173	〃	〃	
2	PY	30	6	〃	—			
〃	BS	15	〃	〃	—			
〃	IM	39	〃	〃	—			
〃	LP1	16	〃	〃	—			
〃	LP2	17	〃	〃	—			
〃	NN	44	〃	〃	—			
3	PL	30	〃	〃	—			
〃	MM	7	〃	〃	—			
〃	ASD	20	〃	〃	—			
〃	SV	10	〃	〃	—			
〃	KT	21	〃	〃	—			
4	LS	42	〃	〃	—			
〃	NW	61	〃	〃	—			
〃	DM	28	〃	〃	—			
〃	BK	18	〃	〃	—			
〃	RS	12	〃	〃	—			
〃	PK	14	〃	〃	—			
〃	RID	25	〃	〃	—			
〃	CW	28	〃	〃	—			
〃	TY	7	〃	〃	—			
〃	NWN	18	〃	〃	—			
〃	PT	16	〃	〃	—			
〃	BSN	22	〃	〃	—			
〃	NC	8	〃	〃	—			
5	TH	22	〃	〃	—			
〃	PD	17	〃	〃	—			
〃	BC	14	〃	〃	—			
〃	DK	12	〃	〃	—			
〃	NK	17	〃	〃	—			
〃	PC	47	〃	〃	—			
〃	MK	17	〃	〃	—			
〃	ON	11	〃	〃	—			
〃	RB	40	〃	〃	—			
〃	EC	38	〃	〃	—			
〃	PP	8	〃	〃	—			
6	PN	19	〃	〃	—			
〃	OP	36	〃	〃	—			
〃	BN	49	〃	〃	—			
〃	KC	56	〃	〃	—			
〃	PS	27	〃	〃	—			
〃	SPK	49	〃	〃	—			

NO.2

KK EX. (TOLL) (TDM) T 1 No 3

DESTINATION		O/G			I/C			NOTE
TDM.	OFFICE	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	
6	PV	6	6	2000	—			
〃	ON	39	〃	〃	—			
〃	HM	18	〃	〃	—			
〃	LB	12	〃	〃	—			
〃	BPO	8	〃	〃	—			
7	SW	54	〃	〃	—			
〃	SP	39	〃	〃	—			
〃	TC	24	〃	〃	—			
〃	TK	32	〃	〃	—			
7	SW	57	6	2000	—			INF
2	PY	36	2	2000	33	2	2000	TDM
3	PL	46	〃	〃	32	〃	〃	〃
4	LS	60	〃	〃	57	〃	〃	〃
5	TH	50	〃	〃	34	〃	〃	〃
6	PN	77	〃	〃	66	〃	〃	〃
7	SW	39	〃	〃	32	〃	〃	〃
1	SR	124	4	2000	96	4	2000	TOLL
〃	PW	42	〃	〃	31	〃	〃	〃
〃	SS	19	〃	〃	14	〃	〃	〃
2	PY	38	〃	〃	28	〃	〃	〃
〃	IM	19	〃	〃	14	〃	〃	〃
3	PL	83	〃	〃	64	〃	〃	〃
〃	MM	19	〃	〃	14	〃	〃	〃
〃	ASD	31	〃	〃	23	〃	〃	〃
〃	SV	20	〃	〃	15	〃	〃	〃
〃	KT	19	〃	〃	14	〃	〃	〃
7	SW	114	〃	〃	85	〃	〃	〃
〃	SP	12	〃	〃	9	〃	〃	〃
〃	TO	31	〃	〃	23	〃	〃	〃
〃	TK	12	〃	〃	9	〃	〃	〃
4	LS	105	0	2000	88	0	2000	TOLL
5	TH	95	〃	〃	85	〃	〃	〃
6	PN	99	〃	〃	73	〃	〃	〃
1	SR	—			36	4	2000	OTD
〃	BP	—			7	〃	〃	〃
〃	PW	—			14	〃	〃	〃
〃	SS	—			6	〃	〃	〃
2	PY	—			12	〃	〃	〃
〃	BS	—			7	〃	〃	〃
〃	IM	—			6	〃	〃	〃

NO.3

KK EX. (TOLL) T1

No. 4

DESTINATION		O/G			I/C			NOTE
TDM.	OFFICE	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	
2	LP1	—			6	4	2000	OTD
〃	LP2	—			6	〃	〃	〃
〃	NN	—			5	〃	〃	〃
3	PL	—			25	〃	〃	〃
〃	MM	—			6	〃	〃	〃
〃	ASD	—			11	〃	〃	〃
〃	SV	—			7	〃	〃	〃
〃	KT	—			6	〃	〃	〃
4	LS	—			5	〃	〃	〃
〃	NW	—			11	〃	〃	〃
〃	DM	—			5	〃	〃	〃
〃	BK	—			6	〃	〃	〃
〃	RS	—			3	〃	〃	〃
〃	PK	—			3	〃	〃	〃
〃	RID	—			6	〃	〃	〃
〃	BT	—			2	〃	〃	〃
〃	CW	—			5	〃	〃	〃
〃	TY	—			2	〃	〃	〃
〃	NWN	—			3	〃	〃	〃
〃	PT	—			3	〃	〃	〃
〃	BSN	—			4	〃	〃	〃
〃	NC	—			2	〃	〃	〃
5	TH	—			12	〃	〃	〃
〃	PD	—			6	〃	〃	〃
〃	BC	—			6	〃	〃	〃
〃	DK	—			6	〃	〃	〃
〃	NK	—			3	〃	〃	〃
〃	PC	—			5	〃	〃	〃
〃	MK	—			3	〃	〃	〃
〃	CN	—			6	〃	〃	〃
〃	RB	—			4	〃	〃	〃
〃	EC	—			4	〃	〃	〃
〃	PP	—			2	〃	〃	〃
6	PN	—			6	〃	〃	〃
〃	CP	—			12	〃	〃	〃
〃	BN	—			11	〃	〃	〃
〃	KC	—			11	〃	〃	〃
〃	PS	—			5	〃	〃	〃
〃	SPK	—			5	〃	〃	〃
〃	PV	—			2	〃	〃	〃
〃	ON	—			5	〃	〃	〃
〃	HM	—			7	〃	〃	〃
〃	LB	—			2	〃	〃	〃
〃	BPL	—			2	〃	〃	〃
〃	BPO	—			2	〃	〃	〃

NO.4

KK EX. (TOLL) T 1 No. 5

DESTINATION		O/G			I/C			NOTE
TDM.	OFFICE	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	
7	SW	—			34	4	2000	OTD
〃	SP	—			5	〃	〃	〃
〃	TC	—			11	〃	〃	〃
〃	TK	—			5	〃	〃	〃

NO.5

KK EX. (MC) T 1 No. 6

DESTINATION		O/G			I/C			NOTE
TDM.	OFFICE	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	
1	SR	—			20	6	2000	"17"
〃	PW	—			10	〃	〃	〃
〃	SS	—			5	〃	〃	〃
3	PL	—			14	〃	〃	〃
7	SW	—			19	〃	〃	〃
6	PN	7	4	2000	8	4	2000	MC—MC
5	TH	7	〃	〃	6	〃	〃	〃
4	LS	7	〃	〃	7	〃	〃	〃

NO. 6

SR EX. T 1 No 1

DESTINATION		O/G			I/C			NOTE
TDM.	OFFICE	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	
1	KK	208	11	2000	224	11	2000	
〃	BP	76	〃	〃	76	〃	〃	
〃	PW	244	〃	〃	240	〃	〃	
〃	SS	56	〃	〃	56	〃	〃	
2	PY	160	〃	〃	88	〃	〃	
〃	BS	40	〃	〃	40	〃	〃	
〃	LP1	32	〃	〃	28	〃	〃	
〃	LP2	32	〃	〃	32	〃	〃	
3	PL	208	〃	〃	188	〃	〃	
〃	MM	60	〃	〃	48	〃	〃	
〃	ASD	80	〃	〃	72	〃	〃	
〃	SV	44	〃	〃	32	〃	〃	
〃	KT	48	〃	〃	44	〃	〃	
4	NW	32	〃	〃	36	〃	〃	
〃	DM	28	〃	〃	28	〃	〃	
〃	BK	28	〃	〃	36	〃	〃	
〃	RID	24	〃	〃	28	〃	〃	
5	TH	112	〃	〃	104	〃	〃	
〃	PD	56	〃	〃	52	〃	〃	
〃	BC	60	〃	〃	32	〃	〃	
〃	DK	56	〃	〃	48	〃	〃	
〃	CN	60	〃	〃	48	〃	〃	
6	PN	24	〃	〃	—			
〃	CP	96	〃	〃	112	11	2000	
〃	BN	24	〃	〃	—			
〃	KO	24	〃	〃	32	11	2000	
〃	PS	24	〃	〃	28	〃	〃	
〃	HM	40	〃	〃	40	〃	〃	
7	SW	376	〃	〃	344	〃	〃	
〃	TC	72	〃	〃	40	〃	〃	
1	KK	632	4	2000	144	4	2000	TDM
2	PY	—			84	6	〃	〃
3	PL	—			60	〃	〃	〃
4	LS	—			88	〃	〃	〃
5	TH	—			140	〃	〃	〃
6	PN	—			164	〃	〃	〃
7	SW	—			108	〃	〃	〃
1	KK	96	4	2000	124	4	2000	TOLL
2	PY	112	〃	〃	144	〃	〃	〃
1	KK	36	〃	〃	—			OTD
1	KK	20	6	2000	—			MC

NO. 7

BP EX. T 1 No. 1

DESTINATION		O/G			I/C			NOTE
TDM.	OFFICE	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	
1	KK	40	11	2000	42	11	2000	
〃	SR	76	〃	〃	76	〃	〃	
〃	PW	32	〃	〃	32	〃	〃	
〃	SS	28	〃	〃	28	〃	〃	
2	PY	26	〃	〃	22	〃	〃	
〃	BS	14	〃	〃	14	〃	〃	
〃	LP1	8	〃	〃	6	〃	〃	
〃	LP2	7	〃	〃	6	〃	〃	
3	PL	36	〃	〃	36	〃	〃	
〃	MM	9	〃	〃	7	〃	〃	
〃	ASD	9	〃	〃	9	〃	〃	
〃	SV	7	〃	〃	6	〃	〃	
〃	KT	9	〃	〃	9	〃	〃	
4	NW	7	〃	〃	7	〃	〃	
〃	BK	8	〃	〃	7	〃	〃	
〃	RID	6	〃	〃	7	〃	〃	
5	TH	20	〃	〃	18	〃	〃	
〃	PD	7	〃	〃	7	〃	〃	
〃	BC	8	〃	〃	8	〃	〃	
〃	DK	7	〃	〃	7	〃	〃	
〃	CN	13	〃	〃	13	〃	〃	
6	CP	16	〃	〃	14	〃	〃	
〃	KC	6	〃	〃	6	〃	〃	
〃	PS	—			6	〃	〃	
〃	HM	7	11	2000	7	〃	〃	
7	SW	43	〃	〃	40	〃	〃	
〃	TC	6	〃	〃	6	〃	〃	
1	KK	172	4	2000	45	4	2000	TDM
2	PY	—			23	6	〃	〃
3	PL	—			16	〃	〃	〃
4	LS	—			23	〃	〃	〃
5	TH	—			24	〃	〃	〃
6	PN	—			36	〃	〃	〃
7	SW	—			20	〃	〃	〃
5	TH	27	4	2000	36	4	2000	TOLL
1	KK	7	〃	〃	—			OTD
5	TH	5	6	2000	—			MC

NO. 8

PW EX. T 1 No 1

DESTINATION		O/G			I/C			NOTE
TDM.	OFFICE	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	
1	KK	146	11	2000	150	11	2000	
〃	SR	240	〃	〃	244	〃	〃	
〃	BP	32	〃	〃	32	〃	〃	
〃	SS	38	〃	〃	38	〃	〃	
2	PY	66	〃	〃	54	〃	〃	
〃	BS	23	〃	〃	19	〃	〃	
〃	IM	19	〃	〃	17	〃	〃	
〃	LP1	21	〃	〃	17	〃	〃	
〃	LP2	19	〃	〃	17	〃	〃	
3	PL	177	〃	〃	160	〃	〃	
〃	MM	36	〃	〃	27	〃	〃	
〃	ASD	56	〃	〃	43	〃	〃	
〃	SV	33	〃	〃	27	〃	〃	
〃	KT	32	〃	〃	28	〃	〃	
4	LS	6	〃	〃	—			
〃	NW	13	〃	〃	15	11	2000	
〃	BK	17	〃	〃	17	〃	〃	
5	TH	62	〃	〃	50	〃	〃	
〃	PD	21	〃	〃	19	〃	〃	
〃	BC	20	〃	〃	15	〃	〃	
〃	DK	25	〃	〃	21	〃	〃	
〃	CN	21	〃	〃	13	〃	〃	
6	PN	17	〃	〃	13	〃	〃	
〃	CP	58	〃	〃	54	〃	〃	
〃	BN	17	〃	〃	14	〃	〃	
〃	KC	15	〃	〃	16	〃	〃	
〃	PS	15	〃	〃	16	〃	〃	
〃	HM	23	〃	〃	21	〃	〃	
7	SW	195	〃	〃	173	〃	〃	
〃	TC	38	〃	〃	21	〃	〃	
〃	TK	12	〃	〃	—			
1	KK	301	4	2000	72	4	2000	TDM
2	PY	—			44	6	〃	〃
3	PL	—			46	〃	〃	〃
4	LS	—			55	〃	〃	〃
5	TH	—			72	〃	〃	〃
6	PN	—			68	〃	〃	〃
7	SW	—			60	〃	〃	〃
1	KK	31	4	2000	42	4	2000	TOLL
2	PY	37	〃	〃	48	〃	〃	〃
1	KK	14	4	2000	—			OTD

NO. 9

PW EX. T 1 16 2

DESTINATION		O/G			I/C			NOTE
TDM.	OFFICE	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	
1	KK	10	6	2000	--			MO

NO.10

SS EX. T 1 No. 1

DESTINATION		O/G			I/C			NOTE
TDM.	OFFICE	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	
1	KK	36	11	2000	30	11	2000	
〃	SB	56	〃	〃	56	〃	〃	
〃	BP	28	〃	〃	28	〃	〃	
〃	PW	38	〃	〃	38	〃	〃	
2	PY	32	〃	〃	30	〃	〃	
〃	BS	18	〃	〃	19	〃	〃	
〃	IM	9	〃	〃	8	〃	〃	
〃	LP1	8	〃	〃	—			
〃	LP2	7	〃	〃	6	11	2000	
3	PL	31	〃	〃	28	〃	〃	
〃	ASD	9	〃	〃	8	〃	〃	
〃	SV	9	〃	〃	7	〃	〃	
4	NW	21	〃	〃	21	〃	〃	
〃	DM	11	〃	〃	12	〃	〃	
〃	BK	12	〃	〃	13	〃	〃	
〃	RID	6	〃	〃	6	〃	〃	
5	TH	16	〃	〃	16	〃	〃	
〃	PD	6	〃	〃	7	〃	〃	
〃	DK	6	〃	〃	6	〃	〃	
〃	CN	12	〃	〃	11	〃	〃	
6	CP	12	〃	〃	12	〃	〃	
〃	BN	6	〃	〃	6	〃	〃	
〃	KC	7	〃	〃	11	〃	〃	
〃	PS	—			6	〃	〃	
〃	HM	8	11	2000	8	〃	〃	
7	SW	36	〃	〃	27	〃	〃	
〃	TC	6	〃	〃	—			
1	KK	173	4	2000	42	4	2000	TDM
2	PY	—			27	6	〃	〃
3	PL	—			27	〃	〃	〃
4	LS	—			20	〃	〃	〃
5	TH	—			27	〃	〃	〃
6	PN	—			36	〃	〃	〃
7	SW	—			28	〃	〃	〃
1	KK	14	4	2000	19	4	2000	TOLL
2	PY	16	〃	〃	22	〃	〃	〃
1	KK	6	4	2000	—			OTD
1	KK	5	6	2000	—			MC

NO.11

PY EX. (LOC) T 2

/16 1

DESTINATION		O/G			I/C			NOTE
TDM.	OFFICE	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	
1	KK	48	11	2000	52	11	2000	
〃	SR	88	〃	〃	160	〃	〃	
〃	BP	22	〃	〃	26	〃	〃	
〃	PW	54	〃	〃	66	〃	〃	
〃	SS	30	〃	〃	32	〃	〃	
2	BS	34	〃	〃	36	〃	〃	
〃	IM	24	〃	〃	24	〃	〃	
〃	LP1	24	〃	〃	26	〃	〃	
〃	LP2	16	〃	〃	18	〃	〃	
3	PL	56	〃	〃	52	〃	〃	
〃	MM	14	〃	〃	12	〃	〃	
〃	ASD	36	〃	〃	46	〃	〃	
〃	SV	18	〃	〃	16	〃	〃	
〃	KT	—			14	〃	〃	
4	NW	16	11	2000	40	〃	〃	
〃	DM	24	〃	〃	32	〃	〃	
〃	BK	38	〃	〃	44	〃	〃	
〃	RID	—			16	〃	〃	
5	TH	28	11	2000	26	〃	〃	
〃	PD	—			16	〃	〃	
〃	BC	—			12	〃	〃	
〃	DK	—			12	〃	〃	
〃	CN	—			12	〃	〃	
6	CP	24	11	2000	32	〃	〃	
〃	BN	—			14	〃	〃	
〃	KC	12	11	2000	34	〃	〃	
〃	PS	—			12	〃	〃	
〃	HM	14	11	2000	18	〃	〃	
7	SW	78	11	2000	72	〃	〃	
〃	TC	—			12	〃	〃	
1	KK	—			30	6	2000	TDM
3	PL	—			28	〃	〃	〃
4	LS	—			36	〃	〃	〃
5	TH	—			56	〃	〃	〃
6	PN	—			60	〃	〃	〃
7	SW	—			36	〃	〃	〃
1	KK	28	4	2000	38	4	2000	TOLL
〃	〃	12	〃	〃	—			OTD
4	LS	10	6	2000	—			MC

NO.12

PY EX. (TDM) T 2 № 2

DESTINATION		O/G			I/C			NOTE
TDM.	OFFICE	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	
1	KK	42	6	2000	—			
〃	SR	84	〃	〃	—			
〃	BP	23	〃	〃	—			
〃	PW	44	〃	〃	—			
〃	SS	27	〃	〃	—			
2	BS	48	4	〃	166	4	2000	
〃	IM	56	〃	〃	221	〃	〃	
〃	LP1	52	〃	〃	212	〃	〃	
〃	LP2	46	〃	〃	148	〃	〃	
〃	NN	50	〃	〃	189	〃	〃	
3	PL	74	6	〃	—			
〃	MM	17	〃	〃	—			
〃	ASD	37	〃	〃	—			
〃	SV	14	〃	〃	—			
〃	KT	30	〃	〃	—			
4	LS	20	〃	〃	—			
〃	NW	42	〃	〃	—			
〃	DM	27	〃	〃	—			
〃	BK	16	〃	〃	—			
〃	RS	8	〃	〃	—			
〃	PK	9	〃	〃	—			
〃	RID	26	〃	〃	—			
〃	CW	23	〃	〃	—			
〃	NWN	10	〃	〃	—			
〃	PT	8	〃	〃	—			
〃	BSN	14	〃	〃	—			
5	TH	34	〃	〃	—			
〃	PD	32	〃	〃	—			
〃	BC	29	〃	〃	—			
〃	DK	28	〃	〃	—			
〃	NK	7	〃	〃	—			
〃	PC	20	〃	〃	—			
〃	MK	9	〃	〃	—			
〃	CN	30	〃	〃	—			
〃	RB	17	〃	〃	—			
〃	EC	16	〃	〃	—			
6	PN	24	〃	〃	—			
〃	CP	32	〃	〃	—			
〃	BN	48	〃	〃	—			
〃	KC	41	〃	〃	—			
〃	PS	30	〃	〃	—			
〃	SPK	25	〃	〃	—			
〃	ON	22	〃	〃	—			
〃	HM	16	〃	〃	—			
〃	LB	7	〃	〃	—			

NO.13

PY EX. (TOLL) (TDM) T 2 No. 3

DESTINATION		O/G			I/C			NOTE
TDM.	OFFICE	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	
7	SW	67	6	2000	—			
〃	SP	23	〃	〃	—			
〃	TC	46	〃	〃	—			
〃	TK	21	〃	〃	—			
1	KK	33	2	〃	36	2	2000	
3	PL	33	〃	〃	39	〃	〃	
4	LS	51	〃	〃	42	〃	〃	
5	TH	58	〃	〃	54	〃	〃	
6	PN	70	〃	〃	60	〃	〃	
7	SW	49	〃	〃	46	〃	〃	
7	SW	39	6	2000	—			INF
1	KK	44	4	2000	32	4	2000	TOLL
〃	SR	144	〃	〃	112	〃	〃	〃
〃	PW	48	〃	〃	37	〃	〃	〃
〃	SS	22	〃	〃	16	〃	〃	〃
2	IM	22	〃	〃	16	〃	〃	〃
3	PL	97	〃	〃	75	〃	〃	〃
〃	MM	22	〃	〃	16	〃	〃	〃
〃	ASD	36	〃	〃	26	〃	〃	〃
〃	SV	23	〃	〃	18	〃	〃	〃
〃	KT	22	〃	〃	16	〃	〃	〃
7	SW	133	〃	〃	99	〃	〃	〃
〃	SP	14	〃	〃	10	〃	〃	〃
〃	TC	36	〃	〃	26	〃	〃	〃
〃	TK	14	〃	〃	10	〃	〃	〃
4	LS	126	0	2000	104	0	2000	TOLL
5	TH	113	〃	〃	102	〃	〃	〃
6	PN	118	〃	〃	86	〃	〃	〃

NO.14

BS EX. T 2 No. 1

DESTINATION		O/G			I/C			NOTE
TDM.	OFFICE	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	
1	KK	26	11	2000	26	11	2000	
〃	SR	40	〃	〃	40	〃	〃	
〃	BP	14	〃	〃	14	〃	〃	
〃	PW	19	〃	〃	23	〃	〃	
〃	SS	19	〃	〃	18	〃	〃	
2	PY	36	〃	〃	34	〃	〃	
〃	IM	10	〃	〃	9	〃	〃	
〃	LP1	14	〃	〃	14	〃	〃	
〃	LP2	9	〃	〃	9	〃	〃	
〃	NN	8	〃	〃	8	〃	〃	
3	PL	16	〃	〃	14	〃	〃	
〃	MM	6	〃	〃	—			
〃	ASD	8	〃	〃	10	11	2000	
〃	SV	7	〃	〃	7	〃	〃	
〃	KT	6	〃	〃	7	〃	〃	
4	LS	7	〃	〃	—			
〃	NW	33	〃	〃	36	11	2000	
〃	DM	12	〃	〃	12	〃	〃	
〃	BK	21	〃	〃	20	〃	〃	
〃	RID	8	〃	〃	9	〃	〃	
5	TH	12	〃	〃	—			
〃	PD	7	〃	〃	7	11	2000	
〃	BC	6	〃	〃	7	〃	〃	
〃	DK	7	〃	〃	6	〃	〃	
〃	CN	7	〃	〃	6	〃	〃	
6	GP	12	〃	〃	12	〃	〃	
〃	BN	7	〃	〃	6	〃	〃	
〃	KO	11	〃	〃	17	〃	〃	
〃	PS	—			6	〃	〃	
〃	HM	8	11	2000	8	〃	〃	
7	SW	36	〃	〃	24	〃	〃	
〃	TO	6	〃	〃	6	〃	〃	
1	KK	—			15	6	2000	TDM
2	PY	166	4	2000	48	4	〃	〃
3	PL	—			26	6	〃	〃
4	LS	—			21	〃	〃	〃
5	TH	—			31	〃	〃	〃
6	PN	—			38	〃	〃	〃
7	SW	—			27	〃	〃	〃
4	LS	31	4	2000	41	4	2000	TOLL
〃	〃	5	6	〃	—			MC
1	KK	7	4	〃	—			OTD

NO.15

IM EX. T 2 No. 1

DESTINATION		O/G			I/C			NOTE
TDM.	OFFICE	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	
1	KK	20	11	2000	18	11	2000	
〃	PW	17	〃	〃	19	〃	〃	
〃	SS	8	〃	〃	9	〃	〃	
2	PY	24	〃	〃	24	〃	〃	
〃	BS	9	〃	〃	10	〃	〃	
〃	LP1	13	〃	〃	15	〃	〃	
〃	LP2	8	〃	〃	9	〃	〃	
3	PL	14	〃	〃	14	〃	〃	
〃	ASD	17	〃	〃	20	〃	〃	
〃	SV	7	〃	〃	8	〃	〃	
〃	KT	—			6	〃	〃	
4	NW	6	11	2000	17	〃	〃	
	DM	—			6	〃	〃	
〃	BK	9	11	2000	11	〃	〃	
〃	RID	6	〃	〃	8	〃	〃	
5	PD	—			6	〃	〃	
6	CP	12	11	2000	—			
〃	KC	8	〃	〃	10	11	2000	
〃	HM	7	〃	〃	9	〃	〃	
7	SW	18	〃	〃	—			
1	KK	—			39	6	2000	TDM
2	PY	221	4	2000	56	4	〃	〃
3	PL	—			18	6	〃	〃
4	LS	—			17	〃	〃	〃
5	TH	—			32	〃	〃	〃
6	PN	—			43	〃	〃	〃
7	SW	—			35	〃	〃	〃
1	KK	14	4	2000	19	4	2000	TOLL
2	PY	16	〃	〃	22	〃	〃	〃
1	KK	6	4	2000	—			OTD
4	LS	5	6	2000	—			MC

NO.16

LP-1 EX. T 2 No 1

DESTINATION		O/G			I/C			NOTE
TDM.	OFFICE	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	
1	KK	12	11	2000	18	11	2000	
〃	SR	28	〃	〃	32	〃	〃	
〃	BP	6	〃	〃	8	〃	〃	
〃	PW	17	〃	〃	21	〃	〃	
〃	SS	—			8	〃	〃	
2	PY	26	11	2000	24	〃	〃	
〃	BS	14	〃	〃	14	〃	〃	
〃	IM	15	〃	〃	13	〃	〃	
〃	LP2	13	〃	〃	13	〃	〃	
3	PL	14	〃	〃	16	〃	〃	
〃	MM	6	〃	〃	6	〃	〃	
〃	ASD	7	〃	〃	9	〃	〃	
〃	SV	7	〃	〃	6	〃	〃	
〃	KT	6	〃	〃	8	〃	〃	
4	LS	7	〃	〃	6	〃	〃	
〃	NW	7	〃	〃	7	〃	〃	
〃	BK	15	〃	〃	12	〃	〃	
〃	RID	8	〃	〃	9	〃	〃	
6	CP	16	〃	〃	14	〃	〃	
〃	KC	8	〃	〃	9	〃	〃	
〃	HM	9	〃	〃	9	〃	〃	
7	SW	27	〃	〃	21	〃	〃	
1	KK	—			16	6	2000	TDM
2	PY	212	4	2000	52	4	〃	〃
3	PL	—			22	6	〃	〃
4	LS	—			22	〃	〃	〃
5	TH	—			39	〃	〃	〃
6	PN	—			36	〃	〃	〃
7	SW	—			27	〃	〃	〃
4	LS	22	4	2000	31	4	2000	TOLL
〃	〃	5	6	〃	—			MC
1	KK	6	4	2000	—			OTD

NO.17

DESTINATION		O/G			I/C			NOTE
TDM.	OFFICE	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	
1	KK	16	11	2000	16	11	2000	
〃	SB	32	〃	〃	32	〃	〃	
〃	BP	6	〃	〃	7	〃	〃	
〃	PW	17	〃	〃	19	〃	〃	
〃	SS	6	〃	〃	7	〃	〃	
2	PY	18	〃	〃	16	〃	〃	
〃	BS	9	〃	〃	9	〃	〃	
〃	IM	9	〃	〃	8	〃	〃	
〃	LP1	13	〃	〃	13	〃	〃	
3	PL	26	〃	〃	16	〃	〃	
〃	MM	8	〃	〃	7	〃	〃	
〃	ASD	7	〃	〃	8	〃	〃	
〃	SV	9	〃	〃	7	〃	〃	
〃	KT	8	〃	〃	8	〃	〃	
4	LS	7	〃	〃	—			
〃	NW	6	〃	〃	6	11	2000	
〃	DM	6	〃	〃	—			
〃	BK	12	〃	〃	11	11	2000	
〃	RID	12	〃	〃	12	〃	〃	
5	TH	12	〃	〃	9	〃	〃	
〃	PD	6	〃	〃	6	〃	〃	
〃	DK	6	〃	〃	—			
6	PN	6	〃	〃	—			
〃	CP	20	〃	〃	16	11	2000	
〃	BN	6	〃	〃	—			
〃	KC	22	〃	〃	22	11	2000	
〃	PS	6	〃	〃	6	〃	〃	
〃	HM	15	〃	〃	14	〃	〃	
7	SW	27	〃	〃	18	〃	〃	
〃	TC	6	〃	〃	—			
1	KK	—			17	6	2000	TDM
2	PY	148	4	2000	46	4	〃	〃
3	PL	—			25	6	〃	〃
4	LS	—			26	〃	〃	〃
5	TH	—			36	〃	〃	〃
6	PN	—			36	〃	〃	〃
7	SW	—			30	〃	〃	〃
4	LS	23	4	2000	31	4	2000	TOLL
〃	〃	5	6	〃	—			MC
1	KK	6	4	2000	—			OTD

NO.18

NN EX. T 2 No 1

DESTINATION		O/G			I/C			NOTE
TDM.	OFFICE	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	
2	BS	8	11	2000	8	11	2000	
4	NW	8	〃	〃	8	〃	〃	
5	TH	6	〃	〃	—			
1	KK	—			44	6	2000	TDM
2	PY	189	4	2000	50	4	〃	〃
3	PL	—			25	6	〃	〃
4	LS	—			21	〃	〃	〃
5	TH	—			23	〃	〃	〃
6	PN	—			25	〃	〃	〃
7	SW	—			21	〃	〃	〃
4	LS	15	4	2000	20	4	2000	TOLL
〃	〃	4	6	〃	—			MC
1	KK	5	4	2000	—			OTD

NO.19

PL EX. (LOC) T 3 No. 1

DESTINATION		O/G			I/C			NOTE
TDM.	OFFICE	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	
1	KK	100	11	2000	110	11	2000	
〃	SR	188	〃	〃	208	〃	〃	
〃	BP	36	〃	〃	36	〃	〃	
〃	PW	160	〃	〃	177	〃	〃	
〃	SS	28	〃	〃	31	〃	〃	
2	PY	52	〃	〃	56	〃	〃	
〃	BS	14	〃	〃	16	〃	〃	
〃	IM	14	〃	〃	14	〃	〃	
〃	LP1	16	〃	〃	14	〃	〃	
〃	LP2	16	〃	〃	26	〃	〃	
3	MM	37	〃	〃	39	〃	〃	
〃	ASD	78	〃	〃	78	〃	〃	
〃	SV	50	〃	〃	47	〃	〃	
〃	KT	33	〃	〃	42	〃	〃	
4	NW	12	〃	〃	26	〃	〃	
〃	DM	12	〃	〃	16	〃	〃	
〃	BK	16	〃	〃	26	〃	〃	
〃	RID	12	〃	〃	18	〃	〃	
5	TH	36	〃	〃	41	〃	〃	
〃	PD	14	〃	〃	29	〃	〃	
〃	DK	—			14	〃	〃	
〃	CN	14	11	2000	14	〃	〃	
6	PN	18	〃	〃	18	〃	〃	
〃	CP	90	〃	〃	90	〃	〃	
〃	BN	16	〃	〃	16	〃	〃	
〃	KC	14	〃	〃	24	〃	〃	
〃	PS	12	〃	〃	18	〃	〃	
〃	SPK	—			12	〃	〃	
〃	HM	31	11	2000	34	〃	〃	
7	SW	241	〃	〃	223	〃	〃	
〃	TC	41	〃	〃	41	〃	〃	
1	KK	—			30	6	2000	TDM
2	PY	—			74	〃	〃	〃
4	LS	—			56	〃	〃	〃
5	TH	—			91	〃	〃	〃
6	PN	—			104	〃	〃	〃
7	SW	—			68	〃	〃	〃
1	KK	64	4	2000	83	4	2000	TOLL
2	PY	72	〃	〃	97	〃	〃	〃
1	KK	25	〃	〃	—			OTD
1	KK	14	6	2000	—			MC

NO.20

PL EX. (TDM) T 3 № 2

DESTINATION		O/G			I/C			NOTE
TDM.	OFFICE	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	
1	KK	46	6	2000	—			
〃	SR	60	〃	〃	—			
〃	BP	16	〃	〃	—			
〃	PW	46	〃	〃	—			
〃	SS	27	〃	〃	—			
2	PY	28	〃	〃	—			
〃	BS	26	〃	〃	—			
〃	IM	18	〃	〃	—			
〃	LP1	22	〃	〃	—			
〃	LP2	25	〃	〃	—			
〃	NN'	25	〃	〃	—			
3	MM	54	4	〃	196	4	2000	
〃	ASD	103	〃	〃	354	〃	〃	
〃	SV	53	〃	〃	207	〃	〃	
〃	KT	51	〃	〃	157	〃	〃	
4	LS	29	6	〃	—			
〃	NW	56	〃	〃	—			
〃	DM	30	〃	〃	—			
〃	BK	26	〃	〃	—			
〃	RS	8	〃	〃	—			
〃	PK	8	〃	〃	—			
〃	RID	31	〃	〃	—			
〃	CW	19	〃	〃	—			
〃	NWN	13	〃	〃	—			
〃	PT	9	〃	〃	—			
〃	BSN	16	〃	〃	—			
5	TH	50	〃	〃	—			
〃	PD	28	〃	〃	—			
〃	BC	32	〃	〃	—			
〃	DK	29	〃	〃	—			
〃	NK	10	〃	〃	—			
〃	PC	26	〃	〃	—			
〃	MK	10	〃	〃	—			
〃	CN	22	〃	〃	—			
〃	RB	22	〃	〃	—			
〃	EC	22	〃	〃	—			
〃	PP	6	〃	〃	—			
6	PN	21	〃	〃	—			
〃	CP	48	〃	〃	—			
〃	BN	52	〃	〃	—			
〃	KC	53	〃	〃	—			
〃	PS	26	〃	〃	—			
〃	SPK	33	〃	〃	—			
〃	ON	31	〃	〃	—			
〃	HM	15	〃	〃	—			

NO.21

PL EX. (TDM) T 3 No. 3

DESTINATION		O/G			I/C			NOTE
TDM.	OFFICE	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	
6	LB	9	6	2000	—			
〃	BPO	6	〃	〃	—			
7	SW	64	〃	〃	—			
〃	SP	21	〃	〃	—			
〃	TC	33	〃	〃	—			
〃	TK	21	〃	〃	—			
1	KK	32	2	〃	46	2	2000	
2	PY	39	〃	〃	33	〃	〃	
4	LS	57	〃	〃	56	〃	〃	
5	TH	56	〃	〃	52	〃	〃	
6	PN	69	〃	〃	52	〃	〃	
7	SW	35	〃	〃	32	〃	〃	
7	SW	42	6	2000	—			INF

NO. 22

MM EX. T 3 No. 1

DESTINATION		O/G			I/C			NOTE
TDM.	OFFICE	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	
1	KK	14	11	2000	20	11	2000	
〃	SR	48	〃	〃	60	〃	〃	
〃	BP	7	〃	〃	9	〃	〃	
〃	PW	27	〃	〃	36	〃	〃	
2	PY	12	〃	〃	14	〃	〃	
〃	BS	—			6	〃	〃	
〃	LP1	6	11	2000	6	〃	〃	
〃	LP2	7	〃	〃	8	〃	〃	
3	PL	39	〃	〃	37	〃	〃	
〃	ASD	9	〃	〃	9	〃	〃	
〃	SV	14	〃	〃	14	〃	〃	
〃	KT	29	〃	〃	30	〃	〃	
4	NW	—			6	〃	〃	
〃	BK	—			7	〃	〃	
〃	RID	—			7	〃	〃	
5	TH	12	11	2000	12	〃	〃	
〃	PD	7	〃	〃	9	〃	〃	
〃	DK	9	〃	〃	7	〃	〃	
〃	CN	7	〃	〃	—			
6	PN	7	〃	〃	—			
〃	CP	28	〃	〃	32	11	2000	
〃	BN	7	〃	〃	7	〃	〃	
〃	KC	—			6	〃	〃	
〃	PS	7	11	2000	8	〃	〃	
〃	SPK	—			6	〃	〃	
〃	HM	8	11	2000	9	〃	〃	
7	SW	73	〃	〃	65	〃	〃	
〃	SP	8	〃	〃	8	〃	〃	
〃	TC	28	〃	〃	25	〃	〃	
〃	TK	7	〃	〃	6	〃	〃	
1	KK	—			7	6	2000	TDM
2	PY	—			17	〃	〃	〃
3	PL	196	4	2000	54	4	〃	〃
4	LS	—			20	6	〃	〃
5	TH	—			31	〃	〃	〃
6	PN	—			32	〃	〃	〃
7	SW	—			13	〃	〃	〃
1	KK	14	4	2000	19	4	2000	TOLL
〃	KK	6	〃	〃	—			OTD
2	PY	16	〃	〃	22	4	2000	TOLL
6	PN	6	6	2000	—			MC

NO.23

ASD EX. T 3 No. 1

DESTINATION		O/G			I/C			NOTE
TDM.	OFFICE	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	
1	KK	22	11	2000	40	11	2000	
〃	SR	72	〃	〃	80	〃	〃	
〃	BP	9	〃	〃	9	〃	〃	
〃	PW	43	〃	〃	56	〃	〃	
〃	SS	8	〃	〃	9	〃	〃	
2	PY	46	〃	〃	36	〃	〃	
〃	BS	10	〃	〃	8	〃	〃	
〃	IM	20	〃	〃	17	〃	〃	
〃	LP1	9	〃	〃	7	〃	〃	
〃	LP2	8	〃	〃	7	〃	〃	
3	PL	78	〃	〃	78	〃	〃	
〃	MM	9	〃	〃	9	〃	〃	
〃	SV	11	〃	〃	11	〃	〃	
〃	KT	7	〃	〃	9	〃	〃	
4	BK	6	〃	〃	6	〃	〃	
5	TH	11	〃	〃	11	〃	〃	
〃	PD	—			6	〃	〃	
〃	CN	6	11	2000	6	〃	〃	
6	CP	20	〃	〃	34	〃	〃	
〃	KC	6	〃	〃	7	〃	〃	
〃	PS	—			6	〃	〃	
〃	HM	20	11	2000	20	〃	〃	
7	SW	58	〃	〃	58	〃	〃	
1	KK	—			20	6	2000	TDM
2	PY	—			37	〃	〃	〃
3	PL	354	4	2000	103	4	〃	〃
4	LS	—			40		〃	〃
5	TH	—			53	〃	〃	〃
6	PN	—			55	〃	〃	〃
7	SW	—			37	〃	〃	〃
1	KK	23	4	2000	31	〃	2000	TOLL
2	PY	6	〃	〃	36	〃	〃	〃
1	KK	11	〃	〃	—			OTD
6	PN	9	6	2000	—			MC

NO.24

SV EX. T 3 No. 1

DESTINATION		O/G			I/C			NOTE
TDM.	OFFICE	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	
1	KK	20	11	2000	26	11	2000	
〃	SR	32	〃	〃	44	〃	〃	
〃	BP	6	〃	〃	7	〃	〃	
〃	PW	27	〃	〃	33	〃	〃	
〃	SS	7	〃	〃	9	〃	〃	
2	PY	16	〃	〃	18	〃	〃	
〃	BS	7	〃	〃	7	〃	〃	
〃	IM	8	〃	〃	7	〃	〃	
〃	LP1	6	〃	〃	7	〃	〃	
〃	LP2	7	〃	〃	9	〃	〃	
3	PL	47	〃	〃	50	〃	〃	
〃	MM	14	〃	〃	14	〃	〃	
〃	ASD	11	〃	〃	11	〃	〃	
〃	KT	13	〃	〃	15	〃	〃	
4	BK	6	〃	〃	6	〃	〃	
〃	RID	—			6	〃	〃	
5	TH	13	11	2000	12	〃	〃	
〃	PD	7	〃	〃	8	〃	〃	
〃	DK	6	〃	〃	7	〃	〃	
6	PN	11	〃	〃	9	〃	〃	
〃	CP	46	〃	〃	42	〃	〃	
〃	BN	10	〃	〃	7	〃	〃	
〃	KC	7	〃	〃	7	〃	〃	
〃	PS	7	〃	〃	7	〃	〃	
〃	HM	15	〃	〃	14	〃	〃	
7	SW	43	〃	〃	41	〃	〃	
〃	TC	6	〃	〃	7	〃	〃	
1	KK	—			10	6	2000	TDM
2	PY	—			14	〃	〃	〃
3	PL	207	4	2000	53	4	〃	〃
4	LS	—			22	6	〃	〃
5	TH	—			37	〃	〃	〃
6	PN	—			38	〃	〃	〃
7	SW	—			19	〃	〃	〃
1	KK	15	4	2000	20	4	2000	TOLL
2	PY	18	〃	〃	23	〃	〃	〃
1	KK	7	〃	〃	—			OTD
6	PN	5	6	2000	—			MC

NO. 25

DESTINATION		O/G			I/C			NOTE
TDM.	OFFICE	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	
1	KK	16	11	2000	18	11	2000	
〃	SR	44	〃	〃	48	〃	〃	
〃	BP	9	〃	〃	9	〃	〃	
〃	PW	28	〃	〃	32	〃	〃	
2	PY	14	〃	〃	—			
〃	BS	7	〃	〃	6	11	2000	
〃	IM	6	〃	〃	—			
〃	LP1	8	〃	〃	6	11	2000	
〃	LP2	8	〃	〃	8	〃	〃	
3	PL	42	〃	〃	33	〃	〃	
〃	MM	30	〃	〃	29	〃	〃	
〃	ASD	9	〃	〃	7	〃	〃	
〃	SV	15	〃	〃	13	〃	〃	
4	NW	—			6	〃	〃	
〃	BK	6	11	2000	6	〃	〃	
〃	RID	7	〃	〃	7	〃	〃	
5	TH	12	〃	〃	11	〃	〃	
〃	PD	9	〃	〃	9	〃	〃	
〃	DK	9	〃	〃	6	〃	〃	
〃	ON	8	〃	〃	—			
6	PN	8	〃	〃	—			
〃	CP	30	〃	〃	28	11	2000	
〃	BN	9	〃	〃	7	〃	〃	
〃	KC	7	〃	〃	6	〃	〃	
〃	PS	9	〃	〃	8	〃	〃	
〃	SPK	6	〃	〃	—			
〃	HM	10	〃	〃	8	11	2000	
7	SW	73	〃	〃	58	〃	〃	
〃	SP	8	〃	〃	7	〃	〃	
〃	TC	26	〃	〃	23	〃	〃	
〃	TK	6	〃	〃	—			
1	KK	—			21	6	2000	TDM
2	PY	—			30	〃	〃	〃
3	PL	157	4	2000	51	4	〃	〃
4	LS	—			23	6	〃	〃
5	TH	—			41	〃	〃	〃
6	PN	—			42	〃	〃	〃
7	SW	—			22	〃	〃	〃
1	KK	14	4	2000	19	4	2000	TOLL
2	PY	16	〃	〃	22	〃	〃	〃
1	KK	6	〃	〃	—			OTD
6	PN	5	6	2000				MC

NO.26

LS EX. (LOC) T 4 No 1

DESTINATION		O/G			I/C			NOTE
TDM.	OFFICE	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	
1	PW	—			6	11	2000	
2	BS	—			7	〃	〃	
〃	LP1	6	11	2000	7	〃	〃	
〃	LP2	—			7	〃	〃	
4	DM	7	11	2000	7	〃	〃	
〃	BK	12	〃	〃	11	〃	〃	
〃	RID	8	〃	〃	8	〃	〃	
〃	CW	6	〃	〃	6	〃	〃	
1	KK	—			42	6	2000	TDM
2	PY	—			20	〃	〃	〃
3	PL	—			29	〃	〃	〃
5	TH	—			24	〃	〃	〃
6	PN	—			34	〃	〃	〃
7	SW	—			27	〃	〃	〃
1	KK	5	4	2000	—			OTD

NO.27

DESTINATION		O/G			I/C			NOTE
TDM.	OFFICE	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	
1	KK	46	6	2000	—			
〃	SR	88	〃	〃	—			
〃	BP	23	〃	〃	—			
〃	PW	55	〃	〃	—			
〃	SS	20	〃	〃	—			
2	PY	36	〃	〃	—			
〃	BS	21	〃	〃	—			
〃	IM	17	〃	〃	—			
〃	LP1	22	〃	〃	—			
〃	LP2	26	〃	〃	—			
〃	NN	21	〃	〃	—			
3	PL	56	〃	〃	—			
〃	MM	20	〃	〃	—			
〃	ASD	40	〃	〃	—			
〃	SV	22	〃	〃	—			
〃	KT	23	〃	〃	—			
4	NW	100	4	〃	308	4	2000	
〃	DM	64	〃	〃	213	〃	〃	
〃	BK	60	〃	〃	172	〃	〃	
〃	RS	40	〃	〃	84	〃	〃	
〃	PK	33	〃	〃	85	〃	〃	
〃	RID	53	〃	〃	164	〃	〃	
〃	BT	30	〃	〃	38	〃	〃	
〃	CW	63	〃	〃	167	〃	〃	
〃	TY	41	〃	〃	46	〃	〃	
〃	NWN	41	〃	〃	102	〃	〃	
〃	PT	35	〃	〃	89	〃	〃	
〃	BSN	48	〃	〃	125	〃	〃	
〃	NC	39	〃	〃	46	〃	〃	
5	TH	50	6	〃	—			
〃	PD	28	〃	〃	—			
〃	BC	25	〃	〃	—			
〃	DK	23	〃	〃	—			
〃	NK	6	〃	〃	—			
〃	PC	15	〃	〃	—			
〃	MK	6	〃	〃	—			
〃	ON	24	〃	〃	—			
〃	RB	15	〃	〃	—			
〃	EC	12	〃	〃	—			
6	PN	15	〃	〃	—			
〃	OP	38	〃	〃	—			
〃	BN	37	〃	〃	—			
〃	KC	43	〃	〃	—			
〃	PS	22	〃	〃	—			
〃	SPK	18	〃	〃	—			

NO.28

LS EX. (TDM) T 4 No. 3

DESTINATION		O/G			I/C			NOTE
TDM.	OFFICE	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	
6	ON	18	6	2000	—			
〃	HM	28	〃	〃	—			
〃	LB	6	〃	〃	—			
7	SW	79	〃	〃	—			
〃	SP	18	〃	〃	—			
〃	TC	38	〃	〃	—			
〃	TK	18	〃	〃	—			
1	KK	57	2	〃	60	2	2000	
2	PY	42	〃	〃	51	〃	〃	
3	PL	56	〃	〃	57	〃	〃	
5	TH	65	〃	〃	56	〃	〃	
6	PN	71	〃	〃	68	〃	〃	
7	SW	64	〃	〃	59	〃	〃	
1	KK	88	0	2000	105	0	2000	TOLL
2	PY	104	〃	〃	126	〃	〃	〃
4	NW	54	4	2000	40	4	2000	TOLL
〃	DM	26	〃	〃	19	〃	〃	〃
〃	BK	34	〃	〃	25	〃	〃	〃
〃	RS	11	〃	〃	8	〃	〃	〃
〃	PK	11	〃	〃	8	〃	〃	〃
〃	RID	34	〃	〃	25	〃	〃	〃
〃	BT	5	〃	〃	4	〃	〃	〃
〃	CW	20	〃	〃	15	〃	〃	〃
〃	TY	5	〃	〃	4	〃	〃	〃
〃	NWN	11	〃	〃	8	〃	〃	〃
〃	PT	11	〃	〃	8	〃	〃	〃
〃	NC	5	〃	〃	4	〃	〃	〃
2	BS	41	〃	〃	31	〃	〃	〃
〃	LP1	31	〃	〃	22	〃	〃	〃
〃	LP2	31	〃	〃	23	〃	〃	〃
〃	NN	20	〃	〃	15	〃	〃	〃
7	SW	40	6	2000	—			INF

NO. 29

LS EX. (MC) T4 No. 4

DESTINATION		O/G			I/C			NOTE
TDM.	OFFICE	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	
2	PY	—			10	6	2000	〃17〃
〃	BS	—	〃		5	〃	〃	〃
〃	IM	—			5	〃	〃	〃
〃	LP1	—			5	〃	〃	〃
〃	LP2	—			5	〃	〃	〃
〃	NN	—			4	〃	〃	〃
4	NW	—			9	〃	〃	〃
〃	DM	—			4	〃	〃	〃
〃	BK	—			5	〃	〃	〃
〃	RS	—			3	〃	〃	〃
〃	PK	—			3	〃	〃	〃
〃	RID	—			5	〃	〃	〃
〃	CW	—			4	〃	〃	〃
〃	TY	—			2	〃	〃	〃
〃	NWN	—			3	〃	〃	〃
〃	PT	—			3	〃	〃	〃
1	KK	7	4	2000	7	4	2000	MC
5	TH	7	〃	〃	6	〃	〃	〃
6	PN	7	〃	〃	8	〃	〃	〃

NO.30

NW EX. T 4 No 1

DESTINATION		O/G			I/C			NOTE
TDM.	OFFICE	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	
1	KK	18	11	2000	22	11	2000	
〃	SB	36	〃	〃	32	〃	〃	
〃	BP	7	〃	〃	7	〃	〃	
〃	PW	15	〃	〃	13	〃	〃	
〃	SS	21	〃	〃	21	〃	〃	
2	PY	40	〃	〃	16	〃	〃	
〃	BS	36	〃	〃	33	〃	〃	
〃	IM	17	〃	〃	6	〃	〃	
〃	LP1	7	〃	〃	7	〃	〃	
〃	LP2	6	〃	〃	6	〃	〃	
〃	NN	8	〃	〃	8	〃	〃	
3	PL	26	〃	〃	12	〃	〃	
〃	MM	6	〃	〃	—			
〃	KT	6	〃	〃	—			
4	DM	10	〃	〃	9	11	2000	
〃	BK	31	〃	〃	24	〃	〃	
〃	RID	7	〃	〃	7	〃	〃	
5	TH	21	〃	〃	6	〃	〃	
〃	PD	7	〃	〃	—			
〃	BC	7	〃	〃	—			
〃	DK	7	〃	〃	—			
6	CP	12	〃	〃	—			
〃	KC	9	〃	〃	8	11	2000	
7	SW	40	〃	〃	24	〃	〃	
1	KK	—			61	6	2000	TDM
2	PY	—			42	〃	〃	〃
3	PL	—			56	〃	〃	〃
4	LS	308	4	2000	100	4	〃	〃
5	TH	—			54	6	〃	〃
6	PN	—			67	〃	〃	〃
7	SW	—			58	〃	〃	〃
4	LS	40	4	2000	54	4	2000	TOLL
〃	〃	9	6	〃	—			MC
1	KK	11	4	2000	—			OTD

NO.31

DM EX. T 4 No. 1

DESTINATION		O/G			I/C			NOTE
TDM.	OFFICE	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	
1	KK	18	11	2000	16	11	2000	
〃	SR	28	〃	〃	28	〃	〃	
〃	SS	12	〃	〃	11	〃	〃	
2	PY	32	〃	〃	24	〃	〃	
〃	BS	12	〃	〃	12	〃	〃	
〃	IM	6	〃	〃	—			
〃	LP2	—			6	11	2000	
3	PL	16	11	2000	12	〃	〃	
4	LS	7	〃	〃	7	〃	〃	
〃	NW	9	〃	〃	10	〃	〃	
〃	BK	15	〃	〃	15	〃	〃	
〃	RS	—			6	〃	〃	
〃	RID	8	11	2000	8	〃	〃	
5	TH	9	〃	〃	10	〃	〃	
〃	PD	6	〃	〃	6	〃	〃	
6	CP	16	〃	〃	12	〃	〃	
〃	KC	8	〃	〃	10	〃	〃	
7	SW	36	〃	〃	21	〃	〃	
1	KK	—			28	6	2000	TDM
2	PY	—			27	〃	〃	〃
3	PL	—			30	〃	〃	〃
4	LS	213	4	2000	64	4	〃	〃
5	TH	—			39	6	〃	〃
6	PN	—			36	〃	〃	〃
7	SW	—			28	〃	〃	〃
4	LS	19	4	2000	26	4	2000	TOLL
〃	〃	4	6	〃	—			MC
1	KK	5	4	2000	—			OTD

NO. 32

BK EX. T 4 No. 1

DESTINATION		O/G			I/C			NOTE
TDM.	OFFICE	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	
1	KK	24	11	2000	22	11	2000	
〃	SR	36	〃	〃	28	〃	〃	
〃	BP	7	〃	〃	8	〃	〃	
〃	PW	17	〃	〃	17	〃	〃	
〃	SS	13	〃	〃	12	〃	〃	
2	PY	44	〃	〃	38	〃	〃	
〃	BS	20	〃	〃	21	〃	〃	
〃	IM	11	〃	〃	9	〃	〃	
〃	LP 1	12	〃	〃	15	〃	〃	
〃	LP 2	11	〃	〃	12	〃	〃	
3	PL	26	〃	〃	16	〃	〃	
〃	MM	7	〃	〃	—			
〃	ASD	6	〃	〃	6	11	2000	
〃	SV	6	〃	〃	6	〃	〃	
〃	KT	6	〃	〃	6	〃	〃	
4	LS	11	〃	〃	12	〃	〃	
〃	NW	24	〃	〃	31	〃	〃	
〃	DM	15	〃	〃	15	〃	〃	
〃	RID	10	〃	〃	11	〃	〃	
5	TH	10	〃	〃	8	〃	〃	
〃	PD	—			6	〃	〃	
〃	BC	6	11	2000	6	〃	〃	
〃	DK	6	〃	〃	—			
6	CP	18	〃	〃	12	11	2000	
〃	BN	6	〃	〃	—			
〃	KC	20	〃	〃	18	11	2000	
〃	HM	7	〃	〃	8	〃	〃	
〃	SW	47	〃	〃	27	〃	〃	
1	KK	—			18	6	2000	TDM
2	PY	—			16	〃	〃	〃
3	PL	—			26	〃	〃	〃
4	LS	172	4	2000	60	4	〃	〃
5	TH	—			32	6	〃	〃
6	PN	—			37	〃	〃	〃
7	SW	—			33	〃	〃	〃
4	LS	25	4	2000	34	4	2000	TOLL
〃	〃	5	6	〃	—			MC
1	KK	6	4	2000	—			OTD

NO.33

RS EX. T 4 /16 1

DESTINATION		O/G			I/C			NOTE
TDM.	OFFICE	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	
4	DM	6	11	2000	—			
1	KK	—			12	6	2000	TDM
2	PY	—			8	〃	〃	〃
3	PL	—			8	〃	〃	〃
4	LS	84	4	2000	40	4	〃	〃
5	TH	—			7	6	〃	〃
6	PN	—			10	〃	〃	〃
7	SW	—			8	〃	〃	〃
4	LS	8	4	2000	11	4	2000	TOLL
〃	〃	3	6	〃	—			MC
1	KK	3	4	2000	—			OTD

NO.34

PK EX. T 4 No 1

DESTINATION		O/G			I/C			NOTE
TDM.	OFFICE	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	
1	KK	—			14	6	2000	TDM
2	PY	—			9	〃	〃	〃
3	PL	—			8	〃	〃	〃
4	LS	85	4	2000	33	4	〃	〃
5	TH	—			7	6	〃	〃
6	PN	—			9	〃	〃	〃
7	SW	—			8	〃	〃	〃
4	LS	8	4	2000	11	4	2000	TOLL
〃	〃	3	6	〃	—			MC
1	KK	3	4	2000	—			OTD

NO.35

RID EX. T4 No 1

DESTINATION		O/G			I/C			NOTE
TDM.	OFFICE	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	
1	KK	16	11	2000	14	11	2000	
〃	SR	28	〃	〃	24	〃	〃	
〃	BP	7	〃	〃	6	〃	〃	
〃	SS	6	〃	〃	6	〃	〃	
2	PY	16	〃	〃	—			
〃	BS	9	〃	〃	8	11	2000	
〃	IM	8	〃	〃	6	〃	〃	
〃	LP1	9	〃	〃	8	〃	〃	
〃	LP2	12	〃	〃	12	〃	〃	
3	PL	18	〃	〃	12	〃	〃	
〃	MM	7	〃	〃	—			
〃	SV	6	〃	〃	—			
〃	KT	7	〃	〃	7	11	2000	
4	LS	8	〃	〃	8	〃	〃	
〃	NW	7	〃	〃	7	〃	〃	
〃	DM	8	〃	〃	8	〃	〃	
〃	BK	11	〃	〃	10	〃	〃	
5	TH	10	〃	〃	9	〃	〃	
6	PN	6	〃	〃	—			
〃	CP	18	〃	〃	12	11	2000	
〃	BN	7	〃	〃	—			
〃	KC	20	〃	〃	20	11	2000	
〃	PS	6	〃	〃	—			
〃	HM	10	〃	〃	9	11	2000	
7	SW	36	〃	〃	18	〃	〃	
〃	TC	6	〃	〃	—			
1	KK	—			25	6	2000	TDM
2	PY	—			26	〃	〃	〃
3	PL	—			31	〃	〃	〃
4	LS	164	4	2000	53	6	〃	〃
5	TH	—			38	6	〃	〃
6	PN	—			41	〃	〃	〃
7	SW	—			32	〃	〃	〃
4	LS	25	4	2000	34	4	2000	TOLL
〃	〃	5	6	〃	—			MC
1	KK	6	4	2000	—			ODT

NO.36

BT EX. T 4 No 1

DESTINATION		O/G			I/C			NOTE
TDM.	OFFICE	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	
4	LS	38	4	2000	30	4	2000	TDM
4	LS	4	4	2000	5	4	2000	TOLL
5	TH	2	6	2000	—			MC
1	KK	2	4	2000	—			OTD

NO.37

CW EX. T 4 No. 1

DESTINATION		O/G			I/C			NOTE
TDM.	OFFICE	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	
4	LS	6	11	2000	6	11	2000	
1	KK	—			28	6	2000	TDM
2	PY	—			23	〃	〃	〃
3	PL	—			19	〃	〃	〃
4	LS	167	4	2000	63	4	〃	〃
5	TH	—			16	6	〃	〃
6	PN	—			21	〃	〃	〃
7	SW	—			19	〃	〃	〃
4	LS	15	4	2000	20	4	〃	TOLL
〃	〃	4	6	〃	—			MC
1	KK	5	4	〃	—			OTD

NO.38

TY EX. T 4 No 1

DESTINATION		O/G			I/C			NOTE
TDM.	OFFICE	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	
1	KK	—			7	6	2000	TDM
4	LS	46	4	2000	41	4	〃	〃
4	LS	4	4	2000	5	4	2000	TOLL
〃	〃	2	6	〃	—			MC
1	KK	2	4	〃	--			OTD

NO.39

DESTINATION		O/G			I/C			NOTE
TDM.	OFFICE	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	
1	KK	—			18	6	2000	TDM
2	PY	—			10	〃	〃	〃
3	PL	—			13	〃	〃	〃
4	LS	102	4	2000	41	4	〃	〃
5	TH	—			10	6	〃	〃
6	PN	—			13	〃	〃	〃
7	SW	—			9	〃	〃	〃
4	LS	8	4	2000	11	4	2000	TOLL
〃	〃	3	6	〃	—			MC
1	KK	3	4	〃	—			OTD

NO.40

PT EX. T 4 No. 1

DESTINATION		O/G			I/C			NOTE
TDM.	OFFICE	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	
1	KK	—			16	6	2000	TDM
2	PY	—			8	〃	〃	〃
3	PL	—			9	〃	〃	〃
4	LS	89	4	2000	35	4	〃	〃
5	TH	—			8	6	〃	〃
6	PN	—			11	〃	〃	〃
7	SW	—			8	〃	〃	〃
4	LS	8	4	2000	11	4	〃	TOLL
〃	〃	3	6	〃	—			MC
1	KK	3	4	2000	—			OTD

NO.41

BSN EX. T 4 No 1

DESTINATION		O/G			I/C			NOTE
TDM.	OFFICE	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	
1	KK	—			22	6	2000	TDM
2	PY	—			14	〃	〃	〃
3	PL	—			16	〃	〃	〃
4	LS	125	4	2000	48	4	〃	〃
5	TH	—			11	6	〃	〃
6	PN	—			19	〃	〃	〃
7	SW	—			12	〃	〃	〃
6	PN	11	4	2000	15	4	〃	TOLL
〃	〃	3	6	〃	—			MC
1	KK	4	4	2000	—			OTD

NO.42

NO EX. T 4 16 1

DESTINATION		O/G			I/C			NOTE
TDM.	OFFICE	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	
1	KK	—			8	6	2000	TDM
4	LS	46	4	2000	39	4	〃	〃
6	PN	—			5	6	〃	〃
4	LS	4	4	2000	5	4	〃	TOLL
6	PN	2	6	2000	—			MO
1	KK	4	4	2000	—			OTD

NO. 43

TH EX. (LOC) T 5

DESTINATION		O/G			I/C			NOTE
TDM.	OFFICE	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	
1	KK	44	11	2000	44	11	2000	
〃	SR	104	〃	〃	112	〃	〃	
〃	BP	18	〃	〃	20	〃	〃	
〃	PW	50	〃	〃	62	〃	〃	
〃	SS	16	〃	〃	16	〃	〃	
2	PY	26	〃	〃	28	〃	〃	
〃	BS	12	〃	〃	12	〃	〃	
〃	IM	7	〃	〃	7	〃	〃	
〃	LP1	10	〃	〃	10	〃	〃	
〃	LP2	9	〃	〃	12	〃	〃	
〃	NN	6	〃	〃			〃	
3	PL	41	〃	〃	36	〃	〃	
〃	MM	12	〃	〃	12	〃	〃	
〃	ASD	11	〃	〃	11	〃	〃	
〃	SV	12	〃	〃	13	〃	〃	
〃	KT	11	〃	〃	12	〃	〃	
4	LS	7	〃	〃	7	〃	〃	
〃	NW	6	〃	〃	21	〃	〃	
〃	DM	10	〃	〃	9	〃	〃	
〃	BK	8	〃	〃	10	〃	〃	
〃	RID	9	〃	〃	10	〃	〃	
5	PD	16	〃	〃	16	〃	〃	
〃	BC	28	〃	〃	28	〃	〃	
〃	DK	28	〃	〃	28	〃	〃	
〃	PC	9	〃	〃	9	〃	〃	
〃	CN	20	〃	〃	22	〃	〃	
〃	RB	11	〃	〃	12	〃	〃	
〃	EC	6	〃	〃	6	〃	〃	
6	PN	8	〃	〃	9	〃	〃	
〃	CP	20	〃	〃	20	〃	〃	
〃	BN	—	—		7	〃	〃	
〃	KC	7	11	2000	18	〃	〃	
〃	PS	9	〃	〃	12	〃	〃	
〃	HM	12	〃	〃	14	〃	〃	
〃	SPK	7	〃	〃	8	〃	〃	
7	SW	86	〃	〃	78	〃	〃	
〃	TC	27	〃	〃	27	〃	〃	
〃	TK	8	〃	〃	8	〃	〃	

NO.44

TH EX. (LOC) T 5 No. 2

DESTINATION		O/G			I/C			NOTE
TDM.	OFFICE	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	
1	KK	—	—		22	6	2000	TDM
2	PY	—	—		34	〃	〃	〃
3	PL	—	—		50	〃	〃	〃
4	LS	—	—		50	〃	〃	〃
6	PN	—	—		68	〃	〃	〃
7	SW	—	—		40	〃	〃	〃
1	KK	12	4	2000	—	—		OTD

NO.45

TH EX. (TDM) T 5 No 3

DESTINATION		O/G			I/C			NOTE
TDM.	OFFICE	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	
1	KK	64	6	2000	—			
〃	SR	140	〃	〃	—			
〃	BP	24	〃	〃	—			
〃	PW	72	〃	〃	—			
〃	SS	27	〃	〃	—			
2	PY	56	〃	〃	—			
〃	BS	31	〃	〃	—			
〃	IM	32	〃	〃	—			
〃	LP1	39	〃	〃	—			
〃	LP2	36	〃	〃	—			
〃	NN	23	〃	〃	—			
3	PL	91	〃	〃	—			
〃	MM	31	〃	〃	—			
〃	ASD	53	〃	〃	—			
〃	SV	37	〃	〃	—			
〃	KT	41	〃	〃	—			
4	LS	24	〃	〃	—			
〃	NW	54	〃	〃	—			
〃	DM	39	〃	〃	—			
〃	BK	32	〃	〃	—			
〃	RS	7	〃	〃	—			
〃	PK	7	〃	〃	—			
〃	RID	38	〃	〃	—			
〃	CW	16	〃	〃	—			
〃	NWN	10	〃	〃	—			
〃	PT	8	〃	〃	—			
〃	BSN	11	〃	〃	—			
5	PD	63	4	〃	169	4	2000	
〃	BC	66	〃	〃	236	〃	〃	
〃	DK	59	〃	〃	207	〃	〃	
〃	NK	37	〃	〃	85	〃	〃	
〃	PC	62	〃	〃	205	〃	〃	
〃	MK	37	〃	〃	87	〃	〃	
〃	CN	70	〃	〃	226	〃	〃	
〃	RB	56	〃	〃	169	〃	〃	
〃	EC	53	〃	〃	168	〃	〃	
〃	PP	30	〃	〃	46	〃	〃	
6	PN	22	6	〃	—			
〃	CP	74	〃	〃	—			
〃	BN	44	〃	〃	—			
〃	KC	53	〃	〃	—			
〃	PS	37	〃	〃	—			
〃	SPK	28	〃	〃	—			
〃	ON	21	〃	〃	—			
〃	HM	37	〃	〃	—			

NO. 46

TH EX. (TDM) (TOLL) TS

No. 4

DESTINATION		O/G			I/C			NOTE
TDM.	OFFICE	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	
6	LB	7	6	2000	—			
7	SW	123	〃	〃	—			
〃	SP	24	〃	〃	—			
〃	TC	63	〃	〃	—			
〃	TK	29	〃	〃	—			
1	KK	34	2	〃	50	2	2000	
2	PY	54	〃	〃	58	〃	〃	
3	PL	52	〃	〃	56	〃	〃	
4	LS	56	〃	〃	65	〃	〃	
6	PN	84	〃	〃	70	〃	〃	
7	SW	41	〃	〃	49	〃	〃	
7	SW	45	6	2000	—			INF
1	KK	85	0	2000	95	0	2000	TOLL
2	PY	102	〃	〃	113	〃	〃	〃
1	BP	36	4	2000	27	4	2000	TOLL
5	PD	34	〃	〃	25	〃	〃	〃
〃	BC	34	〃	〃	25	〃	〃	〃
〃	DK	34	〃	〃	25	〃	〃	〃
〃	NK	11	〃	〃	8	〃	〃	〃
〃	PC	20	〃	〃	15	〃	〃	〃
〃	MK	11	〃	〃	8	〃	〃	〃
〃	CN	31	〃	〃	23	〃	〃	〃
〃	RB	18	〃	〃	13	〃	〃	〃
〃	EC	18	〃	〃	13	〃	〃	〃
〃	PP	5	〃	〃	4	〃	〃	〃

NO.47

TH EX. (MC) T 5 No. 5

DESTINATION		O/G			I/C			NOTE
TDM.	OFFICE	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	
1	BP	—			5	6	2000	"17"
4	BT	—			2	〃	〃	〃
5	PD	—			5	〃	〃	〃
〃	BC	—			5	〃	〃	〃
〃	DK	—			5	〃	〃	〃
〃	NK	—			3	〃	〃	〃
〃	PC	—			4	〃	〃	〃
〃	MK	—			3	〃	〃	〃
〃	CN	—			5	〃	〃	〃
〃	RB	—			3	〃	〃	〃
〃	EC	—			3	〃	〃	〃
〃	PP	—			2	〃	〃	〃
1	KK	6	4	2000	7	4	2000	MC
4	LS	6	〃	〃	7	〃	〃	〃
6	PN	6	〃	〃	8	〃	〃	〃

NO. 48

DESTINATION		O/G			I/C			NOTE
TDM.	OFFICE	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	
1	KK	20	11	2,000	18	11	2,000	
〃	SR	52	〃	〃	56	〃	〃	
〃	BP	7	〃	〃	7	〃	〃	
〃	PW	19	〃	〃	21	〃	〃	
〃	SS	7	〃	〃	6	〃	〃	
2	PY	16	〃	〃	—			
〃	BS	7	〃	〃	7	11	2,000	
〃	IM	6	〃	〃	—			
〃	LP-2	6	〃	〃	6	11	2,000	
3	PL	29	〃	〃	14	〃	〃	
〃	MM	9	〃	〃	7	〃	〃	
〃	ASD	6	〃	〃	—			
〃	SV	8	〃	〃	7	11	2,000	
〃	KT	9	〃	〃	9	〃	〃	
4	NW	—	—		7	〃	〃	
〃	DM	6	11	2,000	6	〃	〃	
〃	BK	6	〃	〃	—			
5	TH	16	〃	〃	16	11	2,000	
〃	BC	9	〃	〃	8	〃	〃	
〃	DK	24	〃	〃	24	〃	〃	
〃	RB	12	〃	〃	13	〃	〃	
6	PN	6	〃	〃	—			
〃	CP	14	〃	〃	—			
〃	BN	6	〃	〃	—			
〃	KC	6	〃	〃	—			
〃	PS	9	〃	〃	9	11	2,000	
〃	SPK	6	〃	〃	6	〃	〃	
〃	HM	8	〃	〃	7	〃	〃	
7	SW	36	〃	〃	24	〃	〃	
〃	TC	9	〃	〃	8	〃	〃	
1	KK	—	—		17	6	2,000	TDM
2	PY	—	—		32	〃	〃	〃
3	PL	—	—		28	〃	〃	〃
4	LS	—	—		28	〃	〃	〃
5	TH	169	4	2,000	63	4	〃	〃
6	PN	—	—		50	6	〃	〃
7	SW	—	—		33	〃	〃	〃
5	TH	25	4	2,000	34	4	2,000	TOLL
〃	〃	5	6	〃	—			MC
1	KK	6	4	2,000	—			OTD

NO. 49

BO EX. T 5 No. 1

DESTINATION		O/G			I/C			NOTE
TDM.	OFFICE	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	
1	KK	14	11	2,000	16	11	2,000	
〃	SR	32	〃	〃	60	〃	〃	
〃	BP	8	〃	〃	8	〃	〃	
〃	PW	15	〃	〃	20	〃	〃	
2	PY	12	11	〃	—	—		
〃	BS	7	〃	〃	6	11	2,000	
4	NW	—	—		7	11	〃	
〃	BK	6	11	2,000	6	〃	〃	
5	TH	28	11	〃	28	11	〃	
〃	PD	8	〃	〃	9	〃	〃	
〃	DK	14	〃	〃	13	〃	〃	
〃	PO	7	〃	〃	7	〃	〃	
〃	ON	10	〃	〃	10	〃	〃	
7	SW	27	〃	〃	27	11	〃	
〃	TC	—	—		6	〃	〃	
1	KK	—	—		14	6	2,000	TDM
2	PY	—	—		29	〃	〃	〃
3	PL	—	—		32	〃	〃	〃
4	LS	—	—		25	〃	〃	〃
5	TH	236	4	2,000	66	4	〃	〃
6	PN	—	—		42	6	〃	〃
7	SW	—	—		23	〃	〃	〃
5	TH	25	4	2,000	34	4	2,000	TOLL
〃	〃	5	6	〃	—	—		MO
1	KK	6	4	2,000	—	—		OTD

NO. 50

DK EX. T 5 No. 1

DESTINATION		O/G			I/C			NOTE
TDM.	OFFICE	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	
1	KK	14	11	2,000	18	11	2,000	
〃	SR	48	〃	〃	56	〃	〃	
〃	BP	7	〃	〃	7	〃	〃	
〃	PW	21	〃	〃	25	〃	〃	
〃	SS	6	〃	〃	6	〃	〃	
2	PY	12	11	〃	—	—		
〃	BS	6	〃	〃	7	11	2,000	
〃	L.P-2	—	—		6	〃	〃	
3	PL	14	11	2,000	—	—		
〃	MM	7	〃	〃	9	11	2,000	
〃	SV	7	〃	〃	6	〃	〃	
〃	KT	6	〃	〃	9	〃	〃	
4	NW	—	—		7	11	〃	
〃	BK	—	—		6	〃	〃	
5	TH	28	11	2,000	28	11	〃	
〃	PD	24	〃	〃	24	〃	〃	
〃	BC	13	〃	〃	14	〃	〃	
〃	CN	7	〃	〃	7	〃	〃	
〃	RB	19	〃	〃	19	〃	〃	
〃	EC	6	〃	〃	6	〃	〃	
6	PN	6	11	〃	—	—		
〃	PS	—	—		6	11	2,000	
〃	HM	6	11	2,000	6	〃	〃	
7	SW	43	11	〃	39	11	〃	
〃	TC	10	〃	〃	10	〃	〃	
1	KK	—	—		12	6	2,000	TDM
2	PY	—	—		28	〃	〃	〃
3	PL	—	—		29	〃	〃	〃
4	LS	—	—		23	〃	〃	〃
5	TH	207	4	2,000	59	4	〃	〃
6	PN	—	—		45	6	〃	〃
7	SW	—	—		22	〃	〃	〃
5	TH	25	4	2,000	34	4	2,000	TOLL
〃	〃	5	6	〃	—	—		MC
1	KK	6	4	2,000	—	—		OTD

NO.51

NK EX. T 5 No. 1

DESTINATION		O/G			I/C			NOTE
TDM.	OFFICE	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	
1	KK	—			17	6	2000	TDM
2	PY	—			7	〃	〃	〃
3	PL	—			10	〃	〃	〃
4	LS	—			6	〃	〃	〃
5	TH	85	4	2000	37	4	〃	〃
6	PN	—			11	6	〃	〃
7	SW	—			9	〃	〃	〃
5	TH	8	4	2000	11	4	2000	TOLL
〃	〃	3	6	〃	—			MC
1	KK	3	4	〃	—			OTD

NO.52

PC EX. T 5 No. 1

DESTINATION		O/G			I/C			NOTE
TDM.	OFFICE	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	
5	TH	9	11	2000	9	11	2000	
〃	BC	7	〃	〃	7	〃	〃	
〃	EC	11	〃	〃	10	〃	〃	
1	KK	—			47	6	2000	TDM
2	PY	—			20	〃	〃	〃
3	PL	—			26	〃	〃	〃
4	LS	—			15	〃	〃	〃
5	TH	205	4	2000	62	4	〃	〃
6	PN	—			28	6	〃	〃
7	SW	—			27	〃	〃	〃
5	TH	15	4	2000	20	4	2000	TOLL
〃	〃	4	6	〃	—			MC
1	KK	5	4	2000				OTD

NO.53

MK EX. T 5 /16 1

DESTINATION		O/G			I/C			NOTE
TDM.	OFFICE	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	
1	KK	—			17	6	2000	TDM
2	PY	—			9	〃	〃	〃
3	PL	—			10	〃	〃	〃
4	LS	—			6	〃	〃	〃
5	TH	87	4	2000	37	4	〃	〃
6	PN	—			10	6	〃	〃
7	SW	—			9	〃	〃	〃
5	TH	8	4	2000	11	4	2000	TOLL
〃	〃	3	6	〃	—			MC
1	KK	3	4	〃	—			OTD

NO.54

ON EX. T 5 No 1

DESTINATION		O/G			I/C			NOTE
TDM.	OFFICE	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	
1	KK	22	11	2,000	26	11	2,000	
〃	SR	48	〃	〃	60	〃	〃	
〃	BP	13	〃	〃	13	〃	〃	
〃	PW	13	〃	〃	21	〃	〃	
〃	SS	11	〃	〃	12	〃	〃	
2	PY	12	11	〃	—	—		
〃	BS	6	〃	〃	7	11	2,000	
3	PL	14	〃	〃	14	11	〃	
〃	MM	—	—		7	〃	〃	
〃	ASD	6	11	2,000	6	〃	〃	
〃	KT	—	—		8	〃	〃	
5	TH	22	11	2,000	20	11	〃	
〃	BC	10	〃	〃	10	〃	〃	
〃	DK	7	〃	〃	7	〃	〃	
7	SW	24	11	〃	27	11	〃	
1	KK	—	—		11	6	2,000	TDM
2	PY	—	—		30	〃	〃	〃
3	PL	—	—		22	〃	〃	〃
4	LS	—	—		24	〃	〃	〃
5	TH	226	4	2,000	70	4	〃	〃
6	PN	—	—		43	6	〃	〃
7	SW	—	—		25	〃	〃	〃
5	TH	23	4	2,000	31	4	2,000	TOLL
〃	〃	5	6	〃	—	—		MC
1	KK	6	4	2,000	—	—		OTD

NO.55

RB EX. T 5 No. 1

DESTINATION		O/G			I/C			NOTE
TDM.	OFFICE	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	
5	TH	12	11	2000	11	11	2000	
〃	PD	13	〃	〃	12	〃	〃	
〃	DK	19	〃	〃	19	〃	〃	
1	KK	—			40	6	2000	TDM
2	PY	—			17	〃	〃	〃
3	PL	—			22	〃	〃	〃
4	LS	—			15	〃	〃	〃
5	TH	169	4	2000	56	4	〃	〃
6	PN	—			24	6	〃	〃
7	SW	—			25	〃	〃	〃
5	TH	13	4	2000	18	4	2000	TOLL
〃	〃	3	6	〃	—			MC
1	KK	4	4	〃	—			OTD

NO.56

EC EX. T 5 No 1.

DESTINATION		O/G			I/C			NOTE
TDM.	OFFICE	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	
5	TH	6	11	2000	6	11	2000	
〃	DK	6	〃	〃	6	〃	〃	
〃	PC	10	〃	〃	11	〃	〃	
1	KK	—			38	6	2000	TDM
2	PY	—			16	〃	〃	〃
3	PL	—			22	〃	〃	〃
4	LS	—			12	〃	〃	〃
5	TH	168	4	2000	53	4	〃	〃
6	PN	—			23	6	〃	〃
7	SW	—			22	〃	〃	〃
5	TH	13	4	2000	18	4	〃	TOLL
〃	〃	3	6	〃	—			MC
1	KK	4	4	2000	—			OTD

NO.57

PP EX. T 5 No. 1

DESTINATION		O/G			I/C			NOTE
TDM.	OFFICE	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	
1	KK	—			8	6	2000	TDM
3	PL	—			6	〃	〃	〃
5	TH	46	4	2000	30	4	〃	〃
6	PN	—			7	6	〃	〃
5	TH	4	4	2000	5	4	2000	TOLL
〃	〃	2	6	〃	—			MC
1	KK	2	4	〃	—			OTD

NO.58

PN EX. (LOC) T 6 No. 1

DESTINATION		O/G			I/C			NOTE
TDM.	OFFICE	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	
1	KK	—			12	11	2000	
〃	SR	—			24	〃	〃	
〃	PW	13	11	2000	17	〃	〃	
2	LP2	—			6	〃	〃	
3	PL	18	11	2000	18	〃	〃	
〃	MM	—			7	〃	〃	
〃	SV	9	11	2000	11	〃	〃	
〃	KT	—			8	〃	〃	
4	RID	—			6	〃	〃	
5	TH	9	11	2000	8	〃	〃	
〃	PD	—			6	〃	〃	
〃	DK	—			6	〃	〃	
6	CP	32	11	2000	30	〃	〃	
〃	BN	9	〃	〃	9	〃	〃	
〃	PS	6	〃	〃	7	〃	〃	
〃	HM	9	〃	〃	10	〃	〃	
7	SW	—			18	〃	〃	
1	KK	—			19	6	2000	TDM
2	PY	—			24	〃	〃	〃
3	PL	—			21	〃	〃	〃
4	LS	—			15	〃	〃	〃
5	TH	—			22	〃	〃	〃
7	SW	—			21	〃	〃	〃
1	KK	6	4	2000	—			OTD

NO.59

PN EX. (TDM) T 6 No. 2

DESTINATION		O/G			I/C			NOTE
TDM.	OFFICE	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	
1	KK	72	6	2,000	—			
〃	SR	164	〃	〃	—			
〃	BP	36	〃	〃	—			
〃	PW	68	〃	〃	—			
〃	SS	36	〃	〃	—			
2	PY	60	〃	〃	—			
〃	BS	38	〃	〃	—			
〃	IM	43	〃	〃	—			
〃	LP1	36	〃	〃	—			
〃	LP2	36	〃	〃	—			
〃	NN	25	〃	〃	—			
3	PL	104	〃	〃	—			
〃	MM	32	〃	〃	—			
〃	ASD	55	〃	〃	—			
〃	SV	38	〃	〃	—			
〃	KT	42	〃	〃	—			
4	LS	34	〃	〃	—			
〃	NW	67	〃	〃	—			
〃	DM	36	〃	〃	—			
〃	BK	37	〃	〃	—			
〃	RS	10	〃	〃	—			
〃	PK	9	〃	〃	—			
〃	RID	41	〃	〃	—			
〃	CW	21	〃	〃	—			
〃	NWN	13	〃	〃	—			
〃	PT	11	〃	〃	—			
〃	BSN	19	〃	〃	—			
〃	NC	5	〃	〃	—			
5	TH	68	〃	〃	—			
〃	PD	50	〃	〃	—			
〃	BC	42	〃	〃	—			
〃	DK	45	〃	〃	—			
〃	NK	11	〃	〃	—			
〃	PC	28	〃	〃	—			
〃	MK	10	〃	〃	—			
〃	CN	43	〃	〃	—			
〃	RB	24	〃	〃	—			
〃	EC	23	〃	〃	—			
〃	PP	7	〃	〃	—			
6	CP	126	4	〃	412	4	2,000	
〃	BN	168	〃	〃	413	〃	〃	
〃	KC	118	〃	〃	334	〃	〃	
〃	PS	61	〃	〃	154	〃	〃	
〃	SPK	79	〃	〃	218	〃	〃	
〃	PV	38	〃	〃	41	〃	〃	

NO.60

PN EX. (TDM) (TOLL) T 6 No 3

DESTINATION		O/G			I/C			NOTE
TDM.	OFFICE	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	
6	ON	85	4	2,000	212	4	2,000	
〃	HM	68	〃	〃	173	〃	〃	
〃	LB	38	〃	〃	75	〃	〃	
〃	BPL	35	〃	〃	42	〃	〃	
〃	BPO	39	〃	〃	51	〃	〃	
7	SW	141	6	〃	—			
〃	SP	35	〃	〃	—			
〃	TC	65	〃	〃	—			
〃	TK	30	〃	〃	—			
1	KK	66	2	2,000	77	2	2,000	
2	PY	60	〃	〃	70	〃	〃	
3	PL	52	〃	〃	69	〃	〃	
4	LS	68	〃	〃	71	〃	〃	
5	TH	70	〃	〃	84	〃	〃	
7	SW	75	〃	〃	80	〃	〃	
1	KK	73	0	2,000	99	0	2,000	TOLL
2	PY	86	〃	〃	118	〃	〃	〃
4	BSN	15	4	2,000	11	4	2,000	TOLL
6	CP	68	〃	〃	50	〃	〃	〃
〃	BN	54	〃	〃	40	〃	〃	〃
〃	KC	54	〃	〃	40	〃	〃	〃
〃	PS	26	〃	〃	19	〃	〃	〃
〃	SPK	20	〃	〃	15	〃	〃	〃
〃	PV	5	〃	〃	4	〃	〃	〃
〃	ON	20	〃	〃	15	〃	〃	〃
〃	HM	39	〃	〃	29	〃	〃	〃
〃	LB	5	〃	〃	4	〃	〃	〃
〃	BPL	5	〃	〃	4	〃	〃	〃
〃	BPO	5	〃	〃	4	〃	〃	〃
7	SW	51	6	2000	—			INF

NO61

PN EX. (MC) T 6 No 4

DESTINATION		O/G			I/C			NOTE
TDM.	OFFICE	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	
3	MM	—			5	6	2,000	"17"
〃	ASD	—			9	〃	〃	〃
〃	SV	—			5	〃	〃	〃
〃	KT	—			5	〃	〃	〃
4	BSN	—			3	〃	〃	〃
〃	NC	—			2	〃	〃	〃
6	CP	—			10	〃	〃	〃
〃	BN	—			9	〃	〃	〃
〃	KC	—			9	〃	〃	〃
〃	PS	—			4	〃	〃	〃
〃	SPK	—			4	〃	〃	〃
〃	PV	—			2	〃	〃	〃
〃	ON	—			4	〃	〃	〃
〃	HM	—			5	〃	〃	〃
〃	LB	—			2	〃	〃	〃
〃	BPL	—			2	〃	〃	〃
〃	BPO	—			2	〃	〃	〃
7	SP	—			4	〃	〃	〃
〃	TC	—			9	〃	〃	〃
〃	TK	—			4	〃	〃	〃
1	KK	8	4	2,000	7	4	2,000	MC
4	LS	8	〃	〃	7	〃	〃	〃
5	TH	8	〃	〃	6	〃	〃	〃

NO.62

CP EX. T 6 No. 1

DESTINATION		O/G			I/C			NOTE
TDM.	OFFICE	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	
1	KK	56	11	2000	44	11	2000	
〃	SR	112	〃	〃	96	〃	〃	
〃	BP	14	〃	〃	16	〃	〃	
〃	PW	54	〃	〃	58	〃	〃	
〃	SS	12	〃	〃	12	〃	〃	
2	PY	32	〃	〃	24	〃	〃	
〃	BS	—	〃	〃	12	〃	〃	
〃	IM	—			12	〃	〃	
〃	LP1	14	11	2000	16	〃	〃	
〃	LP2	16	〃	〃	20	〃	〃	
3	PL	90	〃	〃	90	〃	〃	
〃	MM	32	〃	〃	28	〃	〃	
〃	ASD	34	〃	〃	20	〃	〃	
〃	SV	42	〃	〃	46	〃	〃	
〃	KT	28	〃	〃	30	〃	〃	
4	NW	—			12	〃	〃	
〃	DM	12	11	2000	16	〃	〃	
〃	BK	12	〃	〃	18	〃	〃	
〃	RID	12	〃	〃	18	〃	〃	
5	TH	20	〃	〃	20	〃	〃	
〃	PD	—			14	〃	〃	
6	PN	30	11	2000	32	〃	〃	
〃	BN	42	〃	〃	42	〃	〃	
〃	KC	38	〃	〃	36	〃	〃	
〃	PS	16	〃	〃	18	〃	〃	
〃	ON	—			12	〃	〃	
〃	HM	34	11	2000	36	〃	〃	
7	SW	94	〃	〃	92	〃	〃	
〃	SP	—			12	〃	〃	
〃	TC	14	11	2000	16	〃	〃	
1	KK	—			36	6	2000	TDM
2	PY	—			32	〃	〃	〃
3	PL	—			48	〃	〃	〃
4	LS	—			38	〃	〃	〃
5	TH	—			74	〃	〃	〃
6	PN	412	4	2000	126	4	〃	〃
7	SW	—			50	6	〃	〃
6	PN	50	4	2000	68	4	2000	TOLL
1	KK	12	〃	〃	—			OTD
6	PN	10	6	2000	—			MC

NO63

BN EX. T 6 No. 1

DESTINATION		O/G			I/C			NOTE
TDM.	OFFICE	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	
1	KK	14	11	2000	12	11	2000	
〃	SP	—			24	〃	〃	
〃	PW	14	11	2000	17	〃	〃	
〃	SS	6	〃	〃	6	〃	〃	
2	PY	14	〃	〃	—			
〃	BS	6	〃	〃	7	11	2000	
〃	LP2	—			6	〃	〃	
3	PL	16	11	2000	16	〃	〃	
〃	MM	7	〃	〃	7	〃	〃	
〃	SV	7	〃	〃	10	〃	〃	
〃	KT	7	〃	〃	9	〃	〃	
4	BK	—			6	〃	〃	
〃	RID	—			7	〃	〃	
5	TH	7	11	2000	—			
〃	PD	—			6	11	2000	
6	PN	9	11	2000	9	〃	〃	
〃	CP	42	〃	〃	42	〃	〃	
〃	KC	7	〃	〃	7	〃	〃	
〃	PS	22	〃	〃	23	〃	〃	
〃	SPK	7	〃	〃	7	〃	〃	
〃	HM	8	〃	〃	8	〃	〃	
7	SW	30	〃	〃	21	〃	〃	
1	KK	—			49	6	2000	TDM
2	PY	—			48	〃	〃	〃
3	PL	—			52	〃	〃	〃
4	LS	—			37	〃	〃	〃
5	TH	—			44	〃	〃	〃
6	PN	413	4	2000	168	4	〃	〃
7	SW	—			54	6	〃	〃
6	PN	40	4	2000	54	4	2000	TOLL
1	KK	11	〃	〃	—			OTD
6	PN	9	6	2000	—			MC

NO.64

KC EX. T 6 No. 1

DESTINATION		O/G			I/C			NOTE
TDM.	OFFICE	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	
1	KK	18	11	2000	16	11	2000	
〃	SR	32	〃	〃	24	〃	〃	
〃	BP	6	〃	〃	6	〃	〃	
〃	PW	16	〃	〃	15	〃	〃	
〃	SS	11	〃	〃	7	〃	〃	
2	PY	34	〃	〃	12	〃	〃	
〃	BS	17	〃	〃	11	〃	〃	
〃	IM	10	〃	〃	8	〃	〃	
〃	LP1	9	〃	〃	8	〃	〃	
〃	LP2	22	〃	〃	22	〃	〃	
3	PL	24	〃	〃	14	〃	〃	
〃	MM	6	〃	〃	—			
〃	ASD	7	〃	〃	6	11	2000	
〃	SV	7	〃	〃	7	〃	〃	
〃	KT	6	〃	〃	7	〃	〃	
4	NW	8	〃	〃	9	〃	〃	
〃	DM	10	〃	〃	8	〃	〃	
〃	BK	18	〃	〃	20	〃	〃	
〃	RID	20	〃	〃	20	〃	〃	
5	TH	18	〃	〃	7	〃	〃	
〃	PD	—			6	11	2000	
6	CP	36	11	2000	38	〃	〃	
〃	BN	7	〃	〃	7	〃	〃	
〃	PS	—			6	〃	〃	
〃	HM	22	11	2000	22	〃	〃	
7	SW	36	〃	〃	18	〃	〃	
1	KK	—			56	6	2000	TDM
2	PY	—			41	〃	〃	〃
3	PL	—			53	〃	〃	〃
4	LS	—			43	〃	〃	〃
5	TH	—			53	〃	〃	〃
6	PN	334	4	2000	118	4	〃	〃
7	SW	—			50	6	〃	〃
6	PN	40	4	2000	54	4	2000	TOLL
1	KK	11	〃	〃	—			OTD
6	PN	9	6	2000	—			MC

NO.65

PS EX. T 6 No 1

DESTINATION		O/G			I/C			NOTE
TDM.	OFFICE	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	
1	KK	16	11	2000	12	11	2000	
〃	SR	28	〃	〃	14	〃	〃	
〃	BP	6	〃	〃	—			
〃	PW	16	〃	〃	15	11	2000	
〃	SS	6	〃	〃	—			
2	PY	12	〃	〃	—			
〃	BS	6	〃	〃	—			
〃	LP2	6	〃	〃	6	11	2000	
3	PL	18	〃	〃	12	〃	〃	
〃	MM	8	〃	〃	7	〃	〃	
〃	ASD	6	〃	〃	—			
〃	SV	7	〃	〃	7	11	2000	
〃	KT	8	〃	〃	9	〃	〃	
4	RID	—			6	〃	〃	
5	TH	12	11	2000	9	〃	〃	
〃	PD	9	〃	〃	9	〃	〃	
〃	DK	6	〃	〃	—			
6	PN	7	〃	〃	6	11	2000	
〃	CP	18	〃	〃	16	〃	〃	
〃	BN	23	〃	〃	22	〃	〃	
〃	KC	6	〃	〃	—			
〃	SPK	9	〃	〃	9	11	2000	
〃	HM	7	〃	〃	6	〃	〃	
7	SW	27	〃	〃	—			
〃	TC	6	〃	〃	—			
1	KK	—			27	6	2000	TDM
2	PY	—			30	〃	〃	〃
3	PL	—			26	〃	〃	〃
4	LS	—			22	〃	〃	〃
5	TH	—			37	〃	〃	〃
6	PN	154	4	2000	61	4	〃	〃
7	SW	—			45	6	〃	〃
6	PN	19	4	2000	26	4	2000	TOLL
1	KK	5	〃	〃	—			OTD
6	PN	4	6	2000	—			MC

NO.66

SPK EX. T 6 No. 1

DESTINATION		O/G			I/C			NOTE
TDM.	OFFICE	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	
3	PL	12	11	2000	—			
〃	MM	6	〃	〃	—			
〃	KT	—			6	11	2000	
5	TH	8	11	2000	7	〃	〃	
〃	PD	6	〃	〃	6	〃	〃	
6	BN	7	〃	〃	7	〃	〃	
〃	PS	9	〃	〃	9	〃	〃	
7	SW	18	〃	〃	—			
1	KK	—			49	6	2000	TDM
2	PY	—			25	〃	〃	〃
3	PL	—			33	〃	〃	〃
4	LS	—			18	〃	〃	〃
5	TH	—			28	〃	〃	〃
6	PN	218	4	2000	79	4	〃	〃
7	SW	—			31	6	〃	〃
6	PN	15	4	2000	20	4	2000	TOLL
1	KK	5	〃	〃	—			OTD
6	PN	4	6	2000				MC

NO.67

PV EX. T 6 16 1

DESTINATION		O/G			I/C			NOTE
TDM.	OFFICE	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	
1	KK	—			6	6	2000	TDM
6	PN	41	4	2000	38	4	〃	〃
6	PN	4	4	2000	5	4	2000	TOLL
1	KK	2	〃	〃	—			OTD
6	PN	2	6	〃	—			MC

NO.68

ON EX. T 6 No. 1

DESTINATION		O/G			I/C			NOTE
TDM.	OFFICE	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	
6	OP	12	11	2000	—			
1	KK	—			39	6	2000	TDM
2	PY	—			22	〃	〃	〃
3	PL	—			31	〃	〃	〃
4	LS	—			18	〃	〃	〃
5	TH	—			21	〃	〃	〃
6	PN	212	4	2000	85	4	〃	〃
7	SW	—			23	6	〃	〃
6	PN	15	4	2000	20	4	2000	TOLL
1	KK	5	〃	〃	—			OTD
6	PN	4	6	〃	—			MC

NO.69

DESTINATION		O/G			I/C			NOTE
TDM.	OFFICE	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	
1	KK	22	11	2000	20	11	2000	
〃	SR	40	〃	〃	40	〃	〃	
〃	BP	7	〃	〃	7	〃	〃	
〃	PW	21	〃	〃	23	〃	〃	
〃	SS	8	〃	〃	8	〃	〃	
2	PY	18	〃	〃	14	〃	〃	
〃	BS	8	〃	〃	8	〃	〃	
〃	IM	9	〃	〃	7	〃	〃	
〃	LP1	9	〃	〃	9	〃	〃	
〃	LP2	14	〃	〃	15	〃	〃	
3	PL	34	〃	〃	31	〃	〃	
〃	MM	9	〃	〃	8	〃	〃	
〃	ASD	20	〃	〃	20	〃	〃	
〃	SV	14	〃	〃	15	〃	〃	
〃	KT	8	〃	〃	10	〃	〃	
4	BK	8	〃	〃	7	〃	〃	
〃	RID	9	〃	〃	10	〃	〃	
5	TH	14	〃	〃	12	〃	〃	
〃	PD	7	〃	〃	8	〃	〃	
〃	DK	6	〃	〃	6	〃	〃	
6	PN	10	〃	〃	9	〃	〃	
〃	CP	36	〃	〃	34	〃	〃	
〃	BN	8	〃	〃	8	〃	〃	
〃	KC	22	〃	〃	22	〃	〃	
〃	PS	6	〃	〃	7	〃	〃	
7	SW	39	〃	〃	24	〃	〃	
〃	TC	7	〃	〃	6	〃	〃	
1	KK	—			18	6	2000	TDM
2	PY	—			16	〃	〃	〃
3	PL	—			15	〃	〃	〃
4	LS	—			28	〃	〃	〃
5	TH	—			37	〃	〃	〃
6	PN	173	4	2000	68	4	〃	〃
7	SW	—			30	6	〃	〃
6	PN	29	4	2000	39	4	2000	TOLL
1	KK	7	4	〃	—			OTD
6	PN	5	6	〃	—			MC

NO.70

LB EX. T 6 № 1

DESTINATION		O/G			I/C			NOTE
TDM.	OFFICE	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	
1	KK	—			12	6	2000	TDM
2	PY	—			7	〃	〃	〃
3	PL	—			9	〃	〃	〃
4	LS	—			6	〃	〃	〃
5	TH	—			7	〃	〃	〃
6	PN	75	4	2000	38	4	〃	〃
7	SW	—			7	6	2000	〃
6	PN	4	4	2000	5	4	2000	TOLL
1	KK	2	〃	〃	—			OTD
6	PN	2	6	2000	—			MC

NO. 71

DESTINATION		O/G			I/C			NOTE
TDM.	OFFICE	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	
6	PN	42	4	2000	35	4	2000	TDM
6	PN	4	4	2000	5	4	2000	TOLL
1	KK	2	〃	〃	—			OTD
6	PN	2	6	2000	—			MO

NO.72

BPO EX. T 6 No. 1

DESTINATION		O/G			I/C			NOTE
TDM.	OFFICE	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	
1	KK	—			8	6	2000	TDM
3	PL	—			6	〃	〃	〃
6	PN	51	4	2000	39	4	〃	〃
6	PN	4	4	2000	5	4	2000	TOLL
1	KK	2	〃	〃	—			OTD
6	PN	2	6	〃	—			MC

NO.73

SW EX. (LOC) T 7

No 1

DESTINATION		O/G			I/C			NOTE
TDM.	OFFICE	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	
1	KK	144	11	2000	144	11	2000	
〃	SR	344	〃	〃	376	〃	〃	
〃	BP	40	〃	〃	43	〃	〃	
〃	PW	173	〃	〃	195	〃	〃	
〃	SS	27	〃	〃	36	〃	〃	
2	PY	72	〃	〃	78	〃	〃	
〃	BS	24	〃	〃	36	〃	〃	
〃	IM	—			18	〃	〃	
〃	LP1	21	11	2000	27	〃	〃	
〃	LP2	18	〃	〃	27	〃	〃	
3	PL	223	〃	〃	241	〃	〃	
〃	MM	65	〃	〃	73	〃	〃	
〃	ASD	58	〃	〃	58	〃	〃	
〃	SV	41	〃	〃	43	〃	〃	
〃	KT	58	〃	〃	73	〃	〃	
4	NW	24	〃	〃	40	〃	〃	
〃	DM	21	〃	〃	36	〃	〃	
〃	BK	27	〃	〃	47	〃	〃	
〃	RID	18	〃	〃	36	〃	〃	
5	TH	78	〃	〃	86	〃	〃	
〃	PD	24	〃	〃	36	〃	〃	
〃	BC	27	〃	〃	27	〃	〃	
〃	DK	39	〃	〃	43	〃	〃	
〃	CN	27	〃	〃	24	〃	〃	
6	PN	18	〃	〃	—			
〃	CP	92	〃	〃	94	11	2000	
〃	BN	21	〃	〃	30	〃	〃	
〃	KC	18	〃	〃	36	〃	〃	
〃	PS	—			27	〃	〃	
〃	SPK	—			18	〃	〃	
〃	HM	24	11	2000	39	〃	〃	
7	SP	18	〃	〃	18	〃	〃	
〃	TC	88	〃	〃	88	〃	〃	
〃	TK	33	〃	〃	36	〃	〃	
1	KK	—			54	6	2000	TDM
2	PY	—			67	〃	〃	〃
3	PL	—			64	〃	〃	〃
4	LS	—			79	〃	〃	〃
5	TH	—			123	〃	〃	〃
6	PN	—			141	〃	〃	〃
1	KK	85	4	2000	114	4	2000	TOLL
2	PY	99	〃	〃	133	〃	〃	〃
1	KK	34	〃	〃	—			OTD

NO. 74

SW EX. (LOC) T7

No. 2

DESTINATION		O/G			I/C			NOTE
TDM.	OFFICE	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	
1	KK	19	6	2000	—			MC

NO.75

SW EX. (TDM) T 7 No 3

DESTINATION		O/G			I/C			NOTE
TDM.	OFFICE	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	
1	KK	50	6	2000	--			
〃	SR	108	〃	〃	--			
〃	BP	20	〃	〃	--			
〃	PW	60	〃	〃	--			
〃	SS	28	〃	〃	--			
2	PY	36	〃	〃	--			
〃	BS	27	〃	〃	--			
〃	IM	35	〃	〃	--			
〃	LP1	27	〃	〃	--			
〃	LP2	30	〃	〃	--			
〃	NN	21	〃	〃	--			
3	PL	68	〃	〃	--			
〃	MM	13	〃	〃	--			
〃	ASD	37	〃	〃	--			
〃	SV	19	〃	〃	--			
〃	KT	22	〃	〃	--			
4	LS	27	〃	〃	--			
〃	NW	58	〃	〃	--			
〃	DM	28	〃	〃	--			
〃	BK	33	〃	〃	--			
〃	RS	8	〃	〃	--			
〃	PK	8	〃	〃	--			
〃	RID	32	〃	〃	--			
〃	CW	19	〃	〃	--			
〃	NWN	9	〃	〃	--			
〃	PT	8	〃	〃	--			
〃	BSN	12	〃	〃	--			
5	TH	40	〃	〃	--			
〃	PD	33	〃	〃	--			
〃	BC	23	〃	〃	--			
〃	DK	22	〃	〃	--			
〃	NK	9	〃	〃	--			
〃	PC	27	〃	〃	--			
〃	MK	9	〃	〃	--			
〃	CN	25	〃	〃	--			
〃	RB	25	〃	〃	--			
〃	EC	22	〃	〃	--			
6	PN	21	〃	〃	--			
〃	CP	50	〃	〃	--			
〃	BN	54	〃	〃	--			
〃	KC	50	〃	〃	--			
〃	PS	45	〃	〃	--			
〃	SPK	31	〃	〃	--			
〃	ON	23	〃	〃	--			
〃	HM	30	〃	〃	--			

NO.76

SW EX. (TDM) T 7

No. 4

DESTINATION		O/G			I/C			NOTE
TDM.	OFFICE	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	
6	LB	7	6	2000	—			
7	SP	52	4	〃	184	4	2000	
〃	TC	97	〃	〃	386	〃	〃	
〃	TK	50	〃	〃	194	〃	〃	
1	KK	32	2	2000	39	2	2000	
2	PY	46	〃	〃	49	〃	〃	
3	PL	32	〃	〃	35	〃	〃	
4	LS	59	〃	〃	64	〃	〃	
5	TH	49	〃	〃	41	〃	〃	
6	PN	80	〃	〃	75	〃	〃	
1	KK	—			57	6	2000	INF
2	PY	—			39	〃	〃	〃
3	PL	—			42	〃	〃	〃
4	LS	—			40	〃	〃	〃
5	TH	—			45	〃	〃	〃
6	PN	—			51	〃	〃	〃

NO77

SP EX. T 7 No. 1

DESTINATION		O/G			I/C			NOTE
TDM.	OFFICE	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	
3	MM	8	11	2000	8	11	2000	
〃	KT	7	〃	〃	8	〃	〃	
6	CP	12	〃	〃	—			
7	SW	18	〃	〃	18	11	2000	
〃	TO	9	〃	〃	10	〃	〃	
1	KK	—			39	6	2000	TDM
2	PY	—			23	〃	〃	〃
3	PL	—			21	〃	〃	〃
4	LS	—			18	〃	〃	〃
5	TH	—			24	〃	〃	〃
6	PN	—			35	〃	〃	〃
7	SW	184	4	2000	52	4	〃	〃
1	KK	9	4	2000	12	4	2000	TOLL
2	PY	10	〃	〃	14	〃	〃	〃
1	KK	5	〃	〃	—			OTD
6	PN	4	6	〃	—			MC

NO.78

TC EX. T 7 No. 1

DESTINATION		O/G			I/C			NOTE
TDM.	OFFICE	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	
1	KK	20	11	2000	34	11	2000	
〃	SR	40	〃	〃	72	〃	〃	
〃	BP	6	〃	〃	6	〃	〃	
〃	PW	21	〃	〃	38	〃	〃	
〃	SS	—			6	〃	〃	
2	PY	12	11	2000	—			
〃	BS	6	〃	〃	6		2000	
〃	LP2	—			6	〃	〃	
3	PL	41	11	2000	41	〃	〃	
〃	MM	25	〃	〃	28	〃	〃	
〃	SV	7	〃	〃	6	〃	〃	
〃	KT	23	〃	〃	26	〃	〃	
4	RID	—			6	〃	〃	
5	TH	27	11	2000	27	〃	〃	
〃	PD	8	〃	〃	9	〃	〃	
〃	BC	6	〃	〃	—			
〃	DK	10	〃	〃	10	11	2000	
6	CP	16	〃	〃	14	〃	〃	
〃	PS	—			6	〃	〃	
〃	HM	6	11	2000	7	〃	〃	
7	SW	88	〃	〃	88	〃	〃	
〃	SP	10	〃	〃	9	〃	〃	
〃	TK	8	〃	〃	8	〃	〃	
1	KK	—			24	6	2000	TDM
2	PY	—			46	〃	〃	〃
3	PL	—			33	〃	〃	〃
4	LS	—			38	〃	〃	〃
5	TH	—			63	〃	〃	〃
6	PN	—			65	〃	〃	〃
7	SW	386	4	2000	97	〃	〃	〃
1	KK	23	4	2000	31	4	2000	TOLL
2	PY	26	〃	〃	36	〃	〃	〃
1	KK	11	〃	〃	—			OTD
6	PN	9	6	2000	—			MC

NO.79

TK EX. T 7 № 1

DESTINATION		O/G			I/C			NOTE
TDM.	OFFICE	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	NUMBER OF CCT.	LIMITATION LOSS (dB)	LIMITATION RES (Ω)	
1	PW	—			12	11	2000	
3	MM	6	11	2000	7	〃	〃	
〃	KT	—			6	〃	〃	
5	TH	8	11	2000	8	〃	〃	
7	SW	36	〃	〃	33	〃	〃	
〃	TC	8	〃	〃	8	〃	〃	
1	KK	—			32	6	2000	TDM
2	PY	—			21	〃	〃	〃
3	PL	—			21	〃	〃	〃
5	TH	—			29	〃	〃	〃
6	PN	—			30	〃	〃	〃
7	SW	194	4	2000	50	4	〃	〃
1	KK	9	4	2000	12	4	2000	TOLL
2	PY	10	〃	〃	14	〃	〃	〃
1	KK	5	〃	〃	—			OTD
6	PN	4	6	〃	—			MC

NO.80