Storage battery electrolyte level inspection and sunbeam collector surface cleaning for solar power system are to be carried out by PTC personnel on occasions of maintenance itineration, in principle.

(4) The following maintenance and operation personnel are to be increased at each base station.

(in case of Plan-A)

Maintenance Station	Exchange	Transmission & Power	Cable	Total
SANA'A	0	4-5	2-4	6-9
TAIZZ	0	3-4	1-3	4-7
HUDAYDAH	0	2-3	1-3	3-6
Total	0	9-12	4-10	13-22

(in case of Plan-B)

SANA'A	3	4-5	2-4	9-12
TAIZZ	3	3-4	1-3	7-10
HUDAYDAH	3	2-3	1-3	6-9
Total	9	9-12	4-10	22-31

4-4-2 Training

During the construction period of this project, the following training courses are planned.

(1) Training at Facilities Manufacturer's Factory

This training, which is performed during manufacturing, is intended to acquaint maintenance personnel about the outlines of facilities that constitute the rural telecommunications network and to give them the general knowledge of the system as a whole.

Maintenance personnel who have finished this training are preferable to work as instructors in the subsequent training series or as responsible persons for management of the whole maintenance work. Therefore, the trainees should rather be chosen from among senior engineers with a certain degree of field experience, e.g., the personnel scheduled to be assigned to duty in the maintenance stations.

The number of trainees will be at least seven persons (Plan-A), ten persons (Plan-B) and will have to be dispatched to receive a minimum of three months training.

(In case of Plan-A)

Responsible persons for field maintenance	3
Responsible persons at central repair centre	2
Responsible persons at maintenance stations	2

(In case of Plan-B)

Responsible persons for field maintenance (including maintenance of switches)	6
Responsible persons at central repair centre	2
Responsible persons at maintenance stations	2

(2) On-the-Job Training

All maintenance staff members are to participate in construction works and thereby acquire necessary knowledge for maintenance service, including how to make tests and how to handle measuring equipment, etc.

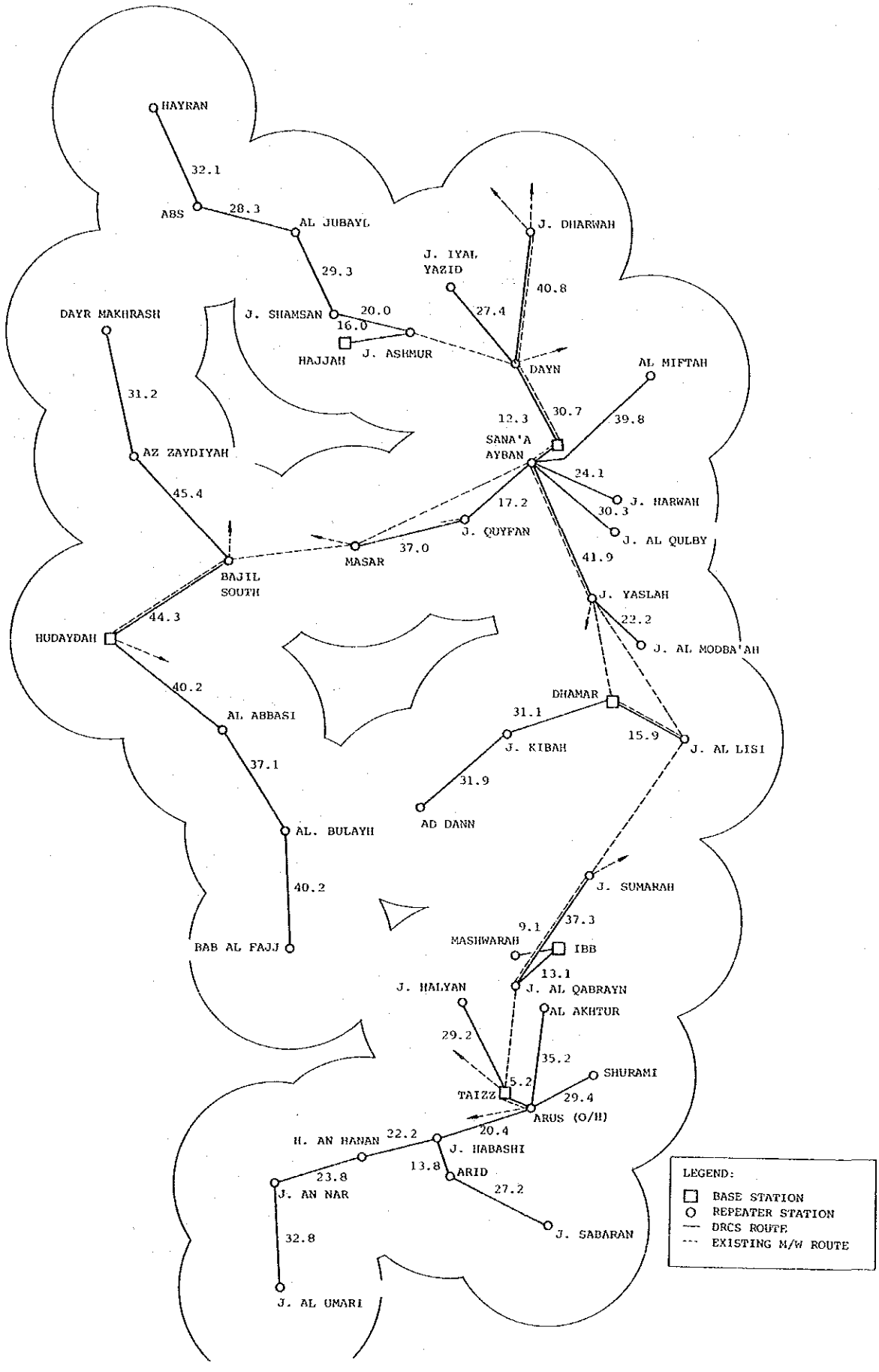


Figure 4-1 RURAL TELECOMMUNICATIONS NETWORK CONFIGURATION (Plan-A)

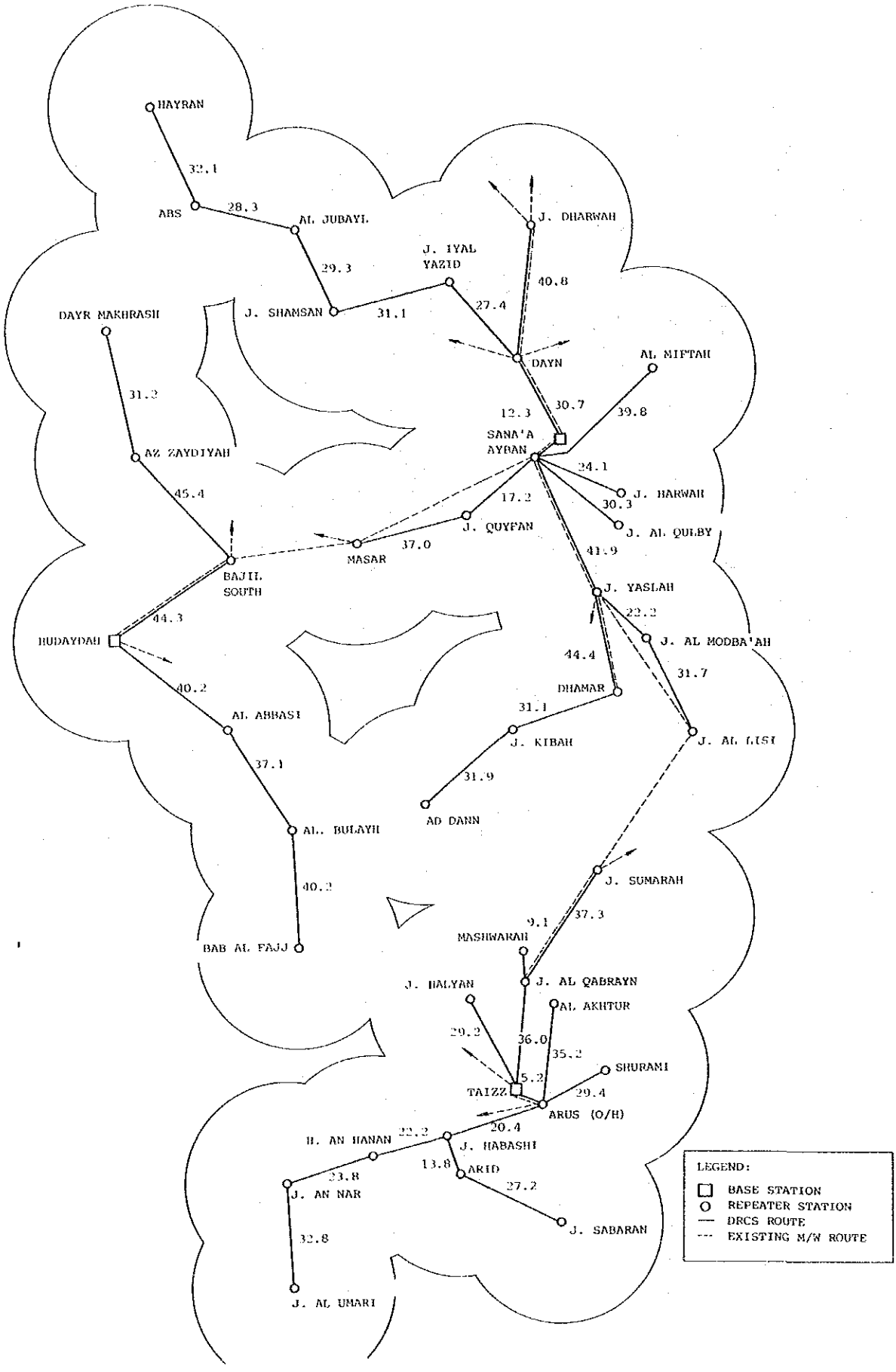


Figure 4-2 RURAL TELECOMMUNICATIONS NETWORK CONFIGURATION (Plan-B)

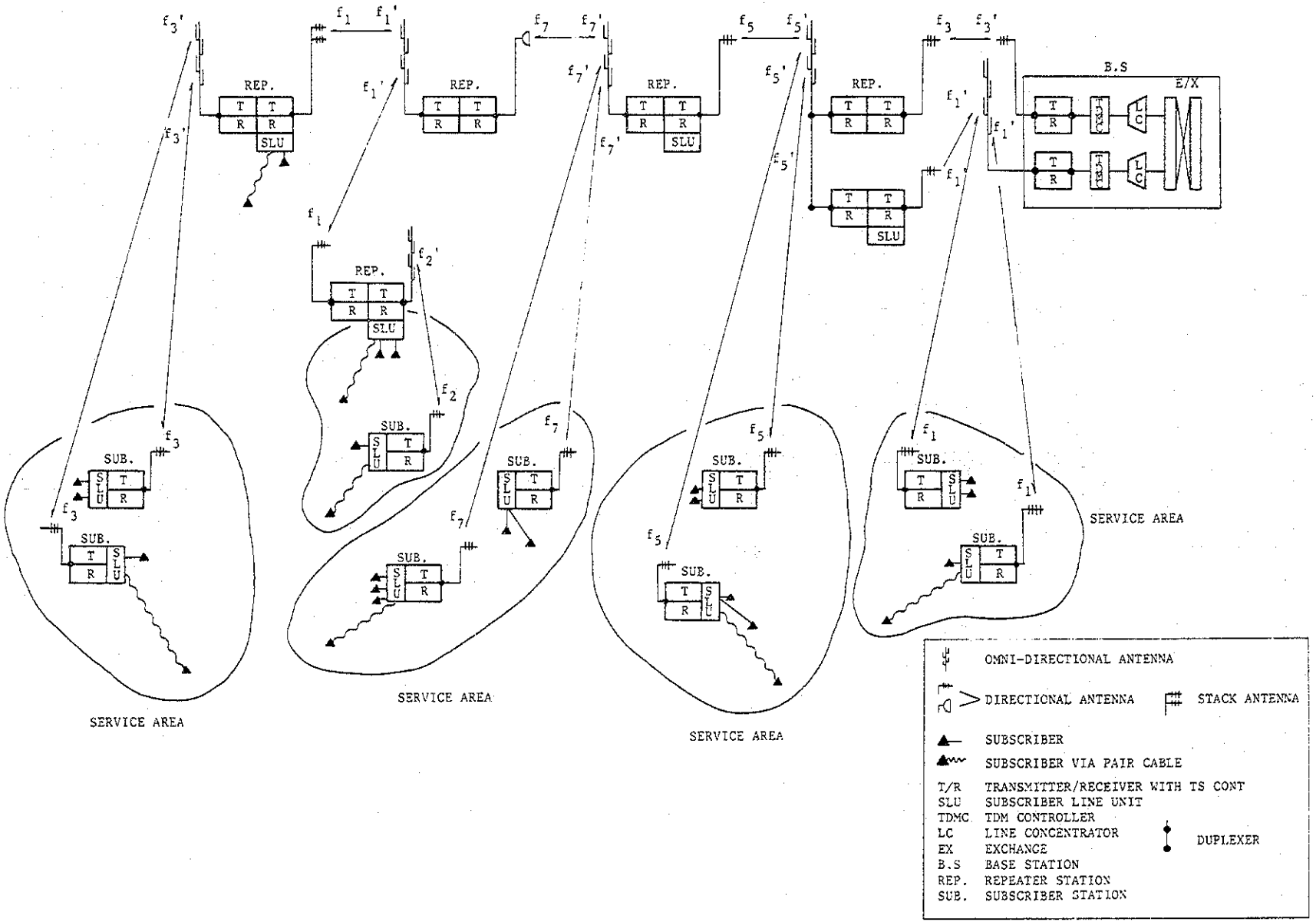


Figure 4-3 TYPICAL DRCS CONFIGURATION

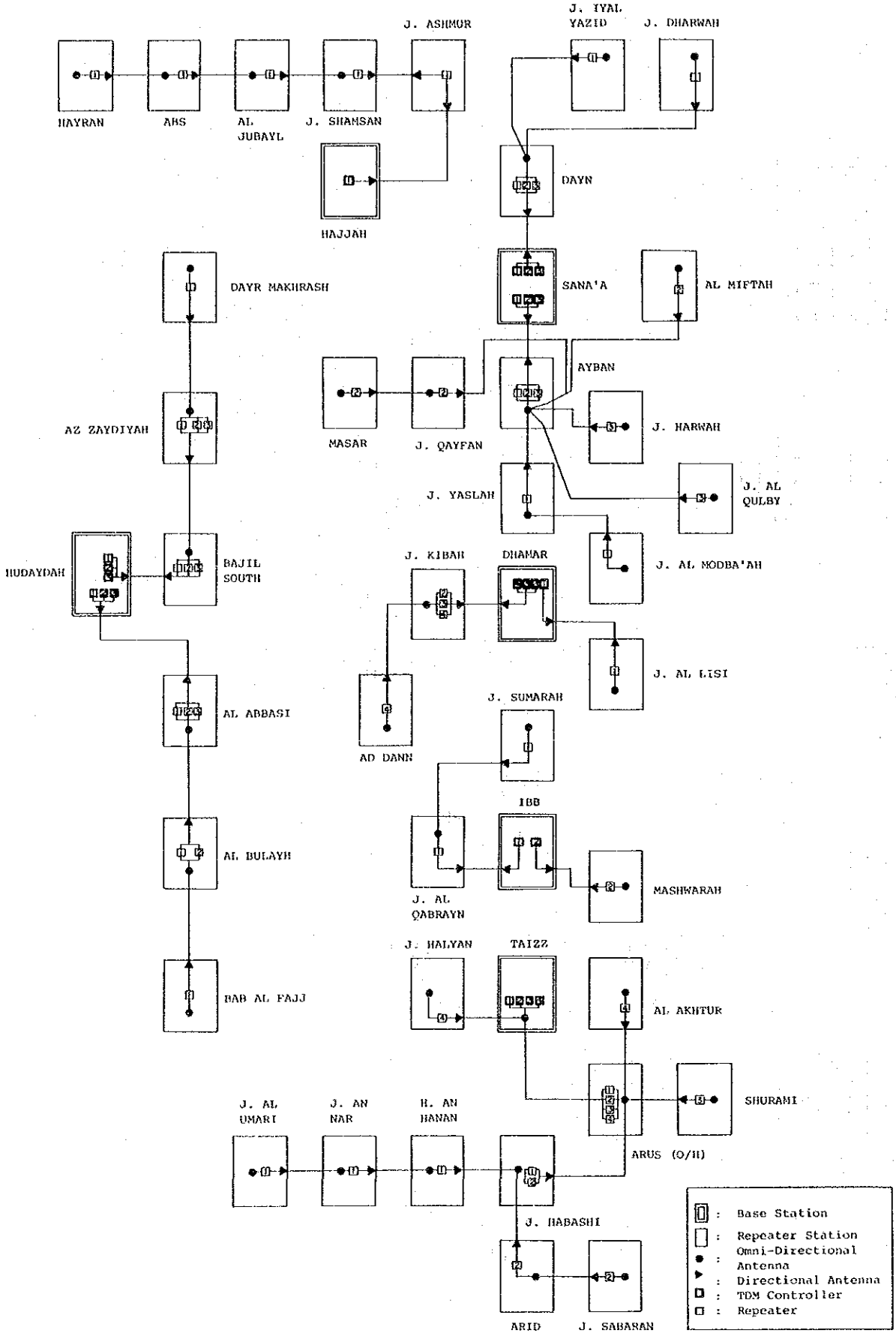


Figure 4-4 RADIO TRANSMISSION SYSTEM CONFIGURATION (Plan-A)

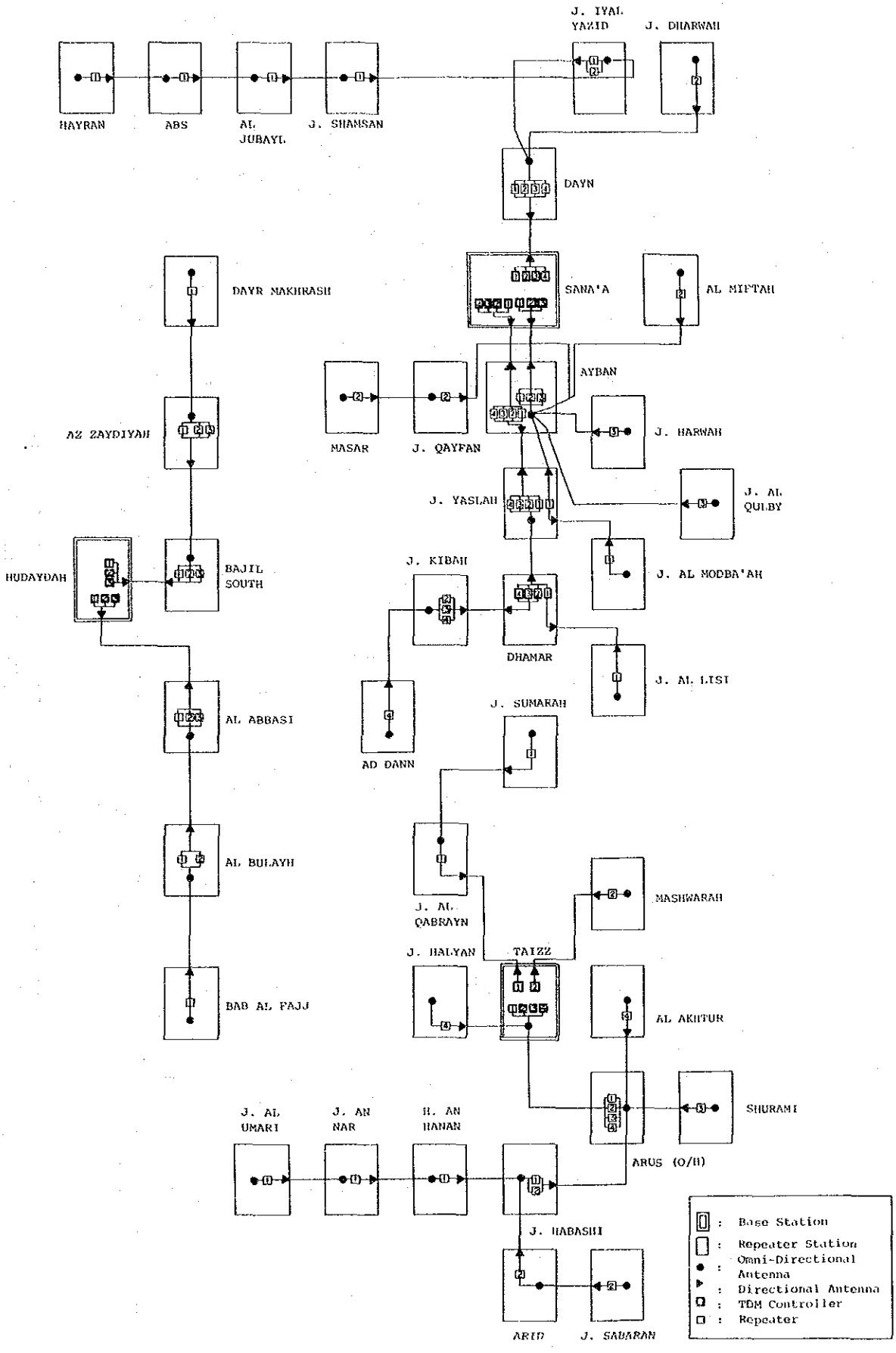


Figure 4-5 RADIO TRANSMISSION SYSTEM CONFIGURATION (Plan-B)

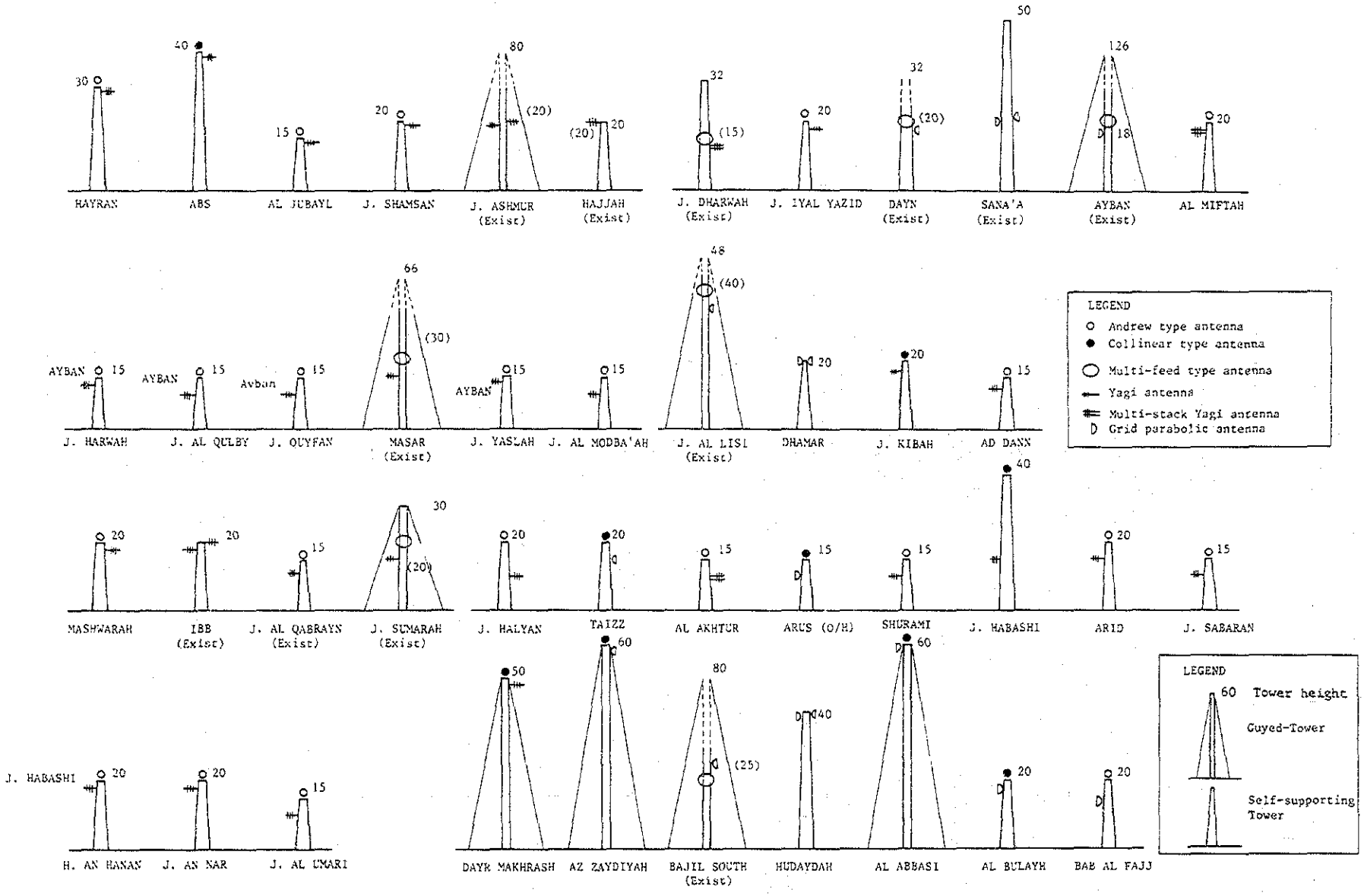


Figure 4-6 TOWER HEIGHT OF BASE STATION AND REPEATER STATION

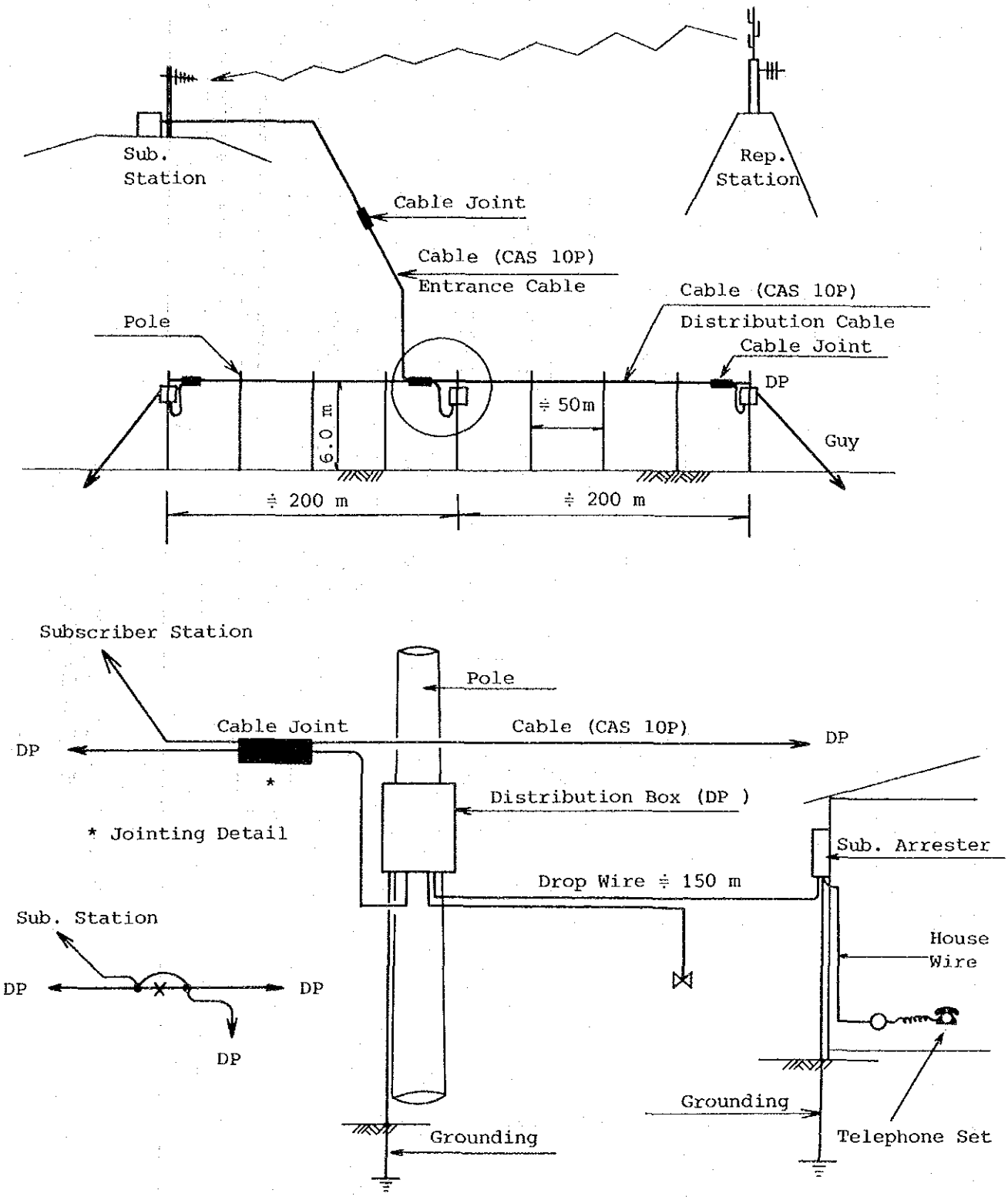


Figure 4-7 OUTLINE OF SUBSCRIBER CABLE PLAN

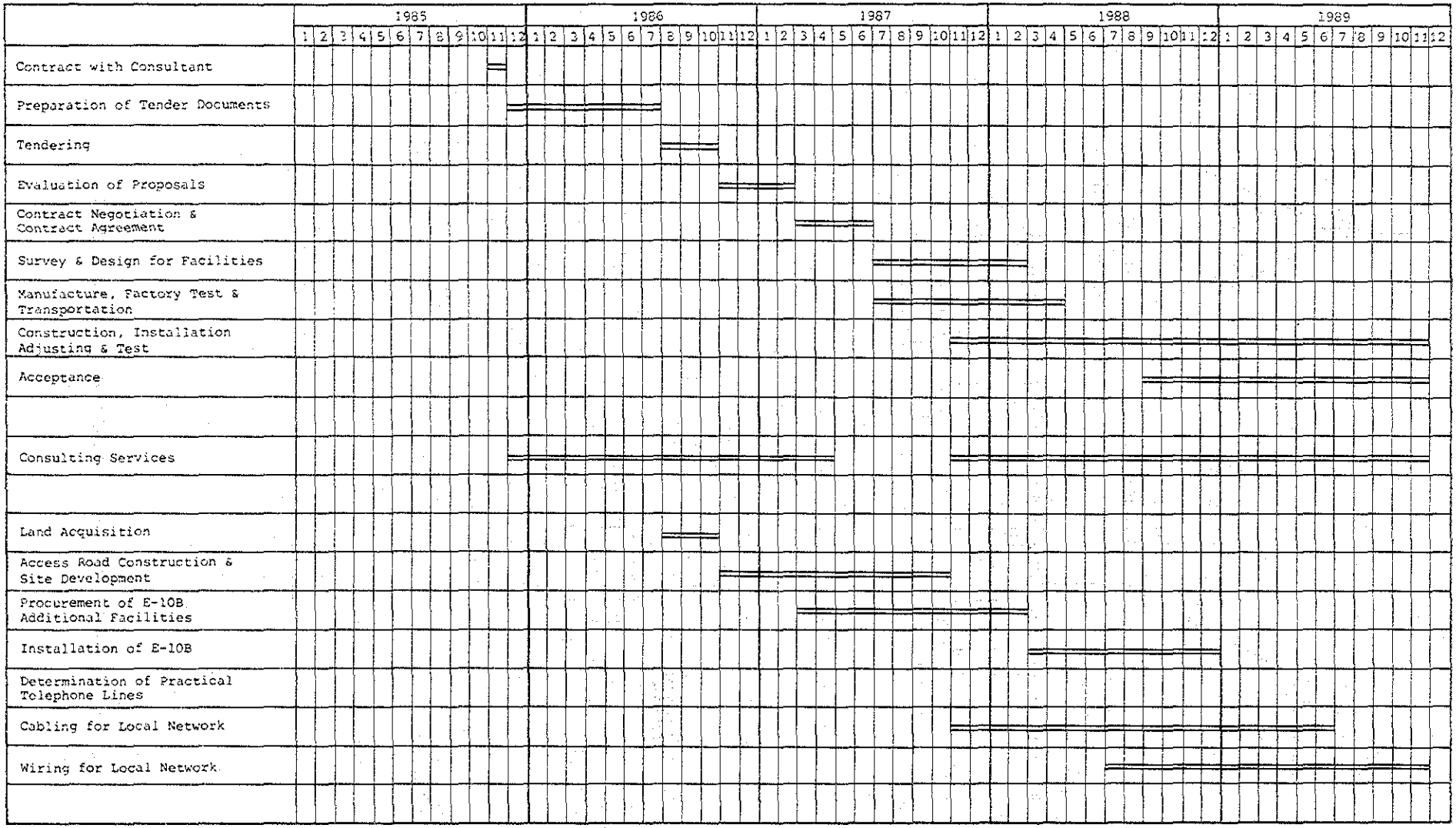


Figure 4-8 EXPECTED IMPLEMENTATION TIME SCHEDULE

Table 4-1 (1/2) NUMBER OF VILLAGES AND SUBSCRIBERS COVERED BY PLANNED DRCS

Governorate	Repeater Station	No. of Villages To be covered	Total No. of Subscriber Lines
HAJJAH	HAYRAN	4	
	ABS	2	
	AL JUBAYL	5	86
	J. SHAMSAN	5	
	J. ASHMUR	0	
Total		(16)	
SANA'A - NORTH	J. IYAL YAZID	12	
	J. DHARWAH	5	123
	DAYN	6	
	DAYN	23	123
	DAYN	22	118
Total		(68)	(364)
SANA'A - SOUTH	J. AL MODBA'AH	6	
	J. YASLAH	7	123
	AYBAN	10	
	J. QAYFAN	3	
	MASAR	9	
	AL MIFTAH	5	123
	AYBAN	6	
	AYBAN	1	
	J. HARWAH	14	123
	J. AL QULBY	8	
Total		(69)	(369)
DAHMAR	J. AL LISI	20	107
	J. KIBAH	17	91
	J. KIBAH	17	91
	AD DANN	16	86
Total		(70)	(375)

Table 4-1 (2/2) NUMBER OF VILLAGES AND SUBSCRIBERS COVERED BY PLANNED DRCS

Governorate	Repeater Station	No. of Villages To be covered	Total No. of Subscriber Lines
IBB	J. SUMARAH	10	
	J. AL QABRAYN	8	96
	MASHWARAH	13	70
Total		(31)	(166)
TAIZZ	J. AL UMARI	2	
	J. AN NAR	6	
	H. AN HANAN	2	118
	J. HABASHI	12	
	J. HABASHI	3	
	ARID	9	123
	J. SABARAN	11	
	ARUS (O/H)	15	
	SHURAMI	13	96
	AL AKHTUR	6	
	J. HALYAN	8	102
	TAIZZ	5	
Total		(82)	(439)
HUDAYDAH - NORTH	DAYR MAKHRASH	21	
	AZ ZAYDIYAH	2	123
	AZ ZAYDIYAH	23	123
	AZ ZAYDIAH	5	
	BAJIL SOUTH	18	123
Total		(69)	(369)
HUDAYDAH - SOUTH	BAB AL FAJJ	5	
	AL BULAYH	17	118
	AL BULAYH	4	
	AL ABBASI	18	118
	AL ABBASI	7	38
Total		(51)	(274)
Grand Total		456	2453

Table 4-2 PROPOSED RADIO FREQUENCY PLAN FOR DRCS

CH \ Band	A	B	C	D	E
1	790.6 MHz	808.6 MHz	826.6 MHz	844.6 MHz	862.6 MHz
2	791.8	809.8	827.8	845.8	863.8
3	793.0	811.0	829.0	847.0	865.0
4	794.2	812.2	830.2	848.2	866.2
5	795.4	813.4	831.4	849.4	867.4
6	796.6	814.6	832.6	850.6	868.6
7	797.8	817.0	833.8	851.8	(869.8)*
1'	800.2	818.2	836.2	854.2	872.2
2'	801.4	819.4	837.4	855.4	873.4
3'	802.6	820.6	838.6	856.6	874.6
4'	803.8	821.8	839.8	857.8	875.8
5'	805.0	823.0	841.0	859.0	877.0
6'	806.2	824.2	842.2	860.2	878.2
7'	807.4	825.4	843.4	861.4	(879.4)*

* Not to be used

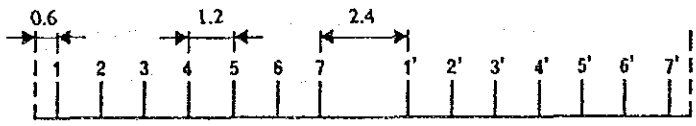


FIGURE 5 – *Frequency plan for a DRCS*
(All frequencies are in MHz)

Source: CCIR Rep. 380-1 ANNEX I Figure 5

Table 4-3 DRCS SYSTEM DESIGN

	Unit	AZ ZAYDIYAH BAJIL SOUTH	J. HALYAN TAIZZ	ARID J. HABASHI	BAJIL SOUTH AS SUKHNAH (Village)
Distance	Km	45.4	29.2	13.8	29.8
Antenna Height	m	60.0	10.0	20.0	20.0
TX Output Power	dBm	+37.0	+37.0	+30.0	+37.0
TX Combiner Loss	dB	10.0	7.0	7.0	7.0
TX Feeder Type		7/8" (Low Loss)	4/8" (Normal)	4/8" (Normal)	7/8" (Low Loss)
TX Feeder Loss	dB	3.0	1.9	2.4	1.3
TX Antenna Type		G.P. 2.4 mø	Yagi 12 el.	Yagi 12 el.	Multi-Feed
TX Antenna Gain	dBi	+22.5	+13.0	+13.0	+13.0
Free Space Loss	dB	124.2	120.4	113.8	120.5
Ridge Loss	dB	0	0	0	0
Antenna Height	m	20.0	20.0	40.0	15.0
RX Antenna Type		Multi-Feed	Col. 8 el.	Col. 8 el.	Yagi 8 el.
RX Antenna Gain	dBi	+13.0	11.0	11.0	11.0
RX Feeder Type		7/8" (Low Loss)	7/8" (Low Loss)	7/8" (Low Loss)	4/8" (Normal)
RX Feeder Loss	dB	1.3	1.3	2.2	2.4
Duplexer Loss	dB	7.0	7.0	7.0	3.0
Fading Margin	dB	13.0	10.0	7.0	10.0
RX Input Power	dBm	-73.0	-76.5	-78.4	-73.2
Required RX Input Level	dBm	-74.0	-77.0	-81.0	-76.0

NOTE Col.: Colliner Type Antenna

G.P.: Grid Parabolic Antenna

Table 4-4 POWER SUPPLY SYSTEMS

Name of Site	Solar Power System by Solar Cell and Storage Battery	Full Floation System by Rectifier and Storage Battery	
		Prime A.C.	Standby A.C.
HAYRAN	x		
ABS	x		
AL JUBAYL	x		
J. SHAMSAN	x		
J. ASHMUR	x		
HAJJAH BS		A.C. Mains	Existing E.G.
HAJJAH EX		A.C. Mains	Existing E.G.
J. IYAL YAZID	x		
J. DHARWAH		Existing E.G.	Existing E.G.
DAYN		Existing E.G.	Existing E.G.
SANA'A BS		A.C. Mains	Existing E.G.
SANA'A EX		A.C. Mains	Existing E.G.
AYBAN		Existing E.G.	Existing E.G.
AL MIFTAH	x		
J. HARWAH	x		
J. AL QULBY	x		
J. QUYFAN	x		
MASAR		Existing E.G.	Existing E.G.
J. YASLAH		Existing E.G.	Existing E.G.
J. AL MODBA'AH	x		
DHAMAR BS		A.C. Mains	E.G. for New Ex.
DHAMAR EX		A.C. Mains	E.G. for New Ex.
J. AL LISI		Existing E.G.	Existing E.G.
J. KIBAH	x		
AD DANN	x		
J. SUMARAH		Existing E.G.	Existing E.G.
MASHWARAH	x		
IBB BS		A.C. Mains	Existing E.G.
IBB EX		A.C. Mains	Existing E.G.
J. AL QABRAYN		Existing E.G.	Existing E.G.
J. HALYAN	x		
TAIZZ BS		A.C. Mains	Existing E.G.
TAIZZ EX		A.C. Mains	Existing E.G.
ARUS (O/H)		Existing E.G.	Existing E.G.
AL AKHTUR	x		
SHURAMI	x		
J. HABASHI	x		
ARID	x		
J. SABARAN	x		
H. AN HANAN	x		
J. AN NAR	x		
J. AL UMARI	x		
DAYR MAKHRASH	x		
AZ ZAYDIYAH	x		
BAJIL SOUTH		Existing E.G.	Existing E.G.
HUDAYDAH BS		A.C. Mains	Existing E.G.
HUDAYDAH EX		A.C. Mains	Existing E.G.
AL ABBASI	x		
AL BULAYH	x		
BAB AL FAJJ	x		

Table 4-5 LAND ACQUISITION AND ACCESS ROAD CONSTRUCTION

Name of Site	Land Acquisition and Development	Construction of Access Road to Site
HAYRAN	approx. 24 m x 35 m	approx. 200 m
ABS	" 24 m x 35 m	
AL JUBAYL	" 24 m x 30 m	
J. SHAMSAN	" 80 m x 80 m	
J. ASHMUR		
HAJJAH BS		
HAJJAH EX		
J. IYAL YAZID	approx. 80 m x 80 m	approx. 300 m
J. DHARWAH		
DAYN		
SANA'A BS		
SANA'A EX		
AYBAN		
AL MIFTAH	approx. 24 m x 30 m	
J. HARWAH	" "	
J. AL QULBY	" "	approx. 2,000 m
J. QUYFAN	" "	" 50 m
MASAR		
J. YASLAH		
J. AL MODBA'AH	approx. 24 m x 35 m	approx. 700 m
DHAMAR BS		
DHAMAR EX		
J. AL LISI		
J. KIBAH	approx. 24 m x 30 m	approx. 3,500 m
AD DANN	" "	
J. SUMARAH		
MASHWARAH	approx. 24 m x 30 m	
IBB BS		
IBB EX		
J. AL QABRAYN		
J. HALYAN	approx. 24 m x 30 m	approx. 50 m
TAIZZ BS		approx. 50 m
TAIZZ EX		
ARUS (O/H)		
AL AKHTUR	approx. 24 m x 30 m	
SHURAMI	" "	approx. 100 m
J. HABASHI	" 24 m x 35 m	approx. 100 m
ARID	" 24 m x 30 m	approx. 400 m
J. SABARAN	" "	
H. AN HANAN	" "	approx. 50 m
J. AN NAR	" "	approx. 2,200 m
J. AL UMARI	" "	
DAYR MAKHRASH	" 95 m x 95 m	
AZ ZAYDIYAH	" 110 m x 110 m	
BAJIL SOUTH		
HUDAYDAH BS		
HUDAYDAH EX		
AL ABBASI	apporx. 110 m x 110 m	
AL BULAYH	" 24 m x 24 m	approx. 800 m
BAB AL FAJJ	" "	apporx. 600 m

CHAPTER 5 CONSTRUCTION COST ESTIMATE

CHAPTER 5 CONSTRUCTION COST ESTIMATE

This chapter presents construction cost estimate for the project, based on system configuration introduced in the preceding chapter. The estimate is at price level as of 1987, using various Official Development Assistance (ODA) projects of 1984 for reference. That is to say, for both foreign and local currency portions of project budget, annual 5% price rise is considered for 3 years beginning 1985 and price contingency at this rate is included in the cost estimate. For physical contingency, approximately 10% of construction cost is used for foreign and local currency budget portions.

Local currency portion is calculated in Japanese yen. In this case, the rate of exchange is:

US$ 1 = ¥242.75 = YR 5.86
(as of November 15, 1984)

The cost estimate for the project may undergo change after completion of the detailed design, mainly due to:

(1) Possible utilization of part of the existing transmission network.

(2) Provision of optimal infrastructure, taking into account the overall network development plans of MOC/PTC.

(3) Construction of conventional buildings instead of shelters.

(4) Provision of some radio hops from repeater station to subscriber station, with ridge loss, instead of cable connections proposed in this report.

The effect of such changes on the financial evaluation may be arrived at, by reference to sensitivity analysis.

5-1 Project Cost Estimate

Project cost is estimated as under.

(unit: million Yen)

Classification	Plan-A Foreign Currency	Plan-A Local Currency	Plan-B Foreign Currency	Plan-B Local Currency
(1) Construction of Rural Telecommunications Network				
a. Equipment (EQT) & Materials				
- Switching system	-	-	651	-
- Radio transmission EQT	1,579	-	1,609	-
- Power supply EQT	511	-	571	-
- EQT housing	296	25	296	25
- Antenna supporting structure	99	37	99	37
- Cable & materials	311	-	311	-
- Subscriber facility	81	29	81	29
- Maintenance EQT & materials	200	-	250	-
Total (FOB)	3,077	91	3,868	91
(CIF)	3,292		4,139	
b. Construction Service	1,791	1,192	1,940	1,222
c. Land Acquisition	-	184	-	184
d. Access Road	-	163	-	163
e. Existing Network Interface	-	30	100	30
Sub-total (a+b+c+d+e)	5,083	1,660	6,179	1,690
(2) Training and Maintenance Services	60	-	95	-
(3) Consulting Services	400	72	440	72
Total ((1)+(2)+(3))	5,543	1,732	6,714	1,762
(Foreign + Local)	7,275		8,476	
(4) Physical Contingency	554	173	671	176
Grand Total (1)+(2)+(3)+(4) (Foreign + Local)	8,002		9,323	

5-2 Items of Cost Estimate

The project cost consists of foreign currency and local currency portions.

(1) Equipment/materials to be purchased by foreign currency portion are as follows:

1) Telephone Switching System (Plan-B only)
   - Digital switching equipment with installation materials

2) Radio Transmission System
   - DRCS TDM controller (TRX 1+1)
   - DRCS concentrator
   - Repeater (TRX 1+1)
   - Subscriber radio equipment
   - Antenna and feeder
   - Duplexer
   - Installation materials

3) Power Supply System
   - Solar battery with control equipment and rack
   - Storage battery
   - Rectifier

4) Equipment Housing
   - Shelter for base station (exchange, radio and power supply systems)
   - Shelter for repeater station (radio and power supply systems)
   - Shelter for subscriber station (radio and power supply systems)

5) Antenna Supporting Structure
   - Self-supporting tower
   - Guyed tower
   - Steel mast

6) Local Cable Facilities
   - Cable and jointing materials
   - Steel pole and guy-wire
   - Distribution box and grounding materials

7) Subscriber Facilities
   - Dropwire and house wire
   - Subscriber's arrester and grounding materials
   - Telephone set and charging pulse counter

8) Maintenance Equipment and Materials
   - Test equipment and tools
   - Spares

9) Materials for Existing Switching System Expansion (Plan-B only)
   - E-10B interface unit

(2) Materials to be purchased by local currency portion are as follows:

1) Materials Relating to Housing
   - Cement, sand, steel bar etc. for foundation

2) Materials Relating to Antenna Supporting Structure
   - Cement, sand, steel bar etc. for tower foundation

3) Materials Relating to Subscriber Facilities
   - Steel mast with cement and sand

(3) Services to be carried out by expatriates and covered by foreign currency portion are as under.

1) Equipment Installation Work for Switches, Radio Transmission System, Power Supply System, Shelter and Tower
   - Contractor's work for assembling, fixing, wiring, adjustment, and test

- Contractor's field survey and design
- Contractor's administrative expenses
- Contractor's test instruments and tools
- Inland transportation

2) Cable Work
- Contractor's field survey and design
- Contractor's cabling work excluding dropwiring
- Contractor's administrative expenses
- Contractor's test instruments and tools
- Inland transportation

3) Fright and Insurance

4) Contractor's Work for Existing E-10B Interface (Plan-B)

5) Maintenance and Training Services
- Contractor's instructors
- Equipment instruction manual and handbooks
- Contractor's technical assistance

6) Consulting Services
- Detailed design
- Preparation of competitive tender documents
- Evaluation of tender proposals
- Recommendation on award of contractor
- Assistance to contract negotiation
- Examination of installation design and drawings
- Witness to factory test
- Supervision of installation work
- Witness to acceptance test with MOC/PTC
- General consulting services on local network
- Office equipment and vehicles for above services

(4) Services to be carried out by the natives and covered by local currency portion are as follows:

1) Equipment Installation Work for Switches, Radio Transmission System, Power Supply System, Shelter and Tower
   - Assembling, fixing, wiring, adjustment and test
   - Contractor's administrative expenses
   - Drivers, vehicles and its running costs
   - Inland transportation

2) Cable and Dropwire Work
   - Contractor's field survey and design
   - Cable work containing cabling, dropwiring, jointing, pole erection, guy-wiring, fixing of distribution box and subscriber's arrester, grounding and house-wiring to telephone set

3) Land Acquisition
   - Repeater and subscriber stations

4) Access Road
   - Construction of access road excluding land acquisition

5) Contractor's Work for Existing E-10B Interface

6) Consulting Services
   - Typist, driver etc.
   - Office expenses

CHAPTER 6 FINANCIAL AND ECONOMIC EVALUATION

CHAPTER 6 FINANCIAL AND ECONOMIC EVALUATIONS

6-1 Revenue Estimate

Rural telecommunications network to be realized by this project, though designed as a system to provide telex service also as stated in CHPATER 4, is intended primarily for early diffusion of telephone service in Yemen A.R. Thus, for revenue estimate from network operation, telephone service revenue only is considered. Meanwhile, the existing rural network is for telephone service only.

6-1-1 Present Tariff System

Tariff revenue from telecommunications service mainly consists of 3 categories. They are installation charge, monthly rent and calling charge/message charge.

Installation charge is levied when telephone set/terminal unit is newly installed or re-located. Monthly rent is a levy in fixed amount that is charged every month without regard to the number of calls. Calling charge/message charge is imposed according to the number of calls/messages of each subscriber. The present telephone tariff system in Yemen A.R. is in Table 6-1.

An outstanding feature in telephone tariff system of Yemen A.R. is that for urban network subscribers and rural network subscribers (for the latter, analog/digital MAS subscribers only), entirely different installation charge and monthly rent systems are adopted.

As seen in Table 6-1, monthly rent for urban network subscribers is of low rate (YR 30/month) so that even when installation charge is considered, each subscriber's financial burden is relatively small.

On the other hand, MAS subscribers, though exempted from installation charge, have to pay extremely high monthly rent of YR 2,500/month. This fact apparently reflects high investment cost per line unit in the case of MAS subscribers, which by far exceeds the corresponding cost in the case of urban network subscribers. This tariff system may likely be the primary impediment to telephone diffusion in rural villages.

Another tariff feature for urban network subscribers lies in preferential tariff system in favor of administrative organizations as subscribers. Also to be pointed out is that subscribers distantly located from distribution point, who are going to have their residence telephones newly installed, have to pay extra installation charge when pole and dropwire expense exceeds a certain limit.

Telephone service tariffs are twofold: local call tariff and trunk call tariff. For local calls, pulse metering for charge is by call duration unit of 360 seconds. For trunk call tariff, periodic pulse metering method is adopted. Pulse metering periods by distance are established as under.

Tariff Step	Distance (km)	Pulse Metering Period (sec.)
I	Up to 25	360
II	25 - 50	180
III	50 - 100	90
IV	Over 100	9

For MAS subscribers, both local and trunk calls are chargeable by uniform rate of 9 seconds/call. This is because of functional limitations of switches that accommodate MAS subscribers. In this respect also, MAS subscribers are disadvantaged, compared with urban network subscribers.

6-1-2 Revenue Estimate

(1) As previously stated, the present tariff system imposes extremely different tariffs on urban network subscribers and rural network subscribers.

	Urban Network Subscriber	Rural Network Subscriber
Monthly rent	YR 30	YR 2,500
Calling charge	By 4-step periodic pulse metering (360/180/90/9 sec.)	By uniform period of 9 sec.

(2) If the number of telephones installed on rural network can be such that average diffusion rate of not more than 0.05% with 1-2 circuits per village is to be attained, high telephone service charge as stated in the foregoing may not pose any significant problem. However, it cannot be conceived that in rural villages where telephone diffusion rate of 0.5% is wanted, all subscribers hold financial capability to bear the previously mentioned high service cost.

Generally, telephone system construction cost in rural villages is 7-8 times and sometimes even 10 times as much as in urban areas in terms of cost per subscriber.

Therefore, high service tariff may be inevitable so as to redeem high construction cost. At the same time, unreasonably high service tariff is indisputably a drawback to telephone diffusion. Hence this conclusion: Telephone tariff system must be such as will ensure earning power of facilities and can also achieve desirable diffusion rate.

Thus, for revenue estimate pertaining to this project, study will be made for substitute new tariff system plan introduced below.

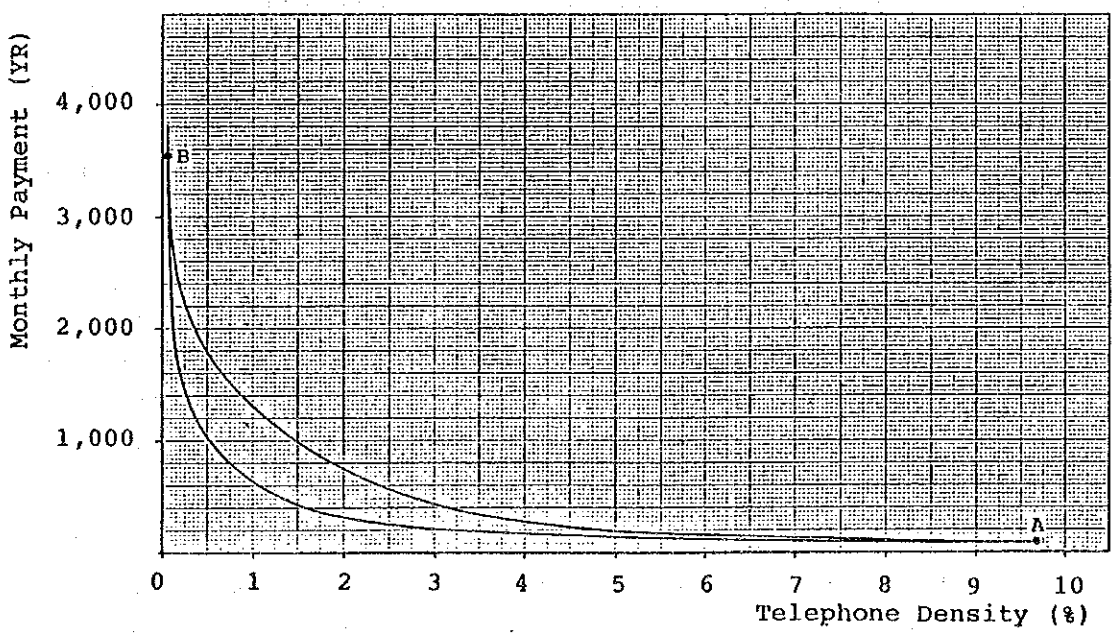
(3) The present telephone tariff systems differ broadly between urban and rural networks so that no small difference between urban and rural areas in monthly rent and calling charge per subscriber is inevitable. According to data collected in the survey, this time, the above difference can be estimated as under.

Area	Monthly Rent	Calling Charge	Total
Urban	(30)	(81)	YR 111
Rural	2,500	1,070	YR 3,570

As a matter of fact, such big difference in telephone tariffs reflects the difference in subscribers' financial capability. This fact, in turn, brings about considerable difference in telephone densities between both areas. More precisely, in the urban area that consists of 11 major cities, telephone density reaches 9.7% whereas in the rural area, it is a mere 0.1% or so on the assumption that average population per village numbers 1,000 and telephone ownership per village is one.

Generally, the relationship between telephone density and telephone tariff is in accordance with demand curve. This relationship in Yemen A.R., when graphically presented, can be seen in the curve between Point A (in the case of urban network) and Point B (in the case of rural network) as in the illustration below.

To obtain demand curve quantitatively is generally difficult; however, it is possible to express the curve qualitatively by giving a certain breadth to the curve. That is to say, the relationship between Point A and Point B in Yemen A.R. can be presumed to be as illustrated below wherein the breadth, i.e., margin, is given to the general demand curve



In this project, telephone density of 0.5% per objective village is to be attained. Financial capability per month of subscribers, which is required with a view to realizing such telephone density, is assumed to be YR 1,000-1,700 from the above illustration. When new tariff system is studied, such financial capability required of subscribers must be one guideline.

Assume that new tariff system be established, based on top limit of required financial capability of subscribers, i.e., YR 1,700/month. Then, if actual demand curve is the lower curve, constructed system threatens to be excess investment. To avoid this, the safety step is to estimate monthly financial capability of subscribers at or around bottom limit, i.e., YR 1,000.

Methods whereby to achieve monthly telephone service revenue from subscribers somewhere around YR 1,000 are twofold. They are:

- To modify monthly rent
- To modify charging system as the basis of calling charge calculation

Preference goes to adopting nationwide uniform charging system, i.e., charging steps or metering unit fee, including the system in urban area. Therefore, in this study, the mothod to modify monthly rent only will be adopted.

When the present charging system is applied, monthly calling charge revenue from new rural network subscribers can be expected to the extent of approximately YR 320. Thus, for new monthly rent applicable to rural network subscribers, YR 600 is proposed.

(4) Revenue estimates are made for the undermentioned 3 cases including the substitute plan proposed in the preceding paragraph.

	Case-1 Present Rural Tariff System	Case-2 Present Urban Tariff System	Case-3 Substitute
Installation Charge:	- Nil -	Ordinary Sub.	: YR 2,500
		Administration Use	: YR 1,168
		Public Call Office	: - Nil -
Monthly Rent :	YR 2,500	YR 30	YR 600
Calling Charge :	YR 0.3 (every 9 sec.)	YR 0.3 (every 360, 180, 90 or 9 sec.)	

Note: Yearly calling charge (YCC) is calculated by the following manner:

$$YCC = TI \times Rorg \times 3{,}600 \times \frac{1}{Rcon} \times Rcom \frac{1}{CI} \times UF \times 300 \times Ntel - 30 \times UF \times 12 \times Ntel$$

Where,

TI : Busy-hour Traffic Intensity (0.05 Erlang)

Rorg: Originating Traffic Ratio (0.6)

Rcon: Concetration Ratio to Busy-hour (0.1)

Rcom: Traffic-base Completion Ratio (0.85)

- Call-base Completion Ratio : 0.5
- Mean Holding Time (Effective Calls) : 110 sec.
- Mean Holding Time (Ineffective Calls): 20 sec.

CI : Charging Interval

- Case-1 : 9 sec. (100%)
- Case-2 & 3: 9 sec. (37%)
  90 sec. (21%)
  180 sec. (37%)
  360 sec. (5%)

UF : Unit Fee (YR 0.3)

Ntel: No. of Telephones (2,453)

(5) Telephone tariff revenue estimate by conditions in the preceding paragraph is as under.

(In million Japanese yen)

Classification	Case-1	Case-2	Case-3
Initial year:			
Installation charge	0	171	171
Monthly rent	3,048	37	732
Calling charge	932	391	391
Total	3,980	599	1,294
2nd year and after:			
Installation charge	3,047	37	732
Calling charge	932	391	391
Total	3,980	428	1,123

6-2 Expense Estimate

6-2-1 Operating Expense

(1) Operating expense comprises maintenance expense and working expense. Maintenance expense is direct expense represented by personnel expense, as well as supplies and power cost, indispensable for rural network maintenance. Working expense is indirect expense which mainly consists of sales and tariff related service expense.

1) Maintenance expense estimate is by maintenance expense ratio to construction cost.
Maintenance expense ratio is to break down as under, patterned after the classification used by Nippon Telegraph and Telephone Public Corporation (NTT).

Automatic switching equipment	7%
Radio/transmission equipment	4
Power supply equipment	4
Aerial cable equipment	3
Subscriber's service line equipment	10
Building (shelter) equipment	3

(2) Working expense covers public call office telephone service expense and indirect service (sales and tariff related service) personnel recruitment expense.

1) At present, public call office telephone service is consigned to third party, and this consignment expense is fixed at YR 1,200/month per telephone set.

This amount is never too small for consignment expense. Furthermore, the rate of use of telephone set differs from one set to another so that the consignee's service volume is not uniform. Therefore, the fixed amount consignment expense is not rational. For a remedy, the following 2 cases are to be studied in both Plan-A and Plan-B:

Case-I : Fixed amount system of YR 1,200/month per telephone set as at present.

Case-II: Commission system using 10% of calling charge earning by telephone set concerned as commission per telephone set.

2) MOC staff recruitment to be necessitated by the increase of rural telephone subscribers by 2,453 is presumed to be 40 persons or thereabouts. Out of these 40 or so recruits, 15-16% are required on indirect service staff so that the size of recruitment to fill immediate needs is set at 7 persons. Personnel expense for 7 recruits is estimated at YR 3,220/month, based on the present average level of personnel expense.

(3) Annual amount of initial expense is as under.

(in million Japanese yen)

Rural Network Plan	Consignment Expense	Initial Expense Breakdown	Telephone Tariff System Case-1	Case-2	Case-3
Plan-A	Case-I	Maintenance expense	231	231	231
		Working expense	11	11	11
		Consignment expense	435	435	435
		Total	677	677	677
	Case-II	Maintenance expense	231	231	231
		Working expense	11	11	11
		Consignment expense	28	12	12
		Total	270	254	254
Plan-B	Case-I	Maintenance expense	300	300	300
		Working expense	11	11	11
		Consignment expense	435	435	435
		Total	746	746	746
	Case-II	Maintenance expense	300	300	300
		Working expense	11	11	11
		Consignment expense	28	12	12
		Total	339	323	323

6-2-2 Other Expenses Estimate

(1) Contingency

1) Price Contingency

Price contingency is to prepare against price rise due to inflation which may arise in the future. Period from December 1984 as project initiation to the time when project implementation begins, causing expenses to be actually incurred, is assumed to be 3 years, and, for both foreign and local currency portions of project budget, inflation risk is to be calculated at compound interest rate of 5% per annum. Calculation results are in Table 6-2.

2) Physical Contingency

Physical contingency is to cover excess capital requirement during construction work. Factors responsible for such excess capital requirement include lack of accuracy in conceptual design for purpose of cost estimation and such unknown matters as meteorological and topographical conditions of work site. This time, physical contingency is not included in total capital requirement, leaving it to be studied and identified by sensitivity analysis.

(2) Initial Working Capital

For initial working capital which has to be prepared before operation begins, 1-month equivalent of annual operating revenue as of 1990 is to be set aside. Calculation results are in Table 6-2.

(3) Interest during Construction

Total capital requirement for project implementation is to be wholly procured by loan based on conditions described in Section 6-4. Consequently, interest payable during construction period is to be set aside as initial investment cost. Calculation results are in Table 6-2.

6-3 Total Capital Requirement

Total capital requirement inclusive of interest during construction is as under.

(In million Japanese yen)

	Case-1	Case-2	Case-3
Plan-A	8,224	7,926	7,987
Plan-B	9,532	9,234	9,296

6-4 Financing Plan

Out of total capital requirement, foreign currency portion is to be procured by long term loan from foreign government or financing institution. Local currency portion procurement is by loan from local financing corporation.

Source of long term loan to provide foreign currency portion of project budget has not yet been determined so that terms of loan also still remain undecided. Assumptions used in this study comprise loan principal repayment by 20 years equal instalment repayment with 10 years grace period, subject to interest of 5% per annum.

As for local loan, 4% per annum interest for annual payment is to apply. Terms of loan principal repayment are to be the same as those for long term loan from foreign source.

Loan schedule whereby to calculate interest during construction is as under.

	Foreign Currency Portion	Local Currency Portion
Initial year	-	11%
Second year	40%	13
Third year	35	27
Fourth year	25	49
Total	100	100

Should capital requirement deficiency take place, such deficiency is to be covered with short term loan from local financing organization. This short term loan, subject to interest of 4% per annum, is to be repaid in the ensuing year. Repayment is for principal and interest in bulk.

6-5 Depreciation and Amortization

Depreciation and amortization of fixed capital except land purchase cost are by 15 years (1990-2004) straight line method where salvage value is zero. Breakdown is as under.

(In million Japanese yen)

	Case-1	Case-2	Case-3
Plan-A	513.9	512.8	513.0
Plan-B	601.1	600.0	600.3

6-6 Taxation

Parties participating in project implementation are to be exempted from income tax and property tax, based on tax law and related regulations.

6-7 Working Capital

Working capital is indispensable for continued annual operation and its components include account receivable for telephone charges and parts/spares inventory. This time, 1-month equivalent of annual operating revenue is to be set aside for working capital. In Japan, working capital percentage generally consists of 1.2-month equivalent of annual operating revenue. Breakdown is as under.

(In million Japanese yen)

Year	Case-1		Case-2		Case-3	
	Value	Increment	Value	Increment	Value	Increment
1990	332	-	50	-	108	-
1991	332	0	36	-14	94	-14
1992-2004	332	0	36	0	94	0

6-8 Financial and Economic Analyses

6-8-1 Preconditions

(1) Project Life

Assumptions in this study are that construction will begin in January 1986 and, after 4 years of construction, operation will begin in January 1990. Project life is assumed to be 15 years after service-in.

(2) Basic Price Relating to Operation Revenue and Operating Expense

Calculations in financial and economic analyses are by invariable price based on constant price as of 1990. This constant price presupposes that the current price as of 1990 will remain invariable for whole period of this project.

(3) Conditions for IRR Calculation

Interest during construction and interest payable are not regarded as expense. So is the case with depreciation and amortization also because they form expense on account-book only and do not entail actual cash payment. Land purchase cost and working capital are so arranged as can be recovered in full in the year 2004, i.e., the final year of project life. Values of these items are indicated in the minus in expense column.

6-8-2 Financial Analysis

Based on construction cost estimated in CHAPTER 5 and revenue (i.e., benefits) estimated in Section 6-1, financial analysis in terms of profitability and liquidity is made for Plan-A and Plan-B and for different cases.

(1) Financial IRR

1) Trial calculation by the existing tariff system (Case-1 and Case-2) and by the existing public call office telephone system (Case-I) produces financial IRR as under.

	Case-1 (Rural Tariff)	Case-2 (Urban Tariff)
Plan-A	31.60%	- ?
Plan-B	27.69%	- ?

"- ?" appearing above indicates that IRR is in the minus and large beyond comprehension. IRR in Case-1 is conspicuous. This, however, presupposes high tariff system. Hence not realistic. In other words, both Case-1 and Case-2 for Plan-A and Plan-B are not feasible.

2) Study is made about substitute plan (Case-3) for the existing urban tariff system, wherein monthly rent is set at YR 600 and, for public call office telephone only, installation charge is exempted, and further about substitute plan (Case-II) for public telephone service consignment expense, wherein consignment expense at 10% of calling charge is proposed. Then, IRR is as under.

	Case-3 (Substitute urban system)	
	Case-I (Existing consignment expense)	Case-II (Substitute consignment expense)
Plan-A	-0.34%	7.43%
Plan-B	-3.51%	4.41%

In Case-3, Case-II for Plan-A, financial IRR is 7.43%. (Refer to Table 6-3.) This value falls below opportunity cost of capital (generally 8% - 12%) in World Bank Appraisal Report but exceeds opportunity cost of capital (in real terms) in Yemen A.R. Therefore, from the viewpoint of cost compensation principle of this project also, Case-3, Case-II for Plan-A is considered to be financially feasible. (See Note 1 and Note 2.)

In Case-3, Case-II for Plan-B, IRR is 4.41%. (Refer to Table 6-4.) This value is about 3% below the corresponding IRR for Plan-A though it exceeds the bottom limit of opportunity cost of capital in Yemen A.R. Hence barely feasible financially.

In Case-I, desirable IRR cannot be obtained for both Plan-A and Plan-B.

Note 1:

Opportunity cost of capital signifies necessary minimum IRR which the business entity concerned has to obtain when it uses procured capital for investment. In the light of interest rate and price rise rate in Yemen A.R., IRR of 4% is considered to be minimum necessity. Judging from long term prime rate in Japan that stands at 7.6% (real, 5.4%) and that of Treasury notes, U.S., quoted at 9.97% (real, 5.77%), opportunity cost of capital required in this project proves to be 4% - 8%.

Note 2:

Cost compensation principle represents business philosophy that compels beneficiary to bear financial burden to the extent of operating expense at the least.

3) The foregoing IRR calculation results lead to conclusion that Case-3 and Case-II combination creates a high degree of feasibility. Thus, for this combination only, sensitivity analysis and other studies are made.

(2) Sensitivity Analysis

1) Sensitivity analysis is carried out to identify variations of financial IRR obtained in the preceding paragraph, pursuant to fluctuations of revenue, total capital requirement and operating expense. Results of analysis are as under. They are graphically presented in Figure 6-1.

	Fluctuations				
	+20%	+10%	0%	-10%	-20%
Plan-A					
Revenue	10.67	9.10	7.43	5.63	3.67
Total capital requirement	4.39	5.82	7.43	9.26	11.38
Operating expense	6.63	7.04	7.43	7.81	8.20
Plan-B					
Revenue	7.60	6.06	4.41	2.61	0.64
Total capital requirement	1.36	2.80	4.41	6.22	8.29
Operating expense	3.39	3.91	4.41	4.89	5.38

In case where revenue fluctuates by +10%, for instance, the performances as under are conceivable.

(In million Japanese yen)

Monthly rent	732.0
Calling charge	503.3
Total	1,235.3

2) Study is made for IRR which is obtainable when monthly rent is YR 700 and public call office telephone service consignee commission rate is 15%. In this case, revenue and operating expense are estimated as under.

(In million Japanese yen)

	Initial Year	2nd Year and After
Plan-A		
Revenue		
Installation charge	171	-
Monthly rent	853	853
Calling charge	391	391
Total	1,415	1,244
Operating expense		
Maintenance expense	231	231
Working expense	11	11
Consignment expense	18	18
Total	260	260

Plan-B

Same as in Plan-A except for maintenance expense quoted at 300 million Japanese yen.

IRR obtained is as under.

Plan-A: 9.13%
Plan-B: 6.09%

(3) Funds Flow Analysis

Telecommunications business in Yemen A.R. is under PTC management by self-supporting accounting system since January 1982. This does not mean, however, that PTC can dispose of business profit or make investment at its discretion. Operating fund of PTC is supplied by Ministry of Finance each time necessity arises. Business profit raised by PTC is transferred to Ministry of Finance account.

For that reason, analytical study concerning impact of this project on PTC finance is impossible. Following is ad hoc funds flow analysis for implementation of this project.

1) Table 6-5 through Table 6-10 present Plan-A and Plan-B income statements, balance sheet and funds flow statements in the case of 5% per annum interest on foreign currency loan. Excess cash column of balance sheet shows ending cash balance in funds statement. According to ordinary accounting principles, cash is to be included in working capital. Here, however, to clarify how much surplus fund will remain with PTC as the result of implementation of this project, portion to be fixed as necessary fund (account receivable) and surplus fund (cash) are distinguished.

   a) Revenue and Expenditure of Plan-A

      In and after service-in year (initial year), operating profit is in surplus. Operating ratio (here, operating expense / operating revenue) shows wholesome trends, recording 59% in initial year and 68% in second year and after. Meanwhile, net profit is in surplus in initial year but continues in deficit for the following 7 years, and then, it turns to surplus again in and after 1998. As the result, profit ratio to operating revenue and earnings ratio to initial investment are low at 2.8% and 0.4% on the average but leaves sufficient room for retained earnings.

Loan repayment begins in 1996. By reason of ample cash balance, loan repayment without using funds on hand is possible. Debt service ratio (net profit + depreciation + interest / repayment + interest) is 1.12 in 1996, when repayment condition becomes severest, and is averaged at 1.24 in the years of 1996 to 2004.

For the debt service ratio concerning telecommunications project, the objective value is generally 1.3 or more. In case where the figure reaches more than 1.5, the enterprise will enjoy the sound management and operation. For that purpose, it is desired either to invite a loan with more moderate conditions, especially to interest rate, than the terms and conditions assumed in Section 6-4, or to timely modify the telephone tariff system. In addition, it is required for MOC/PTC to enforce a policy such as rationalization of maintenance and operation works, so as to achieve the firm management of the telecommunications enterprise.

b) Revenue and Expenditure of Plan-B

Beginning initial year, operating profit remains in surplus. Net profit, however, continues in deficit during the project life, then, accumulated deficit cannot be eliminated. Operating ratio, though 71% in initial year, maintains high value of 82% in and after second year. Reason is high percentage of depreciation and amortization, i.e., the influence from switches installation cost.

Loan repayment is possible because of ample cash balance as in Plan-A. However, debt service ratio in 1996 to 2000 falls below 1.0, more precisely, 0.93 on an average. Accordingly, to maintain the safety operation of the enterprise and to increase the profit, required are the adoption of a loan with most advantageous terms and conditions and the enforcement of drastic policy for profit increase.

6-8-3 Economic Analysis

(1) Direct Economic Benefit (Quantitative Economic Benefit)

Direct economic benefit from implementation of this project is the operating revenue used in the earlier introduced financial analysis.

In many cases, market price in developing countries is considered not to reflect real economic value. Therefore, study is made by converting market price into "shadow price" under conditions as under.

1) Price used in financial analysis be converted into border price by means of standard conversion factor (SCF). However, this conversion is not applicable to foreign currency portion of total capital requirement because that portion is on CIF basis. SCF, when calculated, becomes 0.81 and, using this figure, domestic price can be converted into border price.
(See Note below.)

2) In Yemen A.R., labor shortage is acute because many laborers emigrate to other countries to work. To fill the shortage, laborers from Southeast and Southwest Asia and Northeast Africa are employed. Thus, in Yemen A.R., unskilled labor wage reflects real economic value.

3) Skilled labor wage, even when converted into border price with SCF, remains to be approximate value.

From the foregoing, economic benefits as under are conceivable.

1) Economic benefit available to consumers is not less than 19% of the operating revenue.

2) From 19% of local currency portion out of total capital requirement and from 19% of maintenance expense and working expense, benefit of cost saving can be expected. This benefit is the benefit available to local suppliers and labor.

Benefit to unskilled labor should be properly adjusted; however, since its percentage to total is negligible, it is to be included in the above benefit of cost saving.

(2) Economic IRR

Calculation result for economic IRR concerning the aforementioned direct economic benefit is as under. (Refer to Tables 6-11 and 6-12.)

Plan-A: 11.91%
Plan-B: 8.84%

Therefore, this project, when implemented, will offer benefit not only to MOC/PTC financially (financial IRR for Plan-A: 7.43%, for Plan-B: 4.41%) but also to whole Yemen A.R. economically; Economic benefit exceeds the financial benefit.

Note:

SCF is obtained by the following formula:

$$SCF = \frac{Im + Ex}{Im + Tm + Ex + Sx - Tx}$$

where,

Im: Total import value (CIF)
Ex: Total export value (FOB)
Tm: Total import duty
Sx: Total export subsidy
Tx: Total export duty

Calculation result based on the above formula and using statistical data available in Yemen A.R. is tabulated below. In this calculation, both Sx and Tx are set at zero. Reason: Sx and Tx values are not large enough to exert influence on SCF.

For SCF value, annual average for 1977 through 1982 is used. This time, SCF = 0.81 is adopted.

(in Million Yemen Rial)

	External Trade Balance			
Year	Import	Export	Import Duty	SCF
1977	6,195	33	1,304	0.8268
1978	5,075	29	1,386	0.7864
1979	6,807	62	1,610	0.8101
1980	8,454	103	1,728	0.8320
1981	7,340	217	1,633	0.8223
1982	8,963	22	2,348	0.7928
Mean				0.8117

6-8-4 Overall Evaluation

When the newly planned rural telecommunications network of Yemen A.R. is realized according to the implementation program prepared by this study, the rural population who occupy an overwhelming majority out of the country's whole population can be relieved of extreme inconvenience they are now experiencing in their life without means of communication. Villages in those rural areas and villages scattered in mountain areas difficult of access can be mutually connected by stable and highly reliable communication media. So is the case with suburban cities also in their interconnections with the central part of the country. Round-the-clock SLDD service to be provided by MOC/PTC via new network will be evangelical to potential telephone subscribers in those areas that include local administrative organizations, medical and educational institutions and farm managers.

In the quantitative evaluation of direct economic benefits that accure from this project to MOC/PTC as responsible party for telecommunications service management, both Plan-A and Plan-B have their respective IRRs keep inside the objective value of opportunity cost of capital determined by the World Bank. In the financial analysis, however, Plan-A wherein the existing switching equipment are utilized proves to be more profitable than Plan-B wherein switching equipment for rural network are newly introduced.

Six existing exchanges (HAJJAH, SANA'A, DHAMAR, IBB, TAIZZ and HUDAYDAH), whose equipment are to be utilized in the implementation of this project, hold sufficient surplus capacity to accommodate all subscribers in the coverage area of the project.

Furthermore, the equipment leave no room to be desired from the viewpoint of switching technology. This project, when compared with the present operating scale of MOC/PTC, corresponds to 4.7% in the number of staff personnel and 6.6% in the cost of operation. Therefore, the project does not necessitate any excessive expansion of the operating scale of MOC/PTC.

Insofar as it is concerned that this project, aimed at rural telecommunications network improvement, will go a long way toward "social and economic development of rural area, as well as improvement of modus vivendi of rural inhabitants", a policy line for national development to which the Government of Yemen A.R. attaches utmost importance, there is no room for doubt.

Agriculture constitutes the economic foundation of Yemen A.R. One key role of rural telecommunications network is to promote reform of agricultural production structure and modernize it. Exchange of information via effective communication media will contribute to the improvement of agricultural technology and facilitate acquisition of useful information concerning fertilizers, seeds and saplings, and farming innovations. Much can be expected in such realms as foreknowing meteorological conditions and taking necessary steps, as well as upgrading distribution and financing organizations, also. Not less significant are efficiency improvement and operational smoothing of all kinds of social services, including administration, medication and education.

In other words, telecommunications network improvement and expansion are sure to arouse production surplus, i.e., revenue increment, in agriculture (inclusive of allied industry sectors) and increased welfare of agricultural population. This, in turn, brings about domestic market expansion (including promotion of industrialization), fair and just new employment opportunities, elimination of imbalance between urban and rural areas, and social life stability.

For benefits of all kinds that accure from telecommunications network improvement and expansion on social and economic development, quantitative evaluation is difficult. In rural area covered by this project, road development has been finished to some extent, though narrow and winding rough roads. Telecommunications service, however, is almost never established and this results in the most serious bottleneck for social and economic development in rural area.

Such state of affairs attests to the greatness of indirect benefits which this project will impart on rural area development in general.

The foregoing indirect benefits on social and economic development of the whole nation and direct benefits to MOC/PTC (in the form of telephone service revenue) are not mutually independent and without correlations. On the contrary, both are intimately interrelated so that when one increases, the other naturally follows suit. Judging from social and economic environments of Yemen A.R., the existing telephone tariff system leaves large room for modification, and this modification is to ensure increased service revenue to MOC/PTC. Thus, by appropriate tariff system revision on opportune occasion, direct benefits to MOC/PTC can be increased with greater certainty than heretofore.

All things considered, Plan-A of this project can be evaluated as being the most feasible not only technically but financially and economically as well. From the viewpoint of benefits on society and economy at large of Yemen A.R. also, this project deserves full evaluation.

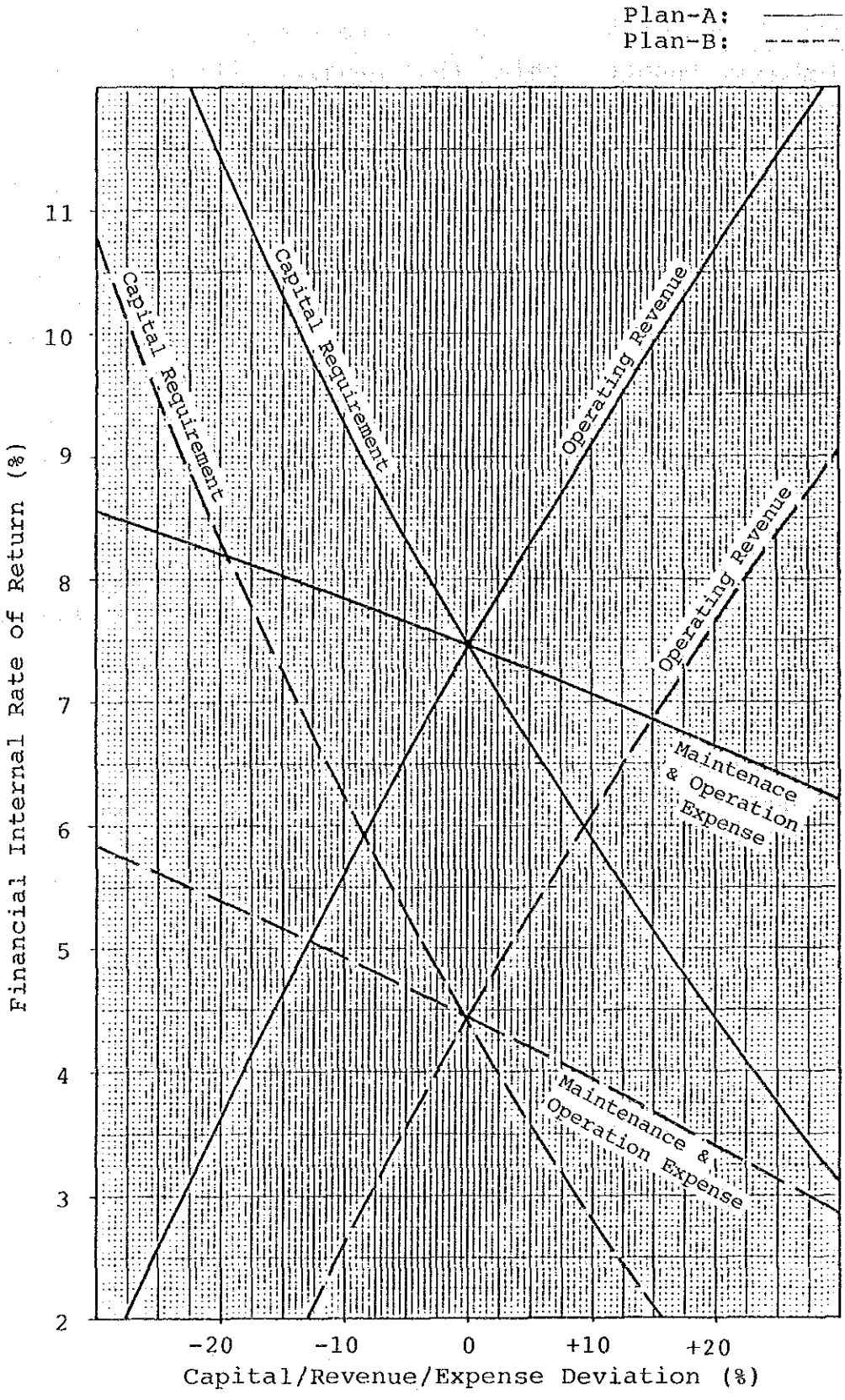


Figure 6-1 SENSITIVITY ANALYSIS

Table 6-1 PRESENT TELEPHONE TARIFF SYSTEM IN Y.A.R.

Network	Subscriber Category	Installation Charge		Monthly Rent	Calling Charge			Remarks
		Normal	Extra		Charge per Pulse	Pulse Interval (Sec.)		
						Local	SLDD	
Urban	Ordinary	YR 2,500	Extra Dropwire: YR 7/100 m Extra Pole: YR 675/pole	YR 30*	YR 0.3	360	360, 180, 90 or 9	*Including first 30 pulses
	Government	YR 1,168	-					
Rural	-		(Nil)	YR 2,500*	YR 0.3	9	9	

Table 6-2 TOTAL CAPITAL REQUIREMENT

(Unit: Million Yen)

Item	Plan-A			Plan-B		
	Foreign	Local	Total	Foreign	Local	Total
(1) Construction Cost	4,391	1,434	5,825	5,338	1,460	6,798
(2) Training and Maintenance Services	52	-	52	82	-	82
(3) Consulting Services	345	62	407	380	62	442
Base Project Cost (At 1984 Price)	4,788	1,496	6,284	5,800	1,522	7,322
(4) Price Contingency	755	236	991	914	240	1,154
(5) Initial Working Capital (At 1989 Price)						
- Case-1	-	332	332	-	332	332
- Case-2	-	50	50	-	50	50
- Case-3	-	108	108	-	108	108
(6) Interest During Construction						
- Case-1	498	119	617	604	120	724
- Case-2	498	103	601	604	104	708
- Case-3	498	106	604	604	108	712
Total Finance						
- Case-1	6,041	2,183	8,224	7,318	2,214	9,532
- Case-2	6,041	1,885	7,926	7,318	1,916	9,234
- Case-3	6,041	1,946	7,987	7,318	1,978	9,296

Table 6-3 FINANCIAL INTERNAL RATE OF RETURN (Plan-A)

*** RURAL TELECOMMUNICATIONS NETWORK IN YEMEN ***
FINANCIAL RATE OF RETURN (IN CONSTANT PRICE)
CASE(A-2-3) - BASE CASE - (MILLION YEN)

YEAR	FIXED CAPITAL EXPEND.	CHANGE IN WORKING CAPITAL	(1) GROSS CAPITAL EXPENDTR	OPERATING PROFIT	DEPRECIATN	(2) GROSS CASH IN-FLOW	(3) INCOME TAX	(4) BFR-TAX NET IN-FLOW (2)-(1)	(5) AFT-TAX NET IN-FLOW (4)-(3)
1986	184.	0.	184.	0.	0.	0.	0.	-184.	-184.
1987	2416.	0.	2416.	0.	0.	0.	0.	-2416.	-2416.
1988	2400.	0.	2400.	0.	0.	0.	0.	-2400.	-2400.
1989	2275.	0.	2275.	0.	0.	0.	0.	-2275.	-2275.
1990	0.	108.	108.	527.	513.	1040.	0.	932.	932.
1991	0.	-14.	-14.	356.	513.	869.	0.	883.	883.
1992	0.	0.	0.	356.	513.	869.	0.	869.	869.
1993	0.	0.	0.	356.	513.	869.	0.	869.	869.
1994	0.	0.	0.	356.	513.	869.	0.	869.	869.
1995	0.	0.	0.	356.	513.	869.	0.	869.	869.
1996	0.	0.	0.	356.	513.	869.	0.	869.	869.
1997	0.	0.	0.	356.	513.	869.	0.	869.	869.
1998	0.	0.	0.	356.	513.	869.	0.	869.	869.
1999	0.	0.	0.	356.	513.	869.	0.	869.	869.
2000	0.	0.	0.	356.	513.	869.	0.	869.	869.
2001	0.	0.	0.	356.	513.	869.	0.	869.	869.
2002	0.	0.	0.	356.	513.	869.	0.	869.	869.
2003	0.	0.	0.	356.	513.	869.	0.	869.	869.
2004	-184.	-94.	-278.	356.	513.	869.	0.	1147.	1147.
	7091.	-0.	7091.	5511.	7695.	13206.	0.	6115.	6115.

INTERNAL RATE OF RETURN

ON (4) BFR-TAX NET IN-FLOW (2)-(1) 7.43 PER CENT

ON (5) AFT-TAX NET IN-FLOW (4)-(3) 7.43 PER CENT

Table 6-4 FINANCIAL INTERNAL RATE OF RETURN (Plan-B)

*** RURAL TELECOMMUNICATIONS NETWORK IN YEMEN ***
FINANCIAL RATE OF RETURN (IN CONSTANT PRICE)
CASE(B-2-3) - BASE CASE - (MILLION YEN)

YEAR	FIXED CAPITAL EXPEND.	CHANGE IN WORKING CAPITAL	(1) GROSS CAPITAL EXPENDTR	OPERATING PROFIT	DEPRECIATN	(2) GROSS CASH IN-FLOW	(3) INCOME TAX	(4) BFR-TAX NET IN-FLOW (2)-(1)	(5) AFT-TAX NET IN-FLOW (4)-(3)
1986	184.	0.	184.	0.	0.	0.	0.	-184.	-184.
1987	2716.	0.	2716.	0.	0.	0.	0.	-2716.	-2716.
1988	2700.	0.	2700.	0.	0.	0.	0.	-2700.	-2700.
1989	2876.	0.	2876.	0.	0.	0.	0.	-2876.	-2876.
1990	0.	108.	108.	371.	600.	971.	0.	863.	863.
1991	0.	-14.	-14.	200.	600.	800.	0.	814.	814.
1992	0.	0.	0.	200.	600.	800.	0.	800.	800.
1993	0.	0.	0.	200.	600.	800.	0.	800.	800.
1994	0.	0.	0.	200.	600.	800.	0.	800.	800.
1995	0.	0.	0.	200.	600.	800.	0.	800.	800.
1996	0.	0.	0.	200.	600.	800.	0.	800.	800.
1997	0.	0.	0.	200.	600.	800.	0.	800.	800.
1998	0.	0.	0.	200.	600.	800.	0.	800.	800.
1999	0.	0.	0.	200.	600.	800.	0.	800.	800.
2000	0.	0.	0.	200.	600.	800.	0.	800.	800.
2001	0.	0.	0.	200.	600.	800.	0.	800.	800.
2002	0.	0.	0.	200.	600.	800.	0.	800.	800.
2003	0.	0.	0.	200.	600.	800.	0.	800.	800.
2004	-184.	-94.	-278.	200.	600.	800.	0.	1078.	1078.
	8292.	-0.	8292.	3167.	9004.	12171.	0.	3879.	3879.

INTERNAL RATE OF RETURN

ON (4) BFR-TAX NET IN-FLOW (2)-(1) 4.41 PER CENT

ON (5) AFT-TAX NET IN-FLOW (4)-(3) 4.41 PER CENT

Table 6-5 (1/2) INCOME STATEMENTS (Plan-A)

*** RURAL TELECOMMUNICATIONS NETWORK IN YEMEN ***

INCOME STATEMENTS (FOR ENDING DECEMBER 31)

CASE(A-2-3) - BASE CASE - (MILLION YEN)

YEAR	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
OPERATING REVENUE	0.	0.	0.	0.	1294.	1123.	1123.	1123.	1123.	1123.
CALL CHARGE, RENT,INSTALL	0.	0.	0.	0.	1294.	1123.	1123.	1123.	1123.	1123.
OPERATING EXPENDITURE	0.	0.	0.	0.	767.	767.	767.	767.	767.	767.
MAINTENANCE & OPERATION	0.	0.	0.	0.	254.	254.	254.	254.	254.	254.
DEPRECIATION AND AMORTIZATION	0.	0.	0.	0.	513.	513.	513.	513.	513.	513.
OPERATING PROFIT	0.	0.	0.	0.	527.	356.	356.	356.	356.	356.
NON-OPERATING EXPENSES	0.	0.	0.	0.	380.	380.	380.	380.	380.	380.
INTEREST ON LONG TERM DEBT	0.	0.	0.	0.	380.	380.	380.	380.	380.	380.
INTEREST ON SHORT TERM DEBT	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
NET PROFIT OR (LOSS) BEFORE TAX	0.	0.	0.	0.	147.	-24.	-24.	-24.	-24.	-24.
INCOME TAX	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
NET PROFIT OR (LOSS) AFTER TAX	0.	0.	0.	0.	147.	-24.	-24.	-24.	-24.	-24.
DIVIDENDS	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
RETAINED EARNINGS	0.	0.	0.	0.	147.	-24.	-24.	-24.	-24.	-24.

Table 6-5(2/2) INCOME STATEMENTS (Plan-A)

*** RURAL TELECOMMUNICATIONS NETWORK IN YEMEN ***
INCOME STATEMENTS (FOR ENDING DECEMBER 31)

CASE(A-2-3) - BASE CASE - (MILLION YEN)

YEAR	1996	1997	1998	1999	2000	2001	2002	2003	2004
OPERATING REVENUE	1123.	1123.	1123.	1123.	1123.	1123.	1123.	1123.	1123.
CALL CHARGE, RENT,INSTALL	1123.	1123.	1123.	1123.	1123.	1123.	1123.	1123.	1123.
OPERATING EXPENDITURE	767.	767.	767.	767.	767.	767.	767.	767.	767.
MAINTENANCE & OPERATION	254.	254.	254.	254.	254.	254.	254.	254.	254.
DEPRECIATION AND AMORTIZATION	513.	513.	513.	513.	513.	513.	513.	513.	513.
OPERATING PROFIT	356.	356.	356.	356.	356.	356.	356.	356.	356.
NON-OPERATING EXPENSES	380.	361.	342.	323.	304.	285.	266.	247.	228.
INTEREST ON LONG TERM DEBT	380.	361.	342.	323.	304.	285.	266.	247.	228.
INTEREST ON SHORT TERM DEBT	0.	0.	0.	0.	0.	0.	0.	0.	0.
NET PROFIT OR (LOSS) BEFORE TAX	-24.	-5.	14.	33.	52.	71.	90.	109.	128.
INCOME TAX	0.	0.	0.	0.	0.	0.	0.	0.	0.
NET PROFIT OR (LOSS) AFTER TAX	-24.	-5.	14.	33.	52.	71.	90.	109.	128.
DIVIDENDS	0.	0.	0.	0.	0.	0.	0.	0.	0.
RETAINED EARNINGS	-24.	-5.	14.	33.	52.	71.	90.	109.	128.

Table 6-6 (1/2) INCOME STATEMENTS (Plan-B)

*** RURAL TELECOMMUNICATIONS NETWORK IN YEMEN *** PAGE 1
INCOME STATEMENTS (FOR ENDING DECEMBER 31)
CASE(8-2-3) - BASE CASE - (MILLION YEN)

YEAR	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
OPERATING REVENUE	0.	0.	0.	0.	1294.	1123.	1123.	1123.	1123.	1123.
CALL CHARGE, RENT, INSTALL	0.	0.	0.	0.	1294.	1123.	1123.	1123.	1123.	1123.
OPERATING EXPENDITURE	0.	0.	0.	0.	923.	923.	923.	923.	923.	923.
MAINTENANCE & OPERATION	0.	0.	0.	0.	323.	323.	323.	323.	323.	323.
DEPRECIATION AND AMORTIZATION	0.	0.	0.	0.	600.	600.	600.	600.	600.	600.
OPERATING PROFIT	0.	0.	0.	0.	371.	200.	200.	200.	200.	200.
NON-OPERATING EXPENSES	0.	0.	0.	0.	445.	445.	445.	445.	445.	445.
INTEREST ON LONG TERM DEBT	0.	0.	0.	0.	445.	445.	445.	445.	445.	445.
INTEREST ON SHORT TERM DEBT	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
NET PROFIT OR (LOSS) BEFORE TAX	0.	0.	0.	0.	-74.	-245.	-245.	-245.	-245.	-245.
INCOME TAX	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
NET PROFIT OR (LOSS) AFTER TAX	0.	0.	0.	0.	-74.	-245.	-245.	-245.	-245.	-245.
DIVIDENDS	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
RETAINED EARNINGS	0.	0.	0.	0.	-74.	-245.	-245.	-245.	-245.	-245.

Table 6-6 (2/2) INCOME STATEMENTS (Plan-B)

*** RURAL TELECOMMUNICATIONS NETWORK IN YEMEN *** PAGE 2
INCOME STATEMENTS (FOR ENDING DECEMBER 31)
CASE(B-2-3) - BASE CASE - (MILLION YEN)

YEAR	1996	1997	1998	1999	2000	2001	2002	2003	2004
OPERATING REVENUE	1123.	1123.	1123.	1123.	1123.	1123.	1123.	1123.	1123.
CALL CHARGE, RENT, INSTALL	1123.	1123.	1123.	1123.	1123.	1123.	1123.	1123.	1123.
OPERATING EXPENDITURE	923.	923.	923.	923.	923.	923.	923.	923.	923.
MAINTENANCE & OPERATION	323.	323.	323.	323.	323.	323.	323.	323.	323.
DEPRECIATION AND AMORTIZATION	600.	600.	600.	600.	600.	600.	600.	600.	600.
OPERATING PROFIT	200.	200.	200.	200.	200.	200.	200.	200.	200.
NON-OPERATING EXPENSES	445.	423.	401.	378.	356.	334.	312.	289.	267.
INTEREST ON LONG TERM DEBT	445.	423.	401.	378.	356.	334.	312.	289.	267.
INTEREST ON SHORT TERM DEBT	0.	0.	0.	0.	0.	0.	0.	0.	0.
NET PROFIT OR (LOSS) BEFORE TAX	-245.	-223.	-201.	-179.	-156.	-134.	-112.	-90.	-67.
INCOME TAX	0.	0.	0.	0.	0.	0.	0.	0.	0.
NET PROFIT OR (LOSS) AFTER TAX	-245.	-223.	-201.	-179.	-156.	-134.	-112.	-90.	-67.
DIVIDENDS	0.	0.	0.	0.	0.	0.	0.	0.	0.
RETAINED EARNINGS	-245.	-223.	-201.	-179.	-156.	-134.	-112.	-90.	-67.

Table 6-7 (1/2) BALANCE SHEET (Plan-A)

*** RURAL TELECOMMUNICATIONS NETWORK IN YEMEN *** PAGE 1

BALANCE SHEET (FOR ENDING DECEMBER 31)

CASE(A-2-3) - BASE CASE - (MILLION YEN)

YEAR	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
ASSETS	214.	2883.	5523.	7987.	8134.	8110.	8086.	8062.	8039.	8015.
CURRENT ASSETS	0.	0.	0.	0.	108.	94.	94.	94.	94.	94.
OPERATING CASH	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
ACCOUNT RECIVABLE	0.	0.	0.	0.	108.	94.	94.	94.	94.	94.
INVENTORIES	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
ACC. EXESS CASH	26.	206.	242.	108.	660.	1164.	1653.	2142.	2631.	3120.
NET FIXED ASSETS	188.	2678.	5281.	7879.	7366.	6853.	6340.	5827.	5314.	4801.
INVESTMENT	188.	2678.	5281.	7879.	7879.	7879.	7879.	7879.	7879.	7879.
NON-DEPR. ASSETS	184.	184.	184.	184.	184.	184.	184.	184.	184.	184.
DEPRECIABLE ASSETS	0.	2416.	4816.	7091.	7091.	7091.	7091.	7091.	7091.	7091.
INTEREST DRG CONSTR.	4.	78.	281.	604.	604.	604.	604.	604.	604.	604.
LESS: ACC. DEPRACIATION	0.	0.	0.	0.	513.	1026.	1539.	2052.	2565.	3078.
LIABILITIES	214.	2883.	5523.	7987.	7987.	7987.	7987.	7987.	7987.	7987.
CURRENT LIABILITIES	0.	0.	0.	0.	0.	0.	0.	0.	0.	399.
ACCOUNT PAYABLE	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
CURRENT PORTION OF L/T DEBT	0.	0.	0.	0.	0.	0.	0.	0.	0.	399.
SHORT TERM DEBT	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
FIXED LIABILITIES	214.	2883.	5523.	7987.	7987.	7987.	7987.	7987.	7987.	7588.
LONG TERM DEBT BALANCE	214.	2883.	5523.	7987.	7987.	7987.	7987.	7987.	7987.	7588.
OTHER FIXED LIABILITIES	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
STOCK HOLDERS EQUITY	0.	0.	0.	0.	147.	123.	99.	75.	52.	28.
SHARE CAPITAL	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
ACC. RETAINED EARNINGS	0.	0.	0.	0.	147.	123.	99.	75.	52.	28.
LIABILITIES & S/H EQUITY	214.	2883.	5523.	7987.	8134.	8110.	8086.	8062.	8039.	8015.

Table 6-7(2/2) BALANCE SHEET (Plan-A)

*** RURAL TELECOMMUNICATIONS NETWORK IN YEMEN *** PAGE 2

BALANCE SHEET (FOR ENDING DECEMBER 31)

CASE(A-2-3) - BASE CASE - (MILLION YEN)

YEAR	1996	1997	1998	1999	2000	2001	2002	2003	2004
ASSETS	7591.	7187.	6802.	6436.	6088.	5760.	5451.	5161.	4889.
CURRENT ASSETS	94.	94.	94.	94.	94.	94.	94.	94.	94.
OPERATING CASH	0.	0.	0.	0.	0.	0.	0.	0.	0.
ACCOUNT RECIVABLE	94.	94.	94.	94.	94.	94.	94.	94.	94.
INVENTORIES	0.	0.	0.	0.	0.	0.	0.	0.	0.
ACC. EXESS CASH	3210.	3319.	3446.	3593.	3759.	3944.	4147.	4370.	4612.
NET FIXED ASSETS	4288.	3775.	3262.	2749.	2236.	1723.	1210.	697.	184.
INVESTMENT	7879.	7879.	7879.	7879.	7879.	7879.	7879.	7879.	7879.
NON-DEPR. ASSETS	184.	184.	184.	184.	184.	184.	184.	184.	184.
DEPRECIABLE ASSETS	7091.	7091.	7091.	7091.	7091.	7091.	7091.	7091.	7091.
INTEREST DRG CONSTR.	604.	604.	604.	604.	604.	604.	604.	604.	604.
LESS: ACC. DEPRACIATION	3591.	4104.	4617.	5130.	5643.	6156.	6669.	7182.	7695.
LIABILITIES	7588.	7188.	6789.	6390.	5990.	5591.	5192.	4792.	4393.
CURRENT LIABILITIES	399.	399.	399.	399.	399.	399.	399.	399.	399.
ACCOUNT PAYABLE	0.	0.	0.	0.	0.	0.	0.	0.	0.
CURRENT PORTION OF L/T DEBT	399.	399.	399.	399.	399.	399.	399.	399.	399.
SHORT TERM DEBT	0.	0.	0.	0.	0.	0.	0.	0.	0.
FIXED LIABILITIES	7188.	6789.	6390.	5990.	5591.	5192.	4792.	4393.	3994.
LONG TERM DEBT BALANCE	7188.	6789.	6390.	5990.	5591.	5192.	4792.	4393.	3994.
OTHER FIXED LIABILITIES	0.	0.	0.	0.	0.	0.	0.	0.	0.
STOCK HOLDERS EQUITY	4.	-1.	13.	46.	98.	169.	259.	368.	496.
SHARE CAPITAL	0.	0.	0.	0.	0.	0.	0.	0.	0.
ACC. RETAINED EARNINGS	4.	-1.	13.	46.	98.	169.	259.	368.	496.
LIABILITIES & S/H EQUITY	7591.	7187.	6802.	6436.	6088.	5760.	5451.	5161.	4889.

Table 6-8 (1/2) BALANCE SHEET (Plan-B)

*** RURAL TELECOMMUNICATIONS NETWORK IN YEMEN *** PAGE 1

BALANCE SHEET (FOR ENDING DECEMBER 31)

CASE(B-2-3) - BASE CASE - (MILLION YEN)

YEAR	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
ASSETS	218.	3402.	6497.	9296.	9222.	8976.	8731.	8486.	8241.	7995.
CURRENT ASSETS	0.	0.	0.	0.	108.	94.	94.	94.	94.	94.
OPERATING CASH	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
ACCOUNT RECIVABLE	0.	0.	0.	0.	108.	94.	94.	94.	94.	94.
INVENTORIES	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
ACC. EXESS CASH	30.	410.	566.	108.	526.	895.	1250.	1605.	1960.	2315.
NET FIXED ASSETS	188.	2992.	5932.	9188.	8588.	7987.	7387.	6787.	6187.	5586.
INVESTMENT	188.	2992.	5932.	9188.	9188.	9188.	9188.	9188.	9188.	9188.
NON-DEPR. ASSETS	184.	184.	184.	184.	184.	184.	184.	184.	184.	184.
DEPRECIABLE ASSETS	0.	2716.	5416.	8292.	8292.	8292.	8292.	8292.	8292.	8292.
INTEREST DRG CONSTR.	4.	92.	332.	712.	712.	712.	712.	712.	712.	712.
LESS: ACC. DEPRACIATION	0.	0.	0.	0.	600.	1201.	1801.	2401.	3001.	3602.
LIABILITIES	218.	3402.	6497.	9296.	9296.	9296.	9296.	9296.	9296.	9296.
CURRENT LIABILITIES	0.	0.	0.	0.	0.	0.	0.	0.	0.	465.
ACCOUNT PAYABLE	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
CURRENT PORTION OF L/T DEBT	0.	0.	0.	0.	0.	0.	0.	0.	0.	465.
SHORT TERM DEBT	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
FIXED LIABILITIES	218.	3402.	6497.	9296.	9296.	9296.	9296.	9296.	9296.	8831.
LONG TERM DEBT BALANCE	218.	3402.	6497.	9296.	9296.	9296.	9296.	9296.	9296.	8831.
OTHER FIXED LIABILITIES	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
STOCK HOLDERS EQUITY	0.	0.	0.	0.	-74.	-320.	-565.	-810.	-1055.	-1301.
SHARE CAPITAL	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
ACC. RETAINED EARNINGS	0.	0.	0.	0.	-74.	-320.	-565.	-810.	-1055.	-1301.
LIABILITIES & S/H EQUITY	218.	3402.	6497.	9296.	9222.	8976.	8731.	8486.	8241.	7995.

Table 6-8 (2/2) BALANCE SHEET (Plan-B)

*** RURAL TELECOMMUNICATIONS NETWORK IN YEMEN *** PAGE 2
BALANCE SHEET (FOR ENDING DECEMBER 31)
CASE(B-2-3) - BASE CASE - (MILLION YEN)

YEAR	1996	1997	1998	1999	2000	2001	2002	2003	2004
ASSETS	7285.	6597.	5932.	5288.	4667.	4069.	3492.	2938.	2406.
CURRENT ASSETS	94.	94.	94.	94.	94.	94.	94.	94.	94.
OPERATING CASH	0.	0.	0.	0.	0.	0.	0.	0.	0.
ACCOUNT RECIVABLE	94.	94.	94.	94.	94.	94.	94.	94.	94.
INVENTORIES	0.	0.	0.	0.	0.	0.	0.	0.	0.
ACC. EXESS CASH	2206.	2118.	2053.	2010.	1989.	1990.	2014.	2060.	2128.
NET FIXED ASSETS	4986.	4386.	3786.	3185.	2585.	1985.	1385.	784.	184.
INVESTMENT	9188.	9188.	9188.	9188.	9188.	9188.	9188.	9188.	9188.
NON-DEPR. ASSETS	184.	184.	184.	184.	184.	184.	184.	184.	184.
DEPRECIABLE ASSETS	8292.	8292.	8292.	8292.	8292.	8292.	8292.	8292.	8292.
INTEREST DRG CONSTR.	712.	712.	712.	712.	712.	712.	712.	712.	712.
LESS: ACC. DEPRACIATION	4202.	4802.	5402.	6003.	6603.	7203.	7803.	8404.	9004.
LIABILITIES	8831.	8366.	7902.	7437.	6972.	6507.	6042.	5578.	5113.
CURRENT LIABILITIES	465.	465.	465.	465.	465.	465.	465.	465.	465.
ACCOUNT PAYABLE	0.	0.	0.	0.	0.	0.	0.	0.	0.
CURRENT PORTION OF L/T DEBT	465.	465.	465.	465.	465.	465.	465.	465.	465.
SHORT TERM DEBT	0.	0.	0.	0.	0.	0.	0.	0.	0.
FIXED LIABILITIES	8366.	7902.	7437.	6972.	6507.	6042.	5578.	5113.	4648.
LONG TERM DEBT BALANCE	8366.	7902.	7437.	6972.	6507.	6042.	5578.	5113.	4648.
OTHER FIXED LIABILITIES	0.	0.	0.	0.	0.	0.	0.	0.	0.
STOCK HOLDERS EQUITY	-1546.	-1769.	-1970.	-2148.	-2305.	-2439.	-2550.	-2640.	-2707.
SHARE CAPITAL	0.	0.	0.	0.	0.	0.	0.	0.	0.
ACC. RETAINED EARNINGS	-1546.	-1769.	-1970.	-2148.	-2305.	-2439.	-2550.	-2640.	-2707.
LIABILITIES & S/H EQUITY	7285.	6597.	5932.	5288.	4667.	4069.	3492.	2938.	2406.

Table 6-9(1/2) FUNDS FLOW STATEMENTS (Plan-A)

*** RURAL TELECOMMUNICATIONS NETWORK IN YEMEN ***
FUNDS FLOW STATEMENTS (FOR ENDING DECEMBER 31)
CASE(A-2-3) - BASE CASE - (MILLION YEN)

YEAR	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
SOURCE OF FUNDS	214.	2669.	2640.	2464.	1040.	869.	869.	869.	869.	869.
CASH GENERATED	0.	0.	0.	0.	1040.	869.	869.	869.	869.	869.
PROFIT AFT. TAX, BFR INT.	0.	0.	0.	0.	527.	356.	356.	356.	356.	356.
DEPRECIATION AND AMORTIZATION	0.	0.	0.	0.	513.	513.	513.	513.	513.	513.
FINANCIAL RESOURCES	214.	2669.	2640.	2464.	0.	0.	0.	0.	0.	0.
SHARE CAPITAL	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
LONG TERM DEBT	214.	2669.	2640.	2464.	0.	0.	0.	0.	0.	0.
SHORT TERM DEBT	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
USES OF FUNDS	188.	2490.	2603.	2598.	488.	366.	380.	380.	380.	380.
FIXED CAPITAL EXPENDITURE	188.	2490.	2603.	2598.	0.	0.	0.	0.	0.	0.
LAND ACQUISITION	184.	0.	0.	0.	0.	0.	0.	0.	0.	0.
DEPRECIABLE FIXED ASSETS	0.	2416.	2400.	2275.	0.	0.	0.	0.	0.	0.
INTEREST DURING CONSTRUCTION	4.	74.	203.	323.	0.	0.	0.	0.	0.	0.
CHANGE IN WORKING CAPITAL	0.	0.	0.	0.	108.	-14.	0.	0.	0.	0.
DEBT SERVICES	0.	0.	0.	0.	380.	380.	380.	380.	380.	380.
REPAYMENT OF LONG TERM DEBT	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
REPAYMENT OF SHORT TERM DEBT	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
INTEREST ON LONG TERM DEBT	0.	0.	0.	0.	380.	380.	380.	380.	380.	380.
INTEREST ON SHORT TERM DEBT	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
DIVIDENDS	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
CASH INCREASE OR (DECREASE)	26.	180.	36.	-134.	552.	503.	489.	489.	489.	489.
BEGINNING CASH BALANCE	0.	26.	206.	242.	108.	660.	1164.	1653.	2142.	2631.
ENDING CASH BALANCE	26.	206.	242.	108.	660.	1164.	1653.	2142.	2631.	3120.

Table 6-9 (2/2) FUNDS FLOW STATEMENTS (Plan-A)

*** RURAL TELECOMMUNICATIONS NETWORK IN YEMEN *** PAGE 2
FUNDS FLOW STATEMENTS (FOR ENDING DECEMBER 31)
CASE(A-2-3) - BASE CASE - (MILLION YEN)

YEAR	1996	1997	1998	1999	2000	2001	2002	2003	2004
SOURCE OF FUNDS	869.	869.	869.	869.	869.	869.	869.	869.	869.
CASH GENERATED	869.	869.	869.	869.	869.	869.	869.	869.	869.
PROFIT AFT. TAX, BFR INT.	356.	356.	356.	356.	356.	356.	356.	356.	356.
DEPRECIATION AND AMORTIZATION	513.	513.	513.	513.	513.	513.	513.	513.	513.
FINANCIAL RESOURCES	0.	0.	0.	0.	0.	0.	0.	0.	0.
SHARE CAPITAL	0.	0.	0.	0.	0.	0.	0.	0.	0.
LONG TERM DEBT	0.	0.	0.	0.	0.	0.	0.	0.	0.
SHORT TERM DEBT	0.	0.	0.	0.	0.	0.	0.	0.	0.
USES OF FUNDS	779.	760.	741.	722.	703.	684.	665.	646.	627.
FIXED CAPITAL EXPENDITURE	0.	0.	0.	0.	0.	0.	0.	0.	0.
LAND ACQUISITION	0.	0.	0.	0.	0.	0.	0.	0.	0.
DEPRECIABLE FIXED ASSETS	0.	0.	0.	0.	0.	0.	0.	0.	0.
INTEREST DURING CONSTRUCTION	0.	0.	0.	0.	0.	0.	0.	0.	0.
CHANGE IN WORKING CAPITAL	0.	0.	0.	0.	0.	0.	0.	0.	0.
DEBT SERVICES	779.	760.	741.	722.	703.	684.	665.	646.	627.
REPAYMENT OF LONG TERM DEBT	399.	399.	399.	399.	399.	399.	399.	399.	399.
REPAYMENT OF SHORT TERM DEBT	0.	0.	0.	0.	0.	0.	0.	0.	0.
INTEREST ON LONG TERM DEBT	380.	361.	342.	323.	304.	285.	266.	247.	228.
INTEREST ON SHORT TERM DEBT	0.	0.	0.	0.	0.	0.	0.	0.	0.
DIVIDENDS	0.	0.	0.	0.	0.	0.	0.	0.	0.
CASH INCREASE OR (DECREASE)	90.	109.	128.	147.	166.	185.	204.	223.	242.
BEGINNING CASH BALANCE	3120.	3210.	3319.	3446.	3593.	3759.	3944.	4147.	4370.
ENDING CASH BALANCE	3210.	3319.	3446.	3593.	3759.	3944.	4147.	4370.	4612.

Table 6-10(1/2) FUNDS FLOW STATEMENTS (Plan-B)

*** RURAL TELECOMMUNICATIONS NETWORK IN YEMEN *** PAGE 1
FUNDS FLOW STATEMENTS (FOR ENDING DECEMBER 31)
CASE(B-2-3) - BASE CASE - (MILLION YEN)

YEAR	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
SOURCE OF FUNDS	218.	3184.	3095.	2799.	971.	800.	800.	800.	800.	800.
CASH GENERATED	0.	0.	0.	0.	971.	800.	800.	800.	800.	800.
PROFIT AFT. TAX, BFR INT.	0.	0.	0.	0.	371.	200.	200.	200.	200.	200.
DEPRECIATION AND AMORTIZATION	0.	0.	0.	0.	600.	600.	600.	600.	600.	600.
FINANCIAL RESOURCES	218.	3184.	3095.	2799.	0.	0.	0.	0.	0.	0.
SHARE CAPITAL	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
LONG TERM DEBT	218.	3184.	3095.	2799.	0.	0.	0.	0.	0.	0.
SHORT TERM DEBT	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
USES OF FUNDS	188.	2804.	2940.	3256.	553.	431.	445.	445.	445.	445.
FIXED CAPITAL EXPENDITURE	188.	2804.	2940.	3256.	0.	0.	0.	0.	0.	0.
LAND ACQUISITION	184.	0.	0.	0.	0.	0.	0.	0.	0.	0.
DEPRECIABLE FIXED ASSETS	0.	2716.	2700.	2876.	0.	0.	0.	0.	0.	0.
INTEREST DURING CONSTRUCTION	4.	88.	240.	380.	0.	0.	0.	0.	0.	0.
CHANGE IN WORKING CAPITAL	0.	0.	0.	0.	108.	-14.	0.	0.	0.	0.
DEBT SERVICES	0.	0.	0.	0.	445.	445.	445.	445.	445.	445.
REPAYMENT OF LONG TERM DEBT	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
REPAYMENT OF SHORT TERM DEBT	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
INTEREST ON LONG TERM DEBT	0.	0.	0.	0.	445.	445.	445.	445.	445.	445.
INTEREST ON SHORT TERM DEBT	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
DIVIDENDS	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
CASH INCREASE OR (DECREASE)	30.	381.	155.	-458.	418.	369.	355.	355.	355.	355.
BEGINNING CASH BALANCE	0.	30.	410.	566.	108.	526.	895.	1250.	1605.	1960.
ENDING CASH BALANCE	30.	410.	566.	108.	526.	895.	1250.	1605.	1960.	2315.

Table 6-10(2/2) FUNDS FLOW STATEMENTS (Plan-B)

*** RURAL TELECOMMUNICATIONS NETWORK IN YEMEN *** PAGE 2

FUNDS FLOW STATEMENTS (FOR ENDING DECEMBER 31)

CASE(B-2-3) - BASE CASE - (MILLION YEN)

YEAR	1996	1997	1998	1999	2000	2001	2002	2003	2004
SOURCE OF FUNDS	800.	800.	800.	800.	800.	800.	800.	800.	800.
CASH GENERATED	800.	800.	800.	800.	800.	800.	800.	800.	800.
PROFIT AFT. TAX, BFR INT.	200.	200.	200.	200.	200.	200.	200.	200.	200.
DEPRECIATION AND AMORTIZATION	600.	600.	600.	600.	600.	600.	600.	600.	600.
FINANCIAL RESOURCES	0.	0.	0.	0.	0.	0.	0.	0.	0.
SHARE CAPITAL	0.	0.	0.	0.	0.	0.	0.	0.	0.
LONG TERM DEBT	0.	0.	0.	0.	0.	0.	0.	0.	0.
SHORT TERM DEBT	0.	0.	0.	0.	0.	0.	0.	0.	0.
USES OF FUNDS	910.	888.	865.	843.	821.	799.	776.	754.	732.
FIXED CAPITAL EXPENDITURE	0.	0.	0.	0.	0.	0.	0.	0.	0.
LAND ACQUISITION	0.	0.	0.	0.	0.	0.	0.	0.	0.
DEPRECIABLE FIXED ASSETS	0.	0.	0.	0.	0.	0.	0.	0.	0.
INTEREST DURING CONSTRUCTION	0.	0.	0.	0.	0.	0.	0.	0.	0.
CHANGE IN WORKING CAPITAL	0.	0.	0.	0.	0.	0.	0.	0.	0.
DEBT SERVICES	910.	888.	865.	843.	821.	799.	776.	754.	732.
REPAYMENT OF LONG TERM DEBT	465.	465.	465.	465.	465.	465.	465.	465.	465.
REPAYMENT OF SHORT TERM DEBT	0.	0.	0.	0.	0.	0.	0.	0.	0.
INTEREST ON LONG TERM DEBT	445.	423.	401.	378.	356.	334.	312.	289.	267.
INTEREST ON SHORT TERM DEBT	0.	0.	0.	0.	0.	0.	0.	0.	0.
DIVIDENDS	0.	0.	0.	0.	0.	0.	0.	0.	0.
CASH INCREASE OR (DECREASE)	-110.	-88.	-65.	-43.	-21.	1.	24.	46.	68.
BEGINNING CASH BALANCE	2315.	2206.	2118.	2053.	2010.	1989.	1990.	2014.	2060.
ENDING CASH BALANCE	2206.	2118.	2053.	2010.	1989.	1990.	2014.	2060.	2128.

Table 6-11 ECONOMIC INTERNAL RATE OF RETURN (Plan-A)

*** RURAL TELECOMMUNICATIONS NETWORK IN YEMEN ***
ECONOMIC RATE OF RETURN (IN CONSTANT PRICE)
CASE(A-2-3) - ECONOMIC CASE - (MILLION YEN)

YEAR	FIXED CAPITAL EXPEND.	CHANGE IN WORKING CAPITAL	(1) GROSS CAPITAL EXPENDTR	OPERATING PROFIT	DEPRECIATN	(2) GROSS CASH IN-FLOW	(3) INCOME TAX	(4) BFR-TAX NET IN-FLOW (2)-(1)	(5) AFT-TAX NET IN-FLOW (4)-(3)
1986	149.	0.	149.	0.	0.	0.	0.	-149.	-149.
1987	2316.	0.	2316.	0.	0.	0.	0.	-2316.	-2316.
1988	2301.	0.	2301.	0.	0.	0.	0.	-2301.	-2301.
1989	2180.	0.	2180.	0.	0.	0.	0.	-2180.	-2180.
1990	0.	128.	128.	842.	492.	1334.	0.	1206.	1206.
1991	0.	-17.	-17.	638.	492.	1130.	0.	1147.	1147.
1992	0.	0.	0.	638.	492.	1130.	0.	1130.	1130.
1993	0.	0.	0.	638.	492.	1130.	0.	1130.	1130.
1994	0.	0.	0.	638.	492.	1130.	0.	1130.	1130.
1995	0.	0.	0.	638.	492.	1130.	0.	1130.	1130.
1996	0.	0.	0.	638.	492.	1130.	0.	1130.	1130.
1997	0.	0.	0.	638.	492.	1130.	0.	1130.	1130.
1998	0.	0.	0.	638.	492.	1130.	0.	1130.	1130.
1999	0.	0.	0.	638.	492.	1130.	0.	1130.	1130.
2000	0.	0.	0.	638.	492.	1130.	0.	1130.	1130.
2001	0.	0.	0.	638.	492.	1130.	0.	1130.	1130.
2002	0.	0.	0.	638.	492.	1130.	0.	1130.	1130.
2003	0.	0.	0.	638.	492.	1130.	0.	1130.	1130.
2004	-149.	-111.	-260.	638.	492.	1130.	0.	1391.	1391.
	6797.	0.	6797.	9778.	7381.	17159.	0.	10362.	10362.

INTERNAL RATE OF RETURN

ON (4) BFR-TAX NET IN-FLOW (2)-(1) 11.91 PER CENT

ON (5) AFT-TAX NET IN-FLOW (4)-(3) 11.91 PER CENT

Table 6-12 ECONOMIC INTERNAL RATE OF RETURN (Plan-B)

*** RURAL TELECOMMUNICATIONS NETWORK IN YEMEN ***
ECONOMIC RATE OF RETURN (IN CONSTANT PRICE)
CASE(B-2-3) - ECONOMIC CASE - (MILLION YEN)

YEAR	FIXED CAPITAL EXPEND.	CHANGE IN WORKING CAPITAL	(1) GROSS CAPITAL EXPENDTR	OPERATING PROFIT	DEPRECIATN	(2) GROSS CASH IN-FLOW	(3) INCOME TAX	(4) BFR-TAX NET IN-FLOW (2)-(1)	(5) AFT-TAX NET IN-FLOW (4)-(3)
1986	149.	0.	149.	0.	0.	0.	0.	-149.	-149.
1987	2617.	0.	2617.	0.	0.	0.	0.	-2617.	-2617.
1988	2602.	0.	2602.	0.	0.	0.	0.	-2602.	-2602.
1989	2772.	0.	2772.	0.	0.	0.	0.	-2772.	-2772.
1990	0.	128.	128.	699.	579.	1278.	0.	1150.	1150.
1991	0.	-17.	-17.	496.	579.	1074.	0.	1091.	1091.
1992	0.	0.	0.	496.	579.	1074.	0.	1074.	1074.
1993	0.	0.	0.	496.	579.	1074.	0.	1074.	1074.
1994	0.	0.	0.	496.	579.	1074.	0.	1074.	1074.
1995	0.	0.	0.	496.	579.	1074.	0.	1074.	1074.
1996	0.	0.	0.	496.	579.	1074.	0.	1074.	1074.
1997	0.	0.	0.	496.	579.	1074.	0.	1074.	1074.
1998	0.	0.	0.	496.	579.	1074.	0.	1074.	1074.
1999	0.	0.	0.	496.	579.	1074.	0.	1074.	1074.
2000	0.	0.	0.	496.	579.	1074.	0.	1074.	1074.
2001	0.	0.	0.	496.	579.	1074.	0.	1074.	1074.
2002	0.	0.	0.	496.	579.	1074.	0.	1074.	1074.
2003	0.	0.	0.	496.	579.	1074.	0.	1074.	1074.
2004	-149.	-111.	-260.	496.	579.	1074.	0.	1335.	1335.
	7992.	0.	7992.	7636.	8683.	16319.	0.	8327.	8327.

INTERNAL RATE OF RETURN

ON (4) BFR-TAX NET IN-FLOW (2)-(1) 8.84 PER CENT

ON (5) AFT-TAX NET IN-FLOW (4)-(3) 8.84 PER CENT

ANNEX

ANNEX-I ITINERARY OF STUDY TEAM

Itinerary of Study Work

September	11 (Tue.)	Leaving Tokyo for SANA'A
	12 (Wed.)	Arrival at SANA'A
	13 (Thu.)	Greeting and explanation on Inception Report to Japanese Embassy
	14 (Fri.)	General site observation around SANA'A City and WADI DHAR
	15 (Sat.)	Greeting and explanation on Inception Report for Minister of MOC and PTC
	16 (Sun.)	Meeting with MOC/PTC on Inception Report
	17 (Mon.)	ditto
	18 (Tue.)	Preparation of Minutes of Meeting and signing
	19 (Wed.)	JICA Advisors leaving SANA'A for Tokyo Study team visits to SANA'A D exchange office
	20 (Thu.)	Preparation of list for prospective towns/villages
	21 (Fri.)	Map Study
	22 (Sat.)	ditto
	23 (Sun.)	ditto
	24 (Mon.)	ditto
	25 (Tue.)	ditto
	26 (Wed.)	ditto
	27 (Thu.)	ditto
	28 (Fri.)	ditto
	29 (Sat.)	ditto
	30 (Sun.)	Preparation of site survey and meeting on field survey schedule with MOC/PTC counterparts

October	1 (Mon.)	Site survey, Team A: TAIZZ area Team B: HAJJAH area
	2 (Tue.)	ditto
	3 (Wed.)	ditto
	4 (Thu.)	ditto
	5 (Fri.)	Site survey and data arrangements
	6 (Sat.)	Site survey, A: IBB area, B: HAJJAH area
	7 (Sun.)	A: TAIZZ area, B: HAJJAH
	8 (Mon.)	A: TAIZZ area, B: SANA'A area
	9 (Tue.)	ditto
	10 (Wed.)	A: IBB area, B: SANA'A area
	11 (Thu.)	A: DHAMAR area, B: SANA'A area
	12 (Fri.)	Data arrangements
	13 (Sat.)	Study on survey results and re-arrangements of site locations
	14 (Sun.)	ditto
	15 (Mon.)	ditto
	16 (Tue.)	A: Map study, B: Site survey for SANA'A area
	17 (Wed.)	ditto
	18 (Thu.)	ditto
	19 (Fri.)	Data arrangements
	20 (Sat.)	Internal meeting for survey results
	21 (Sun.)	A: Study on re-location of station sites B: Site survey for SANA'A area
	22 (Mon.)	ditto
	23 (Tue.)	A: Re-arrangements for a list of projected towns/villages B: Site survey for SANA'A area
	24 (Wed.)	A: Meeting with MOC/PTC B: Site survey for DHAMAR area

October	25 (Thu.)	A: Study on demand forecast and system configuration B: Site survey for DHAMAR area
	26 (Fri.)	Data arrangements
	27 (Sat.)	A: Study on demand forecast and system make-up B: Site survey for DHAMAR area
	28 (Sun.)	A: Study on basic concept of project B: Site survey for DHAMAR area
	29 (Mon.)	A: Study on basic concept of project B: Site survey for TAIZZ area
	30 (Tue.)	ditto
	31 (Wed.)	A: Meeting with MOC for radio frequency assignment B: Site survey for TAIZZ area
November	1 (Thu.)	Arrival of JICA Advisors at SANA'A Meeting with Japanese Embassy
	2 (Fri.)	Data arrangements
	3 (Sat.)	JICA Advisors and Team Leader having meeting with Minister of MOC A and B: Internal discussion and map study
	4 (Sun.)	A: Meeting with MOC/PTC B: Map study
	5 (Mon.)	Mr. Washizu, JICA Advisor leaving SANA'A for Tokyo A and B: System configuration and cost estimate
	6 (Tue.)	A: ditto B: Site survey for HUDAYDAH area
	7 (Wed.)	Mr. Akabori, JICA Advisor leaving SANA'A for Tokyo A: Cost estimate and financial analysis B: Site survey for HUDAYDAH area
	8 (Thu.)	A: Cost estimate and financial analysis B: Site survey for HUDAYDAH area
	9 (Fri.)	ditto

November	10 (Sat.)	A: Meeting with MOC/PTC for finalization of objective towns/villages and number of subscribers to be covered B: Site survey for HAJJAH area
	11 (Sun.)	A: Study on project implementation program B: Site survey for HUDAYDAH area
	12 (Mon.)	A: Drawing figures and tables B: Site survey for HUDAYDAH area
	13 (Tue.)	ditto
	14 (Wed.)	A: Study on contents of F/S report B: Site survey for HUDAYDAH area
	15 (Thu.)	A: Preparation of Draft Progress Report B: Site survey for SANA'A area
	16 (Fri.)	Data arrangements
	17 (Sat.)	Preparation of Progress Report
	18 (Sun.)	ditto
	19 (Mon.)	ditto
	20 (Tue.)	ditto
	21 (Wed.)	ditto
	22 (Thu.)	ditto
	23 (Fri.)	Draft Progress Report making
	24 (Sat.)	ditto
	25 (Sun.)	Meeting with MOC/PTC on Draft Progress Report
	26 (Mon.)	ditto
	27 (Tue.)	A: Draft Progress Report making B: Site survey for DHAMAR area
	28 (Wed.)	A: Draft Progress Report making B: Site survey for IBB area
	29 (Thu.)	A: Draft Progress Report making B: Site survey for SANA'A and MARIB area
	30 (Fri.)	Progress Report making

December	1 (Sat.)	Chairman of JICA Advisory Committee arriving at SANA'A JICA team internal meeting
	2 (Sun.)	Explanation of Progress Report to Japanese Embassy
	3 (Mon.)	Meeting with MOC/PTC on Progress Report
	4 (Tue.)	Modification and submission of Progress Report
	5 (Wed.)	General observation for HAJJAH area
	6 (Thu.)	Reporting of study results in Yemen A.R. to Japanese Embassy and Minister of MOC and signing of Minutes of Meeting between JICA and MOC
	7 (Fri.)	Preparation for leave
	8 (Sat.)	Greeting for Minister of MOC, Deputy Minister of MOC and MOC/PTC personnel concerned, greeting for Japanese Embassy and collection of remaining data/information and purchase of maps
	9 (Sun.)	Leaving SANA'A for Tokyo
	10 (Mon.)	Arrival at Tokyo

ANNEX-II LIST OF SELECTED TOWNS/VILLAGES

Table A-II (1/34) LIST OF SELECTED TOWNS/VILLAGES

Governorate: SANA'A
Subprovince: SANA'A

District	Town/Village	Pop.	Map No.	Alt. (m)
SANHAN	AL MAHAQIRAH	780	1544 C4	2,400
	BAYT AL AHMAR		"	2,560
	HIZYAZ	1,109	"	2,340
	MAQWALAH	773	"	2,520
	NU'D	940	"	2,720
	SAYYAN	909	"	2,460
	SHASAN	862	"	2,420
	AL JAYRIF	785	"	2,460
	AL JAHSHI	758	"	2,460
	MASUD	860	"	2,540
	BAYT ASH SHATIBI	524	"	2,380
	BAYT HADIR	1,044	1544 C2	2,400
BANI BAHLUL	AL HAMAMI	763	1544 C2	2,480
	BAYT UQAB	844	"	2,520
	KHAYRAN	572	"	2,600
	GHAYMAN	581	"	2,440
KHAWRAN	AL MARBAK	1,047	1544 C2	2,680
	AL JA'ARAH		"	2,640
	BAYT AL BUKAYR		"	2,360
	JIHANAH	1,553	1544 C4	2,250
	AL KIBS	1,087	"	2,320
	AL ASNAF	1,401	"	2,320
	AL HISN AL ABYAD	889	"	2,320

Table A-II (2/34) LIST OF SELECTED TOWNS/VILLAGES

Governorate: SANA'A
Subprovince: SANA'A

District	Town/Village	Pop.	Map No.	Alt. (m)
KHAWRAN	SUDUM		1544 C4	2,220
	JAWB	832	"	2,500
	BAYT WITR	845	"	2,500
	AL HARURAH	970	1444 A2	2,440
BILAD AR RUS	AD DULA	834	1544 C4	2,720
	SHA'BAN	1,141	"	2,560
	AL QUSAYR	765	"	2,460
	WADI AL JAR	654	1444 A1	1,620
	DHISAN	766	1444 A2	2,600
BANI MATAR	BAYT NAJI	750	1543 D2	3,000
	BAYT SAD	824	"	2,750
	AZ ZAFIR	1,322	"	2,600
	AL ARUS	942	"	2,600
	MASYAB	732	"	2,880
	AL MASAJID	705	1544 C1	2,580
	RUHM AL ULYA		1544 C3	2,440
	BAYT RIJAL	807	"	2,760
	HADRAN	1,466	"	2,920
	YAZIL	837	"	2,760
AL HAYMAT AL KHALIJAYAH	AL KHAMIS	641	1543 D4	2,280
	BAYT AS SUWAYDI	824	"	2,400

Table A-II (3/34) LIST OF SELECTED TOWNS/VILLAGES

Governorate: SANA'A
Subprovince: SANA'A

District	Town/Village	Pop.	Map No.	Alt. (m)
AL HAYMAT AD DAKHILIYAH	DAR AL MANAMAH	700	1543 D2	2,800
	AL URR	847	1543 D4	2,000
	BAYT UBAYD	767	"	1,720
	BAYT MAHMUD	982	"	1,700
	AL YAAR	727	"	2,120
HAMDAN	KHALAQAH	1,632	1543 D2	2,560
	DHARHAN	896	"	2,680
	HAJAR SA'ID	726	"	2,560
	AL HATTAB	708	1544 A3	2,360
	AL HAWIRI	1,146	"	2,230
	AL MA'MAR	1,077	"	2,260
	AL URRAH	1,024	"	2,180
	BAYT GHUFR	1,203	"	2,660
	BAYT AR RAQI	933	"	2,560
	HAZ	1,521	"	2,580
	DARWAN	954	"	2,440
	JIRBAN	734	"	2,600
	AL JAIF AL ASFAL	702	"	2,520
	BAYT BISHR	802	"	2,170
	MADAM	730	1544 C1	2,280
	LULUWA	948	"	2,480
	AL MUNAQQAB	1,020	"	2,720
	TUZAN	844	"	2,200
BANI AL HARITH	THUMAH		1544 A4	2,200
	BAYT DAHRAH		"	2,200

Table A-II (4/34) LIST OF SELECTED TOWNS/VILLAGES

Governorate: SANA'A
Subprovince: SANA'A

District	Town/Village	Pop.	Map No.	Alt. (m)
BANI HUSHAYSH	AL KHIRBAH	768	1544 C2	2,340
	AR RAWNAH	1,511	"	2,420
	BAYT AS SAYYID	1,125	"	2,280
	GHADRAN	1,170	"	2,220
	ASH SHARYAH	868	"	2,220
	AL HAYUF	759	"	2,340
	BAYT AN NUKHAYF	708	"	2,240
	AL FURS	804	"	2,220
	QARADAH	610	"	2,340
THILA	THILA	3,343	1543 B4	2,780
	HABABAH	2,944	"	2,660
IYAL SURAYH	AMAD		1543 B4	2,500
	BAYT AMIR	756	"	2,500
	BANI QADIM	1,019	1543 B4	2,460
	BANI MAYMUN	1,128	1544 A3	2,640
	SUMAYN	704	"	2,600
	BANI AZ ZUBAYR	1,510	"	2,620
ARHAB	AR RAJAW	999	1544 A1	2,700
	MADAR	839	"	2,540
	HIZAM	2,231	1544 A3	2,420
	SALM	796	"	2,430
	BAYT SA'DAN	730	"	2,480
	BAYT AL JALID	863	"	2,500
	ISSAM	861	"	2,520

Table A-II (5/34) LIST OF SELECTED TOWNS/VILLAGES

Governorate: SANA'A
Subprovince: SANA'A

District	Town/Village	Pop.	Map No.	Alt. (m)
ARHAB	AL BALAD		1544 A3	2,180
	AL MAKARIB	2,108	"	2,230
	BAYT MARRAN		"	2,440
	DARB HIZAM	7,012	"	2,280
	BAWSAN	1,084	1544 A4	2,160

Table A-II (6/34) LIST OF SELECTED TOWNS/VILLAGES

Governorate: SANA'A
Subprovince: HARAZ

District	Town/Village	Pop.	Map No.	Alt. (m)
MANAKHAH WA BANI ISMAIL	AL HAJARAH	1,578	1543 D3	2,400
SA'FAN	ZALA	771	1543 D3	1,840

Table A-II (7/34) LIST OF SELECTED TOWNS/VILLAGES

Governorate: SANA'A
Subprovince: RAYMAH

District	Town/Village	Pop.	Map No.	Alt. (m)
BILAD AT TAAM	MARKAZ BILAD AT TAAM		1443 B1	1,640
AL JABIN	AL JABIN		1443 B3	2,400
KUSMAH	KUSMAH	585	1443 B3	2,680

Table A-II (8/34) LIST OF SELECTED TOWNS/VILLAGES

Governorate: SANA'A
Subprovince: AMRAN

District	Town/Village	Pop.	Map No.	Alt. (m)
AMRAN	QUHAL	829	1544 A3	2,280
AS SUDAH	AS SUDAH	1,743	1543 B2	2,040
JABAL IYAL YAZID	JAWB AL ALA	1,408	1543 B2	2,220
	AS SAWADAYN	880	"	2,220
	AL LUMI	861	"	2,580
	BAYT DHANIB	1,172	"	2,300
	AL ABRAQ	1,168	"	2,600
	DA'AN	1,389	"	2,700
	AL KHADARAH	2,268	1543 B4	2,720
	AL MADLA'AH	1,113	"	2,580
	AT TAMARI	871	"	2,560
	BAYT BADI	712	"	2,340
	AL JANNAT	2,221	"	2,220
	AL QAST	896	"	2,260
RAYDAH	RAYDAH	3,682	1544 A1	2,200
	AL MANJIDAH	1,165	"	2,280
	NA'IT	978	"	2,880
	AL HA'IT	1,046	1544 A3	2,240
	GHAWLAT DHAYFAN	1,014	"	2,460
	DHAYFAN	1,994	"	2,600
DHI BIN	DHI BIN		1544 A1	1,820

Table A-II (9/34) LIST OF SELECTED TOWNS/VILLAGES

Governorate: SANA'A
Subprovince: KHAMIR

District	Town/Village	Pop.	Map No.	Alt. (m)
KHAMIR	KHAMIR		1543 B2	2,400
	GHAYL MAGHDAF	1,126	"	2,500
	YASHI	916	"	2,600
	AL UQAYLI	823	"	2,520
	AL QASR	739	1544 A1	2,500

Table A-II (10/34) LIST OF SELECTED TOWNS/VILLAGES

Governorate: TAIZZ
Subprovince: TAIZZ

District	Town/Village	Pop.	Map No.	Alt. (m)
TAIZZIYAH	AR RAMADAH	917	1343 B4	1,080
	AL HUSAYN	836	"	1,120
	AL AMAKIR	715	1344 A1	1,480
	AL MANZIL	725	1344 A3	1,480
	QARAMAH	897	"	1,440
	AL AMAQI	1,144	"	1,480
	ARABAH	1,093	"	1,420
	AS SAMKAR	848	"	1,440
	AD DUMAYNAH	795	"	1,280
SABIR	DHI UNQUB		1343 B4	2,200
	HADNAN	1,101	1344 A3	2,440
	DAR AN NASR		"	1,840
	SHIB AL MAWADIM		"	2,520
	DHI MURAYN		"	2,520
	AS SARARI		1344 C1	2,200
AL MISRAKH	AL MISRAKH		1344 C1	1,400
	AL JUNNAYD		"	
	HASBAN		"	1,800
SHARAB	JUBBI BANI SHAB		1343 B2	1,480
	AL MIHDADAH		"	1,520
	AR RUBU		"	1,440

Table A-II (11/34) LIST OF SELECTED TOWNS/VILLAGES

Governorate: TAIZZ
Subprovince: AL HUJARIYAH

District	Town/Village	Pop.	Map No.	Alt. (m)
TURBAT ASHAL SHAMAITAYN	AL MUDAYHIS	744	1343 D4	1,040
	AT TURBAH	1,076	1344 C3	1,880
	SHAWHAT	736	"	1,480
	AD DIMNAH		"	2,080
	MASAJID ADIM		"	1,820
	DHA AL QIYAN		"	1,840
TURBAT AL MAWASIT	NAJD AN NASHAMAH		1343 D2	1,280
	ASH SHIB		"	1,480
	KUWWAT ASH SHUUBAH		1344 C1	1,440
	BANI AHMAD		"	2,080
	MILAB AS SINNAH		"	1,400
	AKHMUR		"	1,120
	BANI HAMMAD		"	2,000
	RADA		"	2,000
	AL HAYYAR		1344 C3	1,500
JABAL HABASHI	YUFRUS	1,306	1343 D2	1,240
	AL MANUM		"	2,000
	BANI JAFAR		"	1,480
	AL KURABIYAH		"	1,720
	AL ASALI		"	2,000
	DHARJI		"	2,000
	AL AKHRAF		"	2,280
	AL MINSAMAH		"	2,120

Table A-II (12/34) LIST OF SELECTED TOWNS/VILLAGES

Governorate: TAIZZ
Subprovince: AL HUJARIYAH

District	Town/Village	Pop.	Map No.	Alt. (m)
AS SALU	ASH SHARAF		1344 C1	1,850
	AS SAID		"	2,280
QABAYTAH	HAYFAN		1344 C2	1,680
	QARYAT UKAHBAH		"	1,400

Table A -II (13/34) LIST OF SELECTED TOWNS/VILLAGES

Governorate: TAIZZ
Subprovince: MAWIYAH

District	Town/Village	Pop.	Map No.	Alt. (m)
MAWIYAH	QARYAT JARANI	1,103	1344 A4	1,520
	BAYT UBAYDAN	804	"	1,370
	AR RUMAYDI	928	"	1,380
	AZ ZAHRAH	847	1344 A3	1,420
	QURRAF		"	1,220
	ASH SHIBAH		"	1,200
DIMNAT KHADIR	AD DIMNAH	1,664	1344 C1	1,260
	AR RAHIDAH	1,067	1344 C2	1,040

Table A-II (14/34) LIST OF SELECTED TOWNS/VILLAGES

Governorate: TAIZZ
Subprovince: AL MUKHA

District	Town/Village	Pop.	Map No.	Alt. (m)
AL MUKHA	AL KUDAYHAH	713	1343 C2	120
	YAKHTUL	2,007	"	5
	AL GHURAFI	1,238	"	150
	ATH THAWBANI	812	"	140
MAQBANAH	MAQBANAH	1,571	1343 B3	960
	BARH MAQBANAH		"	1,000
	U. AL ASHUB		"	1,160
	AL MUWAYJIR		"	920
	HAJDAH		1343 B4	960
	AL BARH		1343 D1	520
MAWZA	MAWZA	2,901	1343 D1	200
	J. WADI BISYAN	868	"	240
	AL URAYSH		"	400
DHUBAB	BAB AL MANDAB	708	1243 A2/A4	20
	DHUBAB	1,446	"	5

Table A-II (15/34) LIST OF SELECTED TOWNS/VILLAGES

Governorate: HUDAYDAH
Subprovince: HUDAYDAH

District	Town/Village	Pop.	Map No.	Alt. (m)
AL MARAWIAH	AL QUTAY	1,759	1443 A1	110
	DAYR AL MUDAWWAR	843	"	130
	ASH SHARA	884	"	100
	AZ ZUBAYRIYAH	838	"	90
	DAYR AD DUBAYSH		"	80
	AL MAHAD AL AWSAT		"	90
	AD DAWM	1,509	1443 A2	100
	KHALIFAH		"	140

Table A-II (16/34) LIST OF SELECTED TOWNS/VILLAGES

Governorate: HUDAYDAH
Subprovince: AL LUHAYYAH

District	Town/Village	Pop.	Map No.	Alt. (m)
AL LUHAYYAH	AL LUHAYYAH	2,029	1542 B3	5
	AL KHAWBAH	3,699	"	5
	MAWR	1,577	1542 B4	60
	AL QANAMAH	1,811	"	50
	DAYR MUDOYA	831	"	50
	AL HUMASIYAH	1,607	"	40
	DAYR MAKHRASH		"	60
	GUMA		"	20
	AL JUBAYRIYAH	812	1543 A3	70
AZ ZUHRAH	AZ ZUHRAH	3,695	1542 B4	60
	AL GHURZAH	792	1543 A3	80
	AL MASH		"	190
	AR RAFII	892	"	80
	AL LEJAM	979	"	90
	AL MUTARID	1,989	"	80
	BUJAYLAH	935	"	110
	DAYR AL HAYYAH	821	"	110
	DAYR ASH SHAYKH	786	"	70
	DAYR DUKHNAH	1,312	"	100

Table A-II (17/34) LIST OF SELECTED TOWNS/VILLAGES

Governorate: HUDAYDAH
Subprovince: AZ ZAYDIYAH

District	Town/Village	Pop.	Map No.	Alt. (m)
AZ ZAYDIYAH	AZ ZAYDIYAH	1,126	1543 C1	60
	AL HARASHAH		"	120
	AL MARUFIYAH	730	"	70
	DAYR AL QURAYTI	881	"	90
	BAYT ATA	873	"	70
	DAYR AL WALI	1,123	"	100
	DAYR AYYASH	910	"	60
	DAYR AL WAJIYAH		"	90
	DAYR AL MAHADI	1,168	"	80
	DAYR AL HARAD		1542 D2	40
	AL HASHABIRAH	1,240	"	55
AL QANAWIS	AL QANAWIS	1,384	1543 C1	90
	DAYR AZ ZAYN	843	"	80
	DAWGHAN	925	"	130
	DAUDIYAH	1,007	"	80
	DAYR INWASH	775	"	60
	DAYR KUZABAH	1,206	1543 A3	80
	DAYR ABDALLAH	1,450	"	70
AL MIGHLAF	AL MIGHLAF	824	1543 C1	130
	AL MINWAB	782	"	130
	AL HADDADIYAH	782	"	100
	DAYR AL MUQAZILAH	781	"	90

Table A-II (18/34) LIST OF SELECTED TOWNS/VILLAGES

Governorate: HUDAYDAH
Subprovince: AZ ZAYDIYAH

District	Town/Village	Pop.	Map No.	Alt. (m)
AD DAHI	AD DAHI	893	1543 C3	75
	AL MUHAYSIM	744	"	100
	MAHALL AS SAYYID SULAYMAN	811	"	150
	AS SARH	914	"	170
	AL KADAN	2,880	1543 C4	170
AL MUNIRAH	AL MUNIRAH	3,872	1542 D2	40
	AL MUGHAYDIFIYAH	1,074	"	40
	KHAWFAN	749	"	40
IBN ABBAS	IBN ABBAS	756	1542 D2	5
	AL JAALIYAH	816	"	15
	AL HARUNIYAH	1,116	"	10
AS SALIF	AS SALIF	1,668	1542 D1	5
KAMARAN	KAMARAN	1,219	1542 D1	5

Table A-II (19/34) LIST OF SELECTED TOWNS/VILLAGES

Governorate: HUDAYDAH
Subprovince: BAJIL

District	Town/Village	Pop.	Map No.	Alt. (m)
BAJIL	DAYR AL KHADAMAH		1543 C3	150
	DAYR AL MUHADIBAH	1,217	"	100
	KIDF	943	"	140
	HISS AS SARMAYN	712	1543 C4	220
	AD DIMAN	822	"	190
	IZZAN		"	270

Table A-II (20/34) LIST OF SELECTED TOWNS/VILLAGES

Governorate: HUDAYDAH
Subprovince: BAYT AL FAQIH

District	Town/Village	Pop.	Map No.	Alt. (m)
BAYT AL FAQIH	AL JANBAIYAH	793	1443 A4	230
	AL ABBASI	1,069	"	60
	MAJAHISHA	3,191	"	150
	AS SAID	790	"	210
	KIDF KHUDAYR	744	"	140
	AD DABARATAYN AL MAHASIM		"	120
	AL MUSAYWINIYAH		1443 C2	190
	AL MAFSAL		"	310
	AL HUSAYNIYAH ASH SHUMAH	777	"	120
	AL MANDAB	738	"	250
	AS SAWLAH	1,012	"	100
	YABIS	733	"	260
	AL JARUBAH AD DAR	1,276	"	230
	NAFHAN		"	260
AD DURAYHIMI	AD DURAYHIMI	1,735	1443 A3	20
	AL LAWIYAH		"	50
	DAYR KHAMSIN		"	10
AL MANSURIYAH	AL MANSURIYAH	6,227	1443 A4	120
	AL KAYBANIYAH	1,188	"	100
	AL LIJAM	1,203	"	170
	AL MAHWA	1,146	"	170
	AL HAJB	768	"	180

Table A-II (21/34) LIST OF SELECTED TOWNS/VILLAGES

Governorate: HUDAYDAH
Subprovince: BAYT AL FAQIH

District	Town/Village	Pop.	Map No.	Alt. (m)
AS SUKHNAH	AS SUKHNAH	775	1443 A2	240
	DAYR AL MUZABBAL	1,115	"	190
	SHUJAYNAH	1,911	"	140
	DAYR AL QAMMAD	1,345	"	160
	AL MAHALL AT TAYN		"	170
	AL MIDMAN	1,099	1443 A4	160
	DAYR DAWID	1,069	"	150
	DAYR AL HUDAYSH		"	160

Table A-ii (22/34) LIST OF SELECTED TOWNS/VILLAGES

Governorate: HUDAYDAH
Subprovince: ZABID

District	Town/Village	Pop.	Map No.	Alt. (m)
ZABID	AD DUMAYNAH	856	1443 C2	280
	AL MADAN	1,114	"	220
	AL HAWTAH	863	"	130
	BASAT	1,154	"	150
	ASH SHURUKH	817	"	260
	AT TUHAYTAH	5,273	1443 C3	60
	SHIB AD DALI	719	1443 C4	210
	MAHWA AL KHULAYF	845	"	100
	MURSHIDIYAH	781	"	220
	MAHALL ASH SHAYKH	1,016	"	190
	AL MAWQAR	1,482	"	220
	AT TURAYBAH	1,359	"	140
	AZ ZARIBAH	1,979	"	160
	ASH SHURAYJ		"	110
HAYS	DAR AL QUHAYM		1343 A2	180
	AL FASHSH AN NAKHLAH		1343 B1	290
AL KHAWKHAH	AL KHAWKHAH	6,891	1343 A1	5
	QATABAH	1,121	"	5
	ABU ZAHR	725	"	10

Table A-II (23/34) *LIST OF SELECTED TOWNS/VILLAGES*

Governorate: HAJJAH
Subprovince: HAJJAH

District	Town/Village	Pop.	Map No.	Alt. (m)
MASWAR	BAYT ADHAQAH		1543 B3	2,560
NAJRAH	QUDAM	723	1543 B3	1,600
ASH SHAGHADIRAH	AL AMASHAH	727	1543 B3	1,360

Table A-II (24/34) LIST OF SELECTED TOWNS/VILLAGES

Governorate: HAJJAH
Subprovince: MIDI

District	Town/Village	Pop.	Map No.	Alt. (m)
MIDI	MIDI	2,169	1642 D2	5
HARAD	HARAD	930	1643 C1	100
	ASH SHARIFIYAH	4,930	"	100
	SULAYMAN	851	"	100
ABS	ABS	2,784	1643 C3	180
	SHAFAR	878	1543 A1	180

Table A-II (25/34) LIST OF SELECTED TOWNS/VILLAGES

Governorate: HAJIAH
Subprovince: ASH SHARAFAYN

District	Town/Village	Pop.	Map No.	Alt. (m)
AL MAHABISHAH	AL MAHABISHAH		1543 A2	1,560
	BANI ASAD	799	"	1,600
	AL JUBAYL		"	2,040
QUFL SHAMR	KA AYDINAH	1,095	1543 A2	880

Table A-II (26/34) LIST OF SELECTED TOWNS/VILLAGES

Governorate: HAJIAH
Subprovince: SHAHARAH

District	Town/Village	Pop.	Map No.	Alt. (m)
SHAHARAH	SHAHARAH	2,455	1643 D3	2,480
	AL JAWWAH	1,232	"	2,440
AL MADAN	AL MADAN	1,698	1643 D3	2,080

Table A-II (27/34) LIST OF SELECTED TOWNS/VILLAGES

Governorate: DHAMAR
Subprovince: DHAMAR

District	Town/Village	Pop.	Map No.	Alt. (m)
DHAMAR	HAMMAT SULAYMAN	1,135	1444 B3	2,500
	AL QAHIR		"	2,500
	HAYD ISBIL		"	2,640
	AMID	1,296	1444 C2	2,540
	ASH SHAQB	799	"	2,540
	BAYT JUBARI		"	2,420
	HUSAYN UMRAN		"	2,320
	ASH SHAMAHI		"	2,320
	AD DARAH	1,782	1444 D1	2,420
	ABASIR	1,110	"	2,500
	HAKIR	1,005	"	2,420
	MAWIR		"	2,260
	SANABAN SUQ	1,602	"	2,350
	AL JAMIMAH	878	"	2,350
	QARYAT AFIQ	1,884	"	2,400
	KHIRBAT ABU YABIS		1444 C1	1,800
	MARIYAH		1444 A4	2,360
	HANSAR		1444 A3	2,200
	MALIS		"	2,240
	DHAHLAH		1444 C2	2,280
AL HADA	BANI QAWS		1444 A2	2,320
	BUSAN	1,060	"	2,300
	NUNAH	733	"	2,330
	AL AMARIYAH		"	2,280
	AL MALHA		"	2,360
	BANI JAMIL	789	1444 A4	2,560

Table A-II (28/34) LIST OF SELECTED TOWNS/VILLAGES

Governorate: DHAMAR
Subprovince: DHAMAR

District	Town/Village	Pop.	Map No.	Alt. (m)
MAGHRIB ANS	HARF AS SADAH		1444 A3	2,680
	DUBAH		1444 C1	2,240
	AN NAHIDI		"	2,040
	BANI MUWALLAD		"	1,920
	AL MILYANAH		"	2,160
	WATHAN		"	1,800
	ZABIR		"	1,560
	AL ASAD		"	1,880
UTMAH	AR RIYAMAH		1444 C1	2,000
WASAB AL ALI	AD DANN		1443 D2	2,480

Table A-II (29/34) LIST OF SELECTED TOWNS/VILLAGES

Governorate: DHAMAR
Subprovince: DHAMAR

District	Town/Village	Pop.	Map No.	Alt. (m)
	AFDA			
	MAKHDORAH			
	RAYMA KUSNAH			
	KAWHA			
	ARRAWDAH			
	UTMAH			
	BANEE MUSLEM			
	SHAIGAB			
	J. KHAYOOR			
	KABOOD			
	AS SALAL			
	AL MISBAH			
	BANI ALI			
	AL AHAD			
	AT HALOOTH			
	KORQIF			
	KHADRAN			
	MABA'AR			
	MULSS			
	AL MUHALEIN			
	THAILAH			
	AL HAIMAH			
	HAJJAAH			
	AT TURBAH			
	KABOOD			
	SAMAH			
	HASMAN			
	KHADARS			

Table A-II (30/34) LIST OF SELECTED TOWNS/VILLAGES

Governorate: DHAMAR
Subprovince: ANIS

District	Town/Village	Pop.	Map No.	Alt. (m)
DAWRAN	DAWRAN		1444 A3	2,400
	HAMMAM ALI		"	1,640
	HIJRAT ADH DHARI	750	"	2,000
	AL AHSAM	716	1444 A1	2,420
	AITHAYN	2,529	"	2,440
	NUWAYD	799	"	2,360
	AHLAL	1,248	"	2,240
	AL KHARABAH	1,010	"	2,200
	AL HARF	1,142	"	2,180
JABAL ASH SHIRQ	MADINAT AL ABID	649	1443 B4	1,260
MA'BAR	ASAM	1,196	1444 A2	2,330
	AL MADARAH	772	"	2,340
	AS SANAM	1,143	1444 A4	2,360
	SANAH	991	"	2,420
	RISABAH	2,191	"	2,310
	AFK	941	"	2,360

Table A-II (31/34) LIST OF SELECTED TOWNS/VILLAGES

Governorate: IBB
Subprovince: IBB

District	Town/Village	Pop.	Map No.	Alt. (m)
IBB	AL MABAR	730	1344 A1	2,600
	AL HAMMAMI	821	"	2,000
	MUAYIN AL GHAYTHI		"	1,960
	MASHWARAH		"	2,280
	JAWBALAH		"	2,000
BA'DAN	AR RABAI	730	1344 A2	2,400
	UZLAT AD DAIS		"	2,480
	QARYAT AS SANAHI	1,484	"	2,320
	AL JAHSHI	744	1344 A1	2,440
JIBLAH	AL KADAHI		1344 A1	2,320
	AL WAQASH	1,218	"	2,240
	AKAMAT AS SAFANI	765	"	2,000
	AD DUHRAH	704	"	2,360
	MABARI	807	"	2,380
	WADI UBAR		"	2,680
	AYQARAH		"	2,120
	AL MANZIL		"	2,160

Table A-II (32/34) LIST OF SELECTED TOWNS/VILLAGES

Governorate: IBB
Subprovince: DHI SUFAL

District	Town/Village	Pop.	Map No.	Alt. (m)
DHI SUFAL	HABLAH		1344 A1	2,360
	ASKAR		"	2,680
	ERIAB		"	2,400
	AL UQAYRAH		"	2,240
AS SAYYANI	ADAN AL ASHLUH	818	1344 A1	2,080
	DHIL MAHASIN	772	"	2,640
	DHI SHIRAQ	1,279	"	1,800
	DIMNAT NAKHLAN	1,447	"	1,800
	AS SAYYANI	1,163	"	1,880
	DIRAS AS SUFLA	1,678	"	1,900

Table A-II (33/34) LIST OF SELECTED TOWNS/VILLAGES

Governorate: IBB
Subprovince: AL UDAYN

District	Town/Village	Pop.	Map No.	Alt. (m)
AL UDAYN	AL UDAYN	1,776	1343 B2	1,320
	AL MARAKIB	803	1344 A1	1,600
	HADABAH AS SUFLA		"	1,540
	AR RIKKAH		"	2,040
MUDHAYKHIRAH	AL HAMADI	1,213	1343 B2	2,160

Table A-II (34/34) LIST OF SELECTED TOWNS/VILLAGES

Governorate: IBB
Subprovince: YARIM

District	Town/Village	Pop.	Map No.	Alt. (m)
YARIM	MAWIR	1,068	1444 C2	2,660
	DAKHLAT UWAYDAYN	847	"	2,640
	DHUMRAN		"	2,580
	DHI SARIF	842	1444 C4	2,560
	J. MUTAYR	852	"	2,760
	HADDAT ULAYS	1,008	"	2,620
AS SADDAH	AL MAQALIH	1,301	1444 C4	2,360
	AL MISQAH	884	"	2,380
	BAYT AL ASHWAL	904	"	2,700
	AS SIRAH	1,404	"	2,720
	AL KARABAH	883	"	2,680

ANNEX-III LIST OF CANCELLED TOWNS/VILLAGES

Table A-III (1/6) LIST OF CANCELLED TOWNS/VILLAGES

Governorate: SANA'A

District	Town/Village	Pop.	Map No.	Alt. (m)
KHAWRAN	AL BAYAD		1544 D3	
	ASAL		"	
	BAYT ASH SHANBALI	809	1444 A2	
AL HAYMAT	AL BADIYAH		1543 D4	
AL KHALIJAYAH				

Table A-III (2/6) LIST OF CANCELLED TOWNS/VILLAGES

Governorate: TAIZZ

District	Town/Village	Pop.	Map No.	Alt. (m)
MAQBANAH	RUKAB		1343 B3	
	SUAYDAH	708	"	

Table A-III (3/6) LIST OF CANCELLED TOWNS/VILLAGES

Governorate: HUDAYDAH

District	Town/Village	Pop.	Map No.	Alt. (m)
AL MARAWIAH	AL MARAWIAH	1,264	1443 A1	
HAYS	HAYS		1343 A2	

Table A-III (4/6) LIST OF CANCELLED TOWNS/VILLAGES

Governorate: DHAMAR

District	Town/Village	Pop.	Map No.	Alt. (m)
DHAMAR	DHI ATA	839	1444 D1	
	AT TALABI	1,401	"	
	ARAM	1,341	"	
AL HADA	BAYHAN	1,050	1444 B1	
	AL MUGHADIYAH	743	1444 B3	
MA'BAR	AL ULAYB	791	1444 A2	

Table A-III (5/6) LIST OF CANCELLED TOWNS/VILLAGES

Governorate: IBB

District	Town/Village	Pop.	Map No.	Alt. (m)
IBB	AL QARYATAYN	1,014	1344 A2	
	BUYUT AL ADAN	769	1344 A1	
BA'DAN	AL ADHARIB	1,268	1344 A2	
JIBRAH	AS SARAIM	1,355	1344 A1	
AN NADIRAH	AD DAHRA	1,020	1444 C4	
	AN NADIRAH		"	
ASH SHIR	AR RADAI	1,030	1444 C4	
AS SAYYANI	MAHTAB	1,070	1344 A1	
AS SABRAH	NAJD AL JUMAI		1344 A2	
YARIM	KHAW	2,330	1444 C2	
	SANAFAN	1,602	"	
	MARIS	1,046	"	
	BAYT HALBUB	992	1444 C4	

Table A-III (6/6) LIST OF CANCELLED TOWNS/VILLAGES

Governorate: IBB

District	Town/Village	Pop.	Map No.	Alt. (m)
	AL MAGMA'AH			
	RAZAH			
	DALMAH			
	ADDANWAH			
	AKAD			
	AL MASHEBAH			
	NAKIL ALOKAB			

ANNEX-Ⅳ SUBSCRIBER STATION DISTRIBUTING PLAN

(LEGEND)

 : Base Station

 : Repeater Station without Subscriber Station

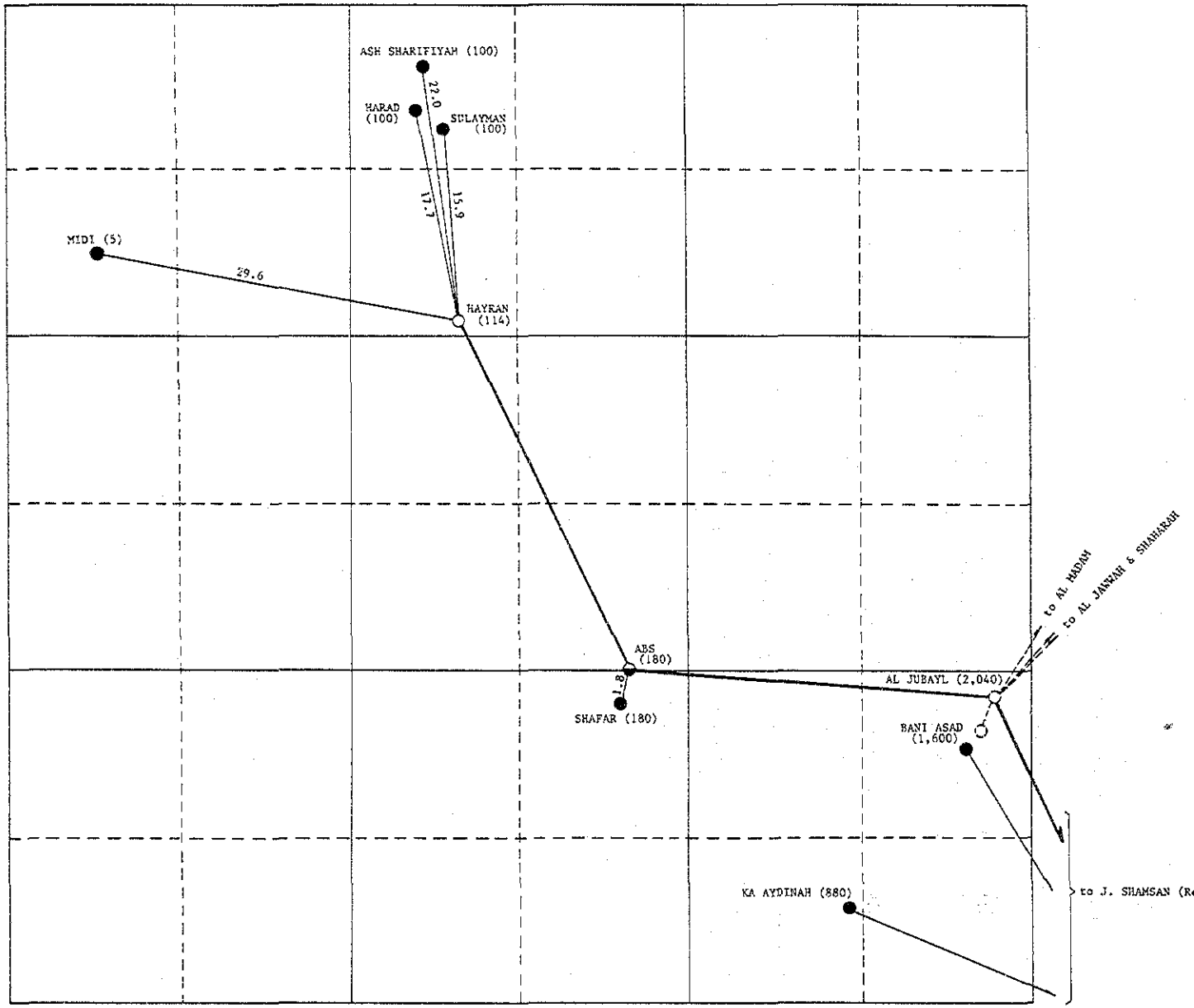
 : Repeater Station Combined with Subscriber Station and Subscriber's Telephone Instrument with Dropwire

 : Subscriber Station and Subscriber's Telephone Instrument with Dropwire

 : Subscriber's Telephone Instrument and Cable

10.1 : Distance of Radio Path; 10.1 Km

(1,040) : Altitude of Station; 1,040 m



RELATED MAP NUMBER

1642 D2	1643 C1	1643 C2
1642 D4	1643 C3	1643 C4
1542 B2	1543 A1	1543 A2

Figure A-IV (1/15) SUBSCRIBER STATION DISTRIBUTING PLAN

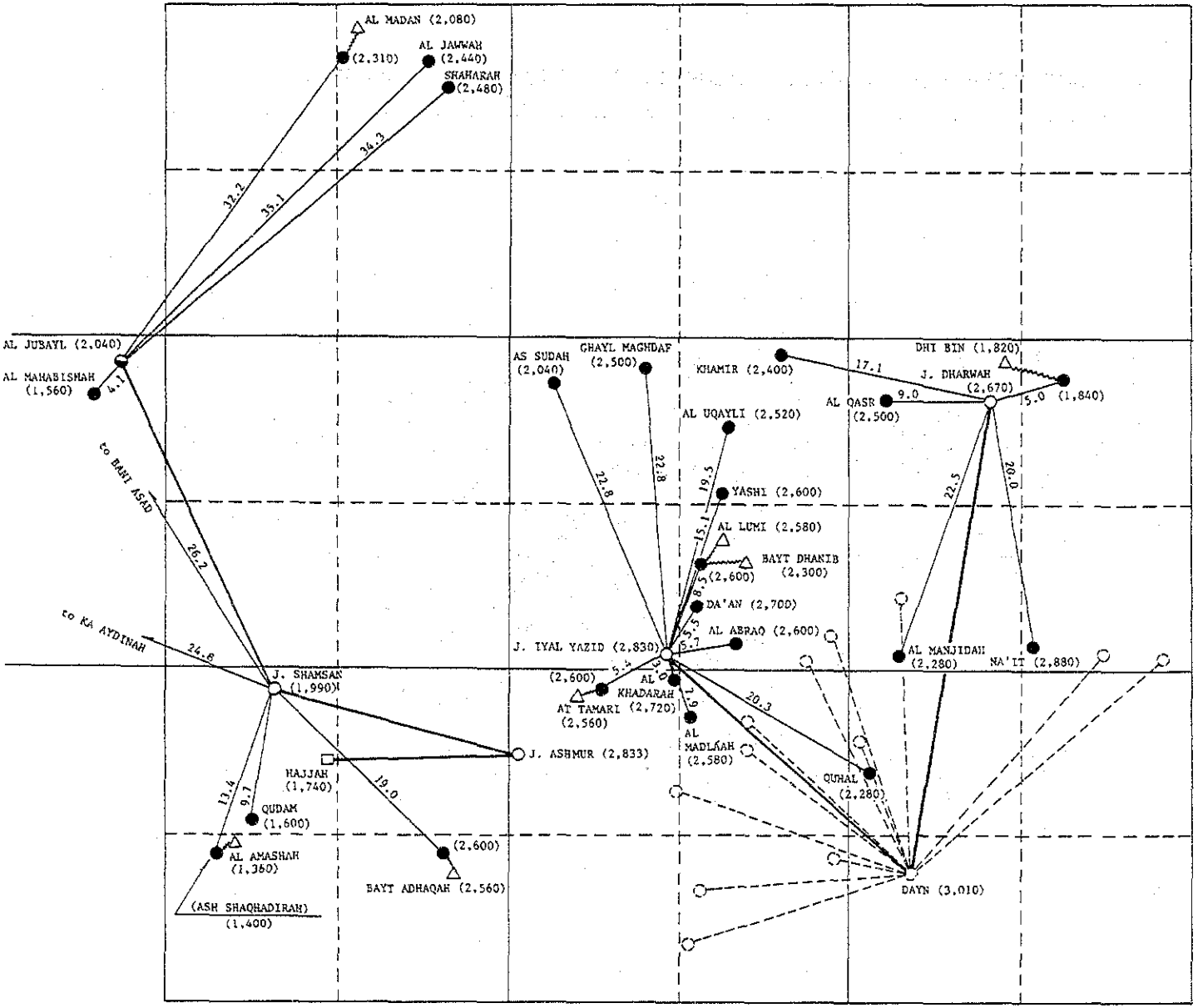


Figure A-IV (2/15) SUBSCRIBER STATION DISTRIBUTING PLAN

RELATED MAP NUMBER

	1643 D3	1643 D4	1644 C3
1543 A2	1543 B1	1543 B2	1544 A1
	1543 B3	1543 B4	1544 A3

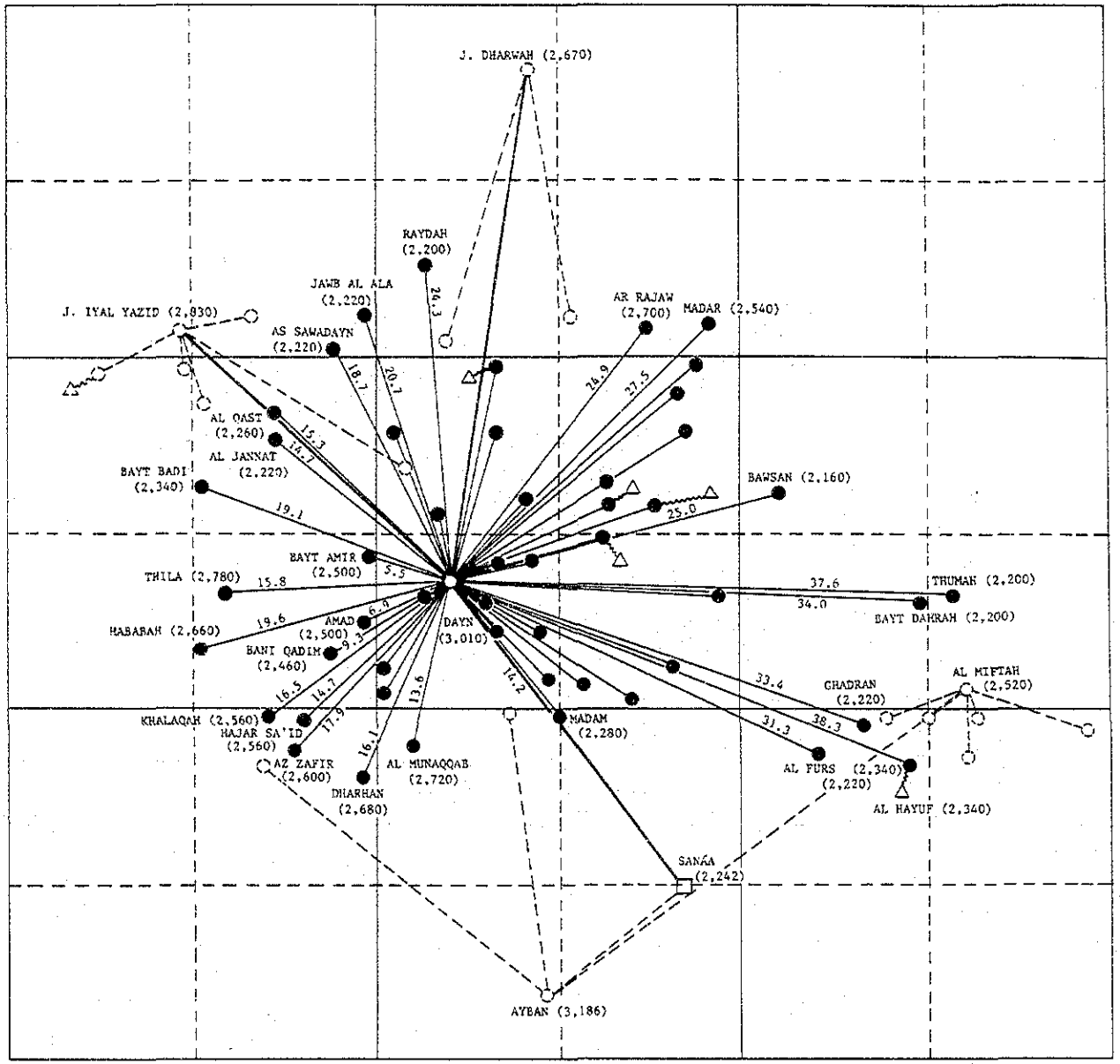
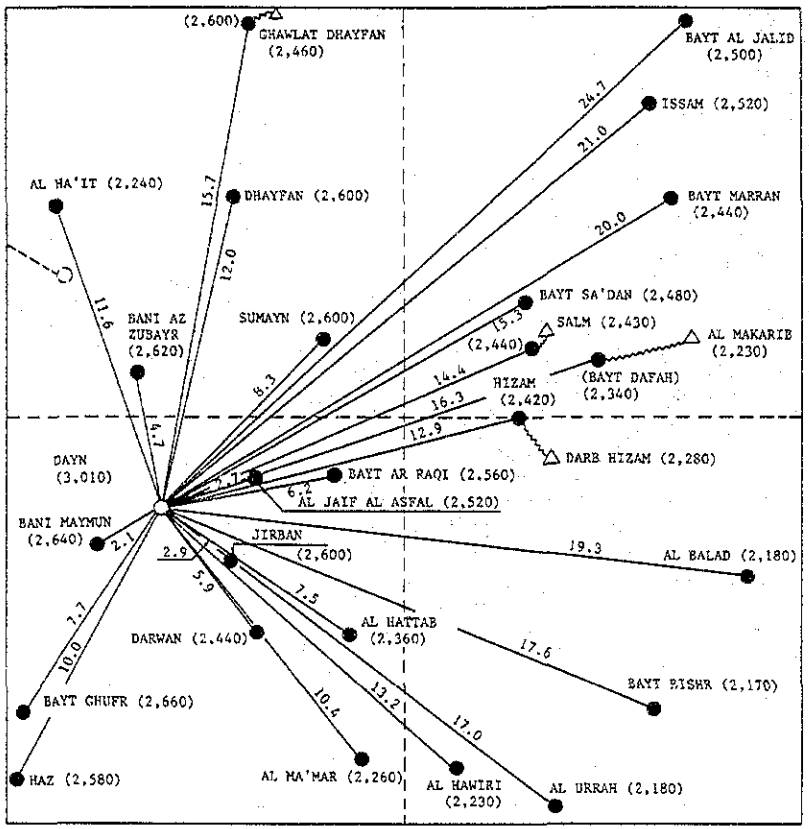


Figure A-IV (3/15) SUBSCRIBER STATION DISTRIBUTING PLAN

RELATED MAP NUMBER

1543 B2	1544 A1	1544 A2
1543 B4	1544 A3	1544 A4
1543 D2	1544 C1	1544 C2



* This Map is enlargement for 1544 A3.

RELATED MAP NUMBER

	1544 A3	

Figure A-IV (4/15) SUBSCRIBER STATION DISTRIBUTING PLAN

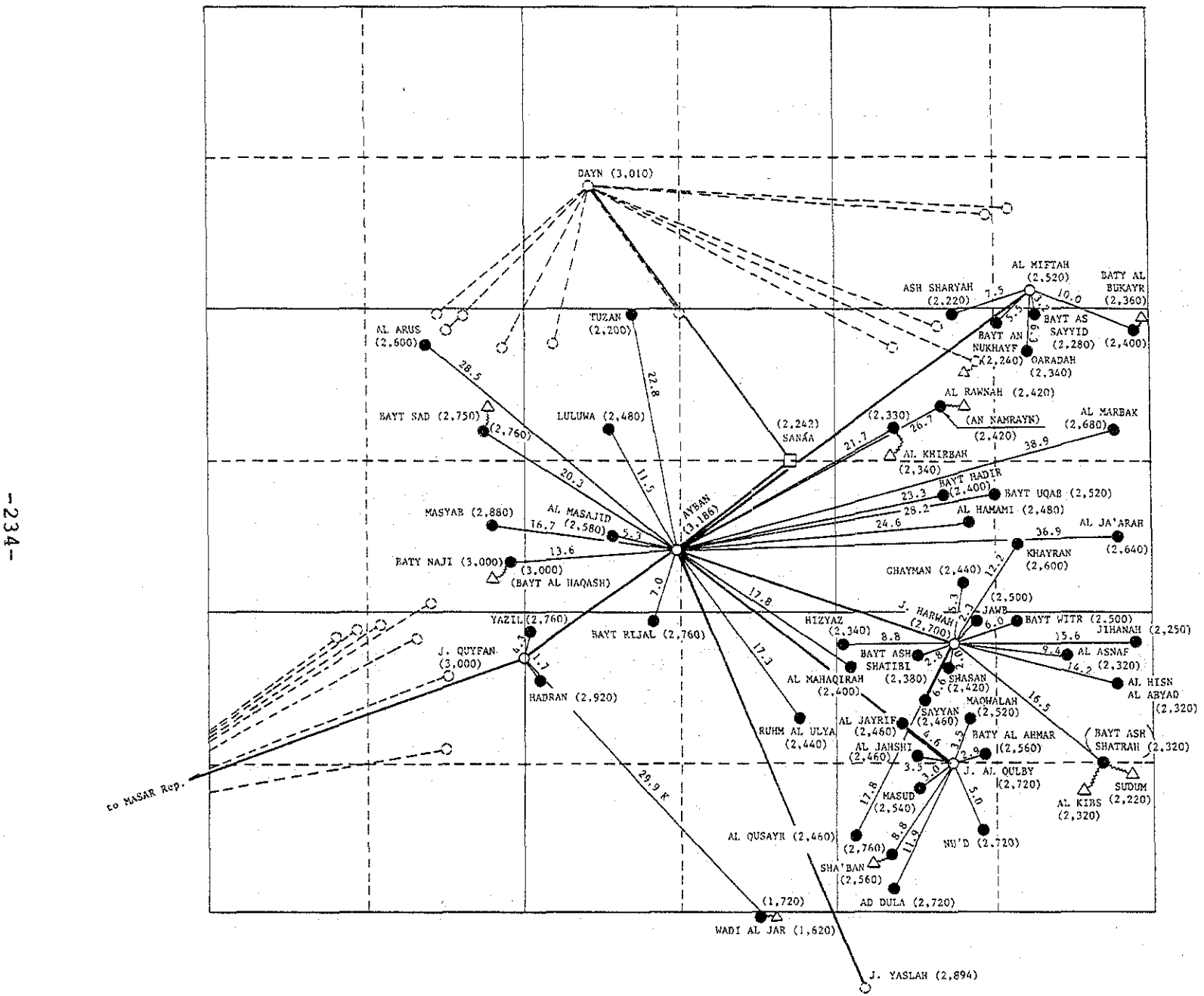


Figure A-IV (5/15) SUBSCRIBER STATION DISTRIBUTING PLAN

RELATED MAP NUMBER

1543 B4	1544 A3	1544 A4
1543 D2	1544 C1	1544 C2
1543 D4	1544 C3	1544 C4

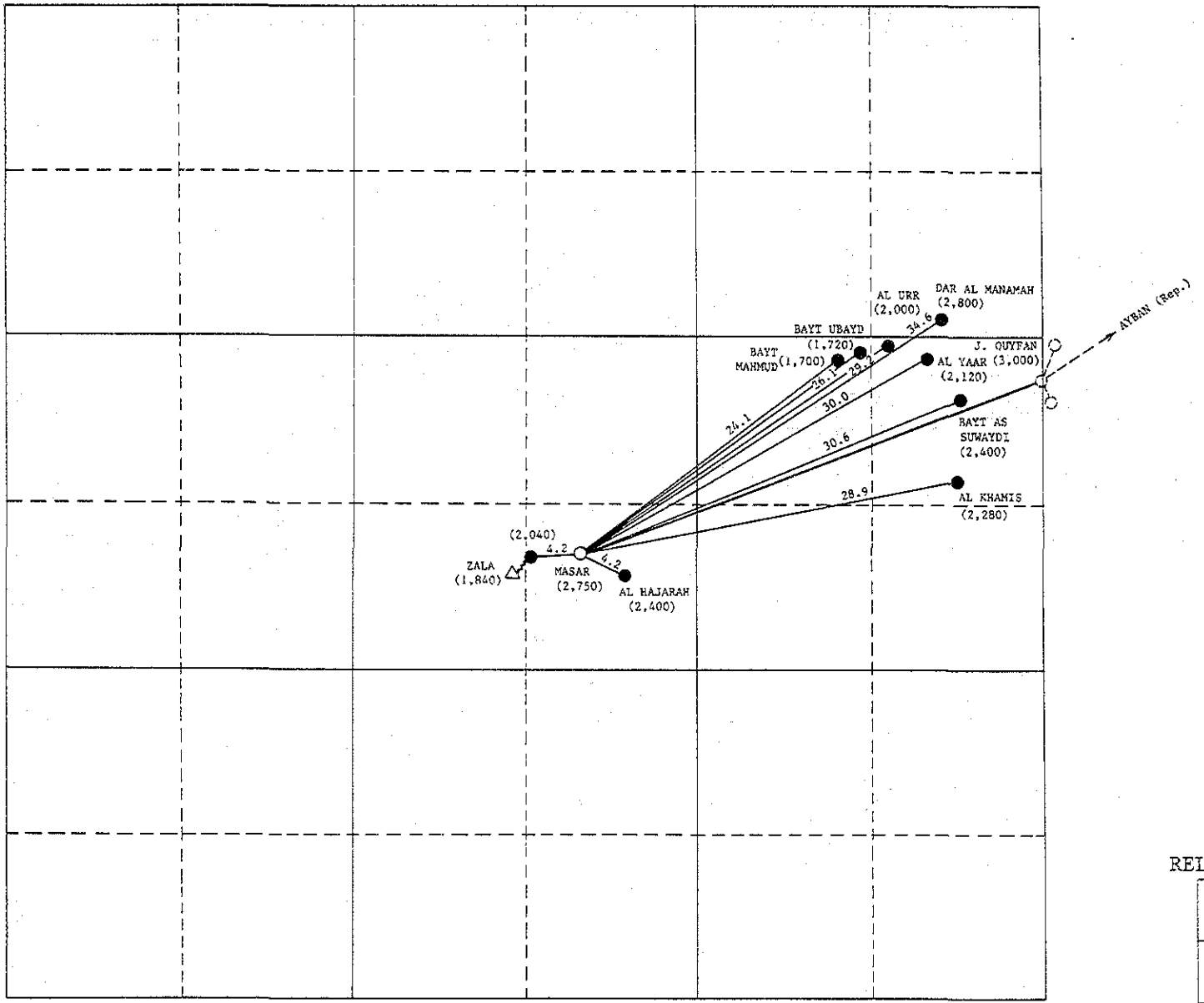


Figure A-IV (6/15) SUBSCRIBER STATION DISTRIBUTING PLAN

RELATED MAP NUMBER

1543 C2	1543 D1	1543 D2
1543 C4	1543 D3	1543 D4
1443 A2	1443 B1	1443 B2

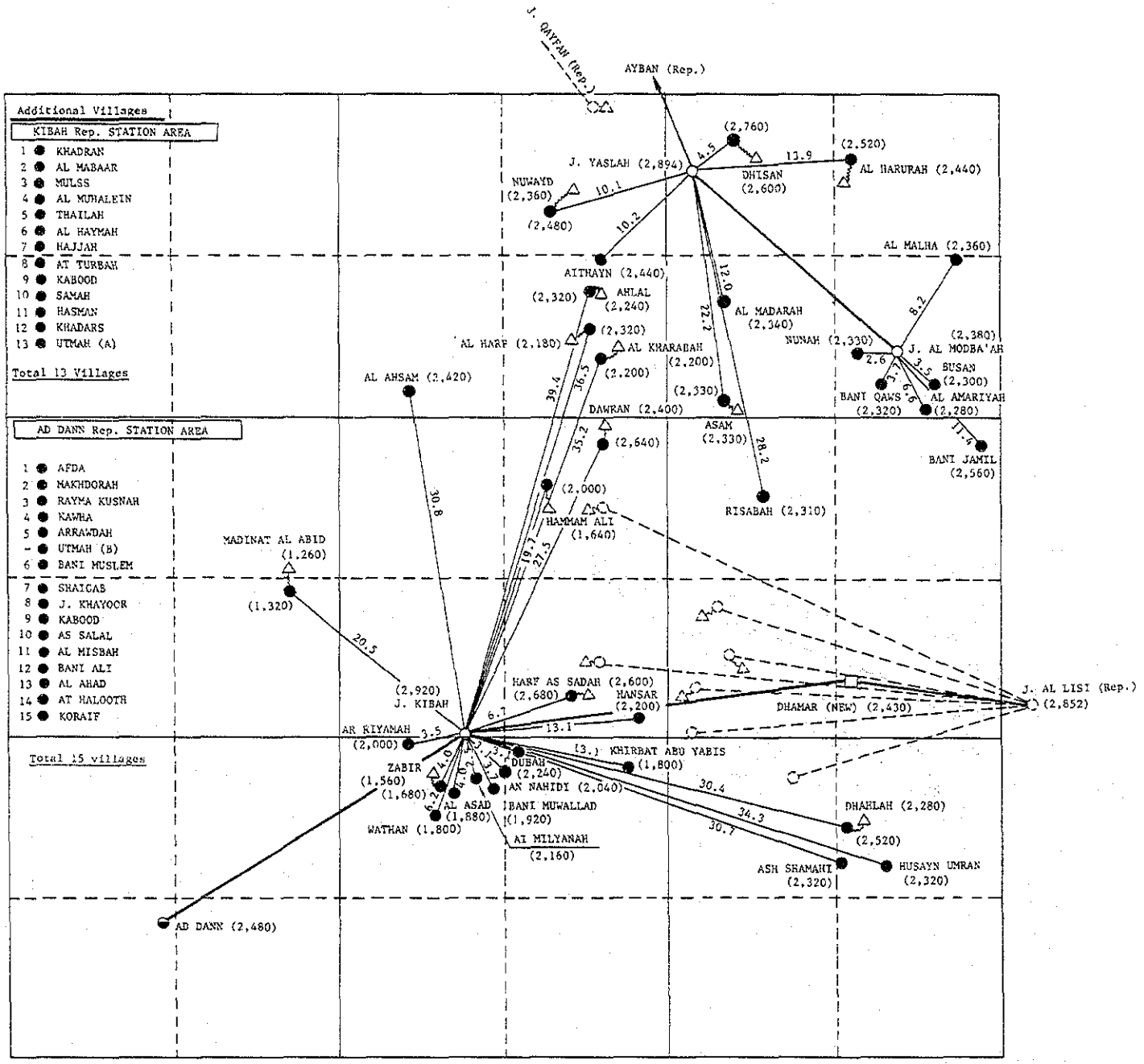


Figure A-IV (7/15) SUBSCRIBER STATION DISTRIBUTING PLAN

RELATED MAP NUMBER

1443 B2	1444 A1	1444 A2
1443 B4	1444 A3	1444 A4
1443 D2	1444 C1	1444 C2

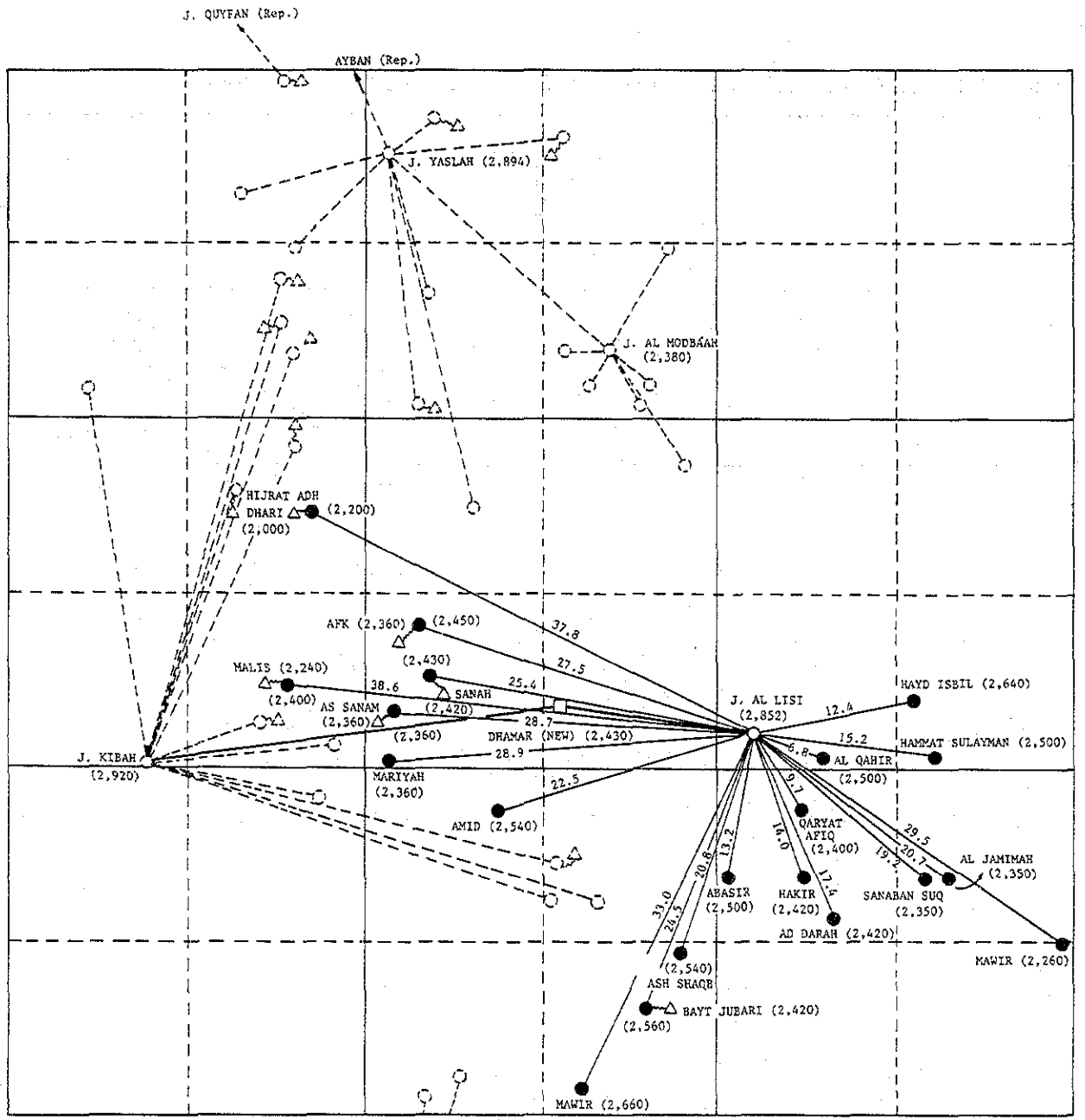


Figure A-IV (8/15) SUBSCRIBER STATION DISTRIBUTING PLAN

RELATED MAP NUMBER

1444 A1	1444 A2	1444 B1
1444 A3	1444 A4	1444 B3
1444 C1	1444 C2	1444 D1

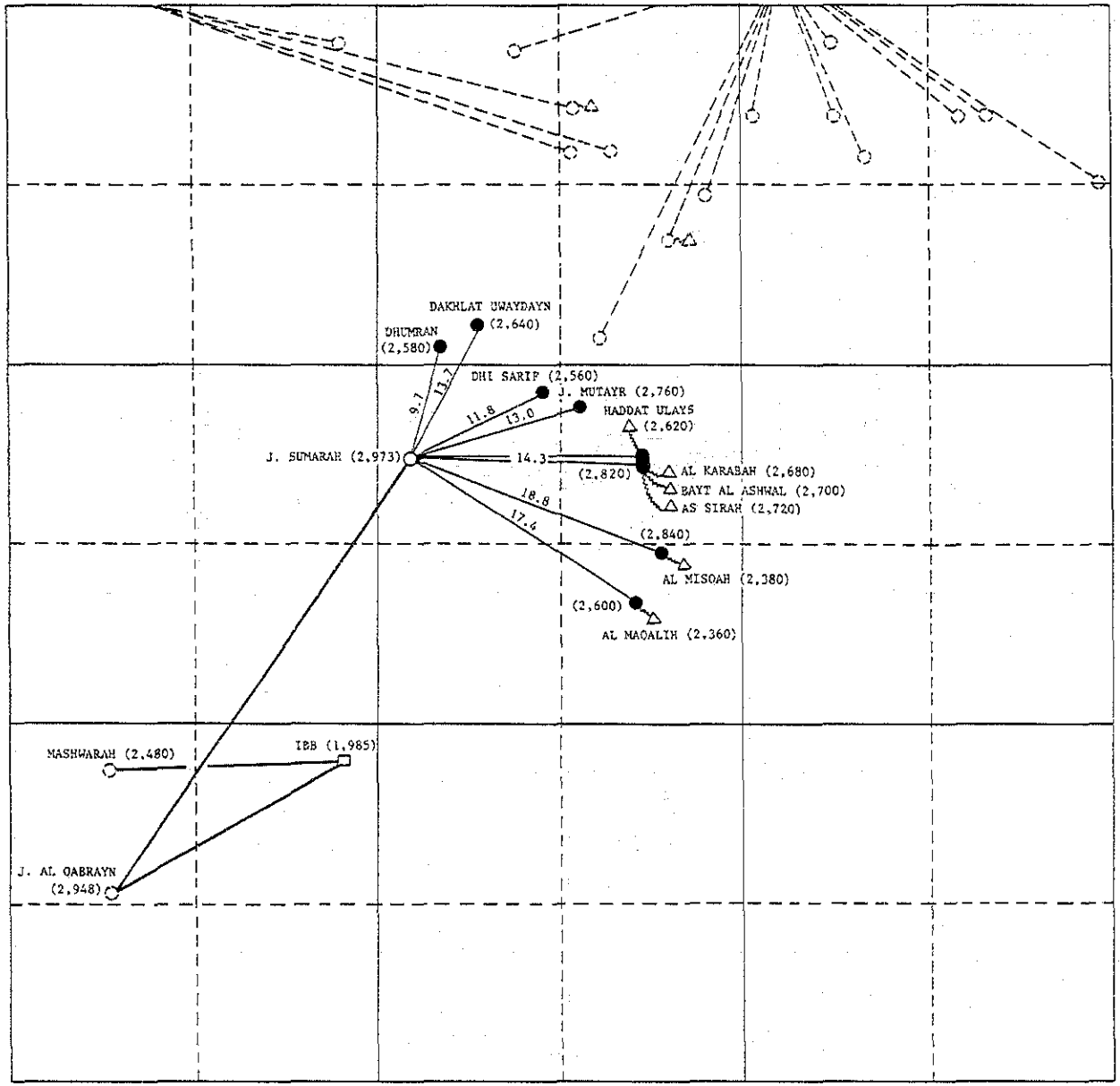


Figure A-IV (9/15) SUBSCRIBER STATION DISTRIBUTING PLAN

RELATED MAP NUMBER

1444 C1	1444 C2	1444 D1
1444 C3	1444 C4	1444 D3
1344 A1	1344 A2	1344 B1

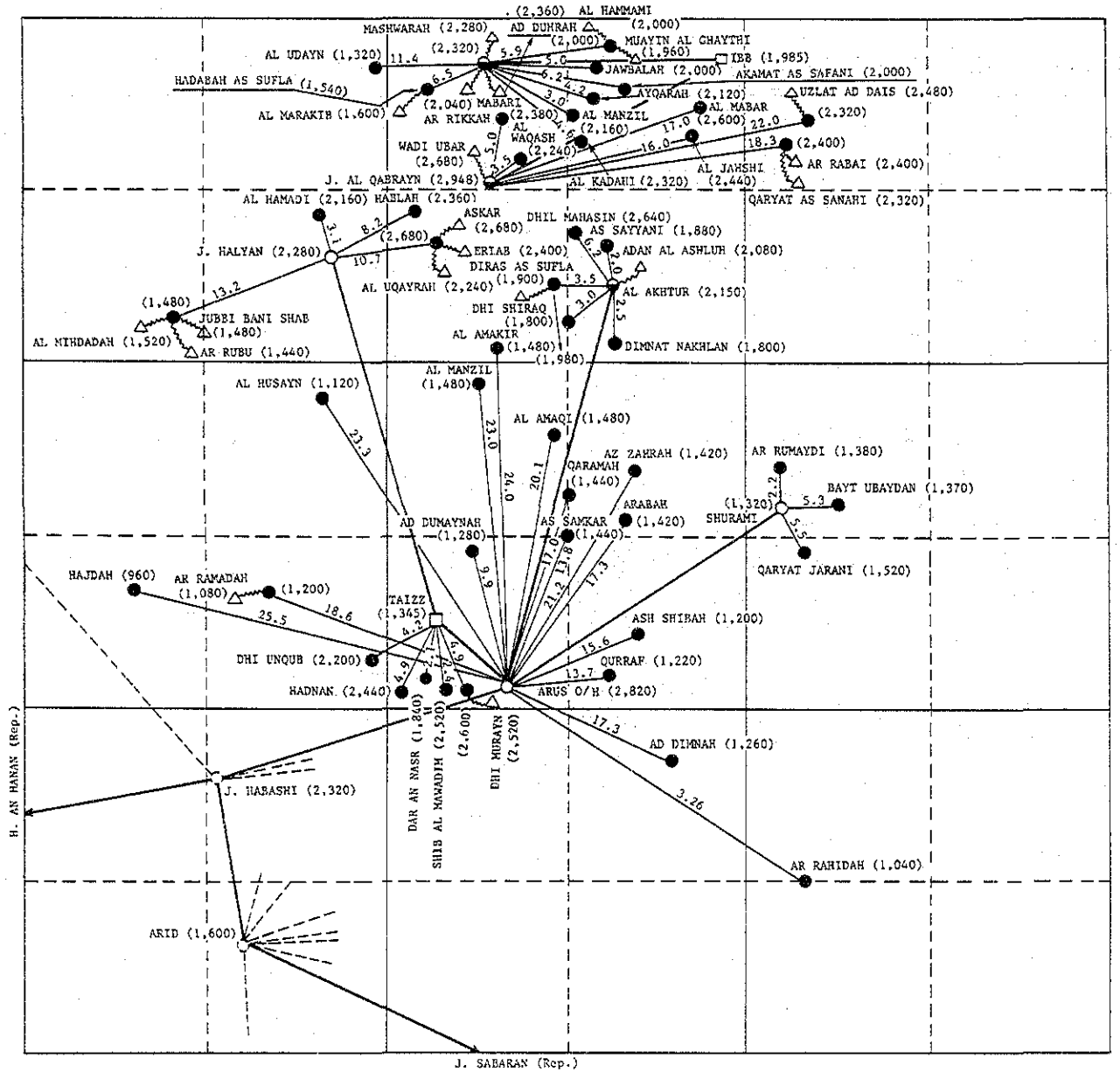


Figure A-IV (10/15) SUBSCRIBER STATION DISTRIBUTING PLAN

RELATED MAP NUMBER

1343 B2	1344 A1	1344 A2
1343 B4	1344 A3	1344 A4
1343 D2	1344 C1	1344 C2

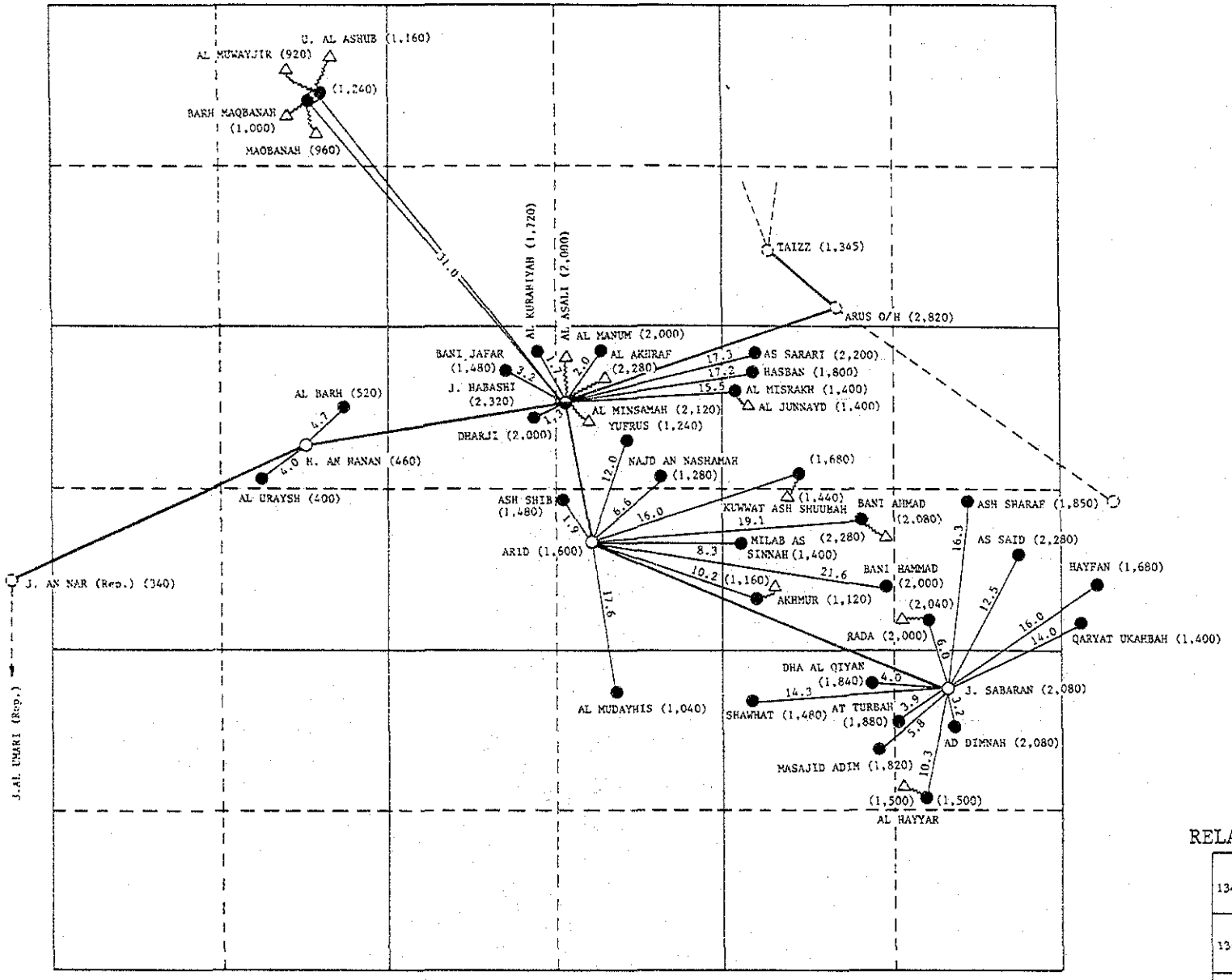


Figure A-IV (11/15) SUBSCRIBER STATION DISTRIBUTING PLAN

RELATED MAP NUMBER

1343 B3	1343 B4	1344 A3
1343 D1	1343 D2	1344 C1
1343 D3	1343 D4	1344 C3

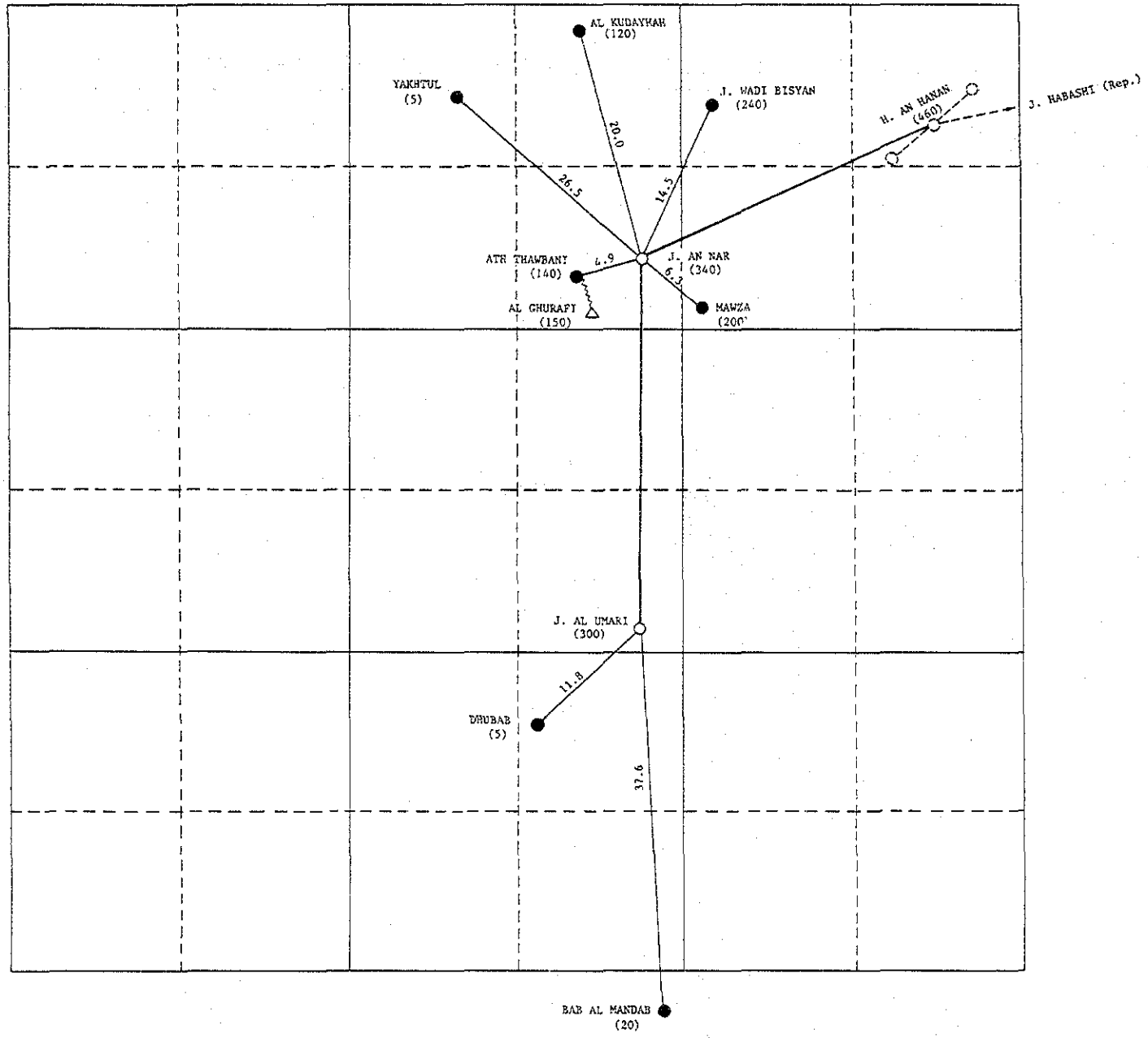


Figure A-IV (12/15) SUBSCRIBER STATION DISTRIBUTING PLAN

RELATED MAP NUMBER

1343 C1	1343 C2	1343 D1
1343 C3	1343 C4	1343 D3
1243 A1	1243 A2	1243 B1
	1243 A4	

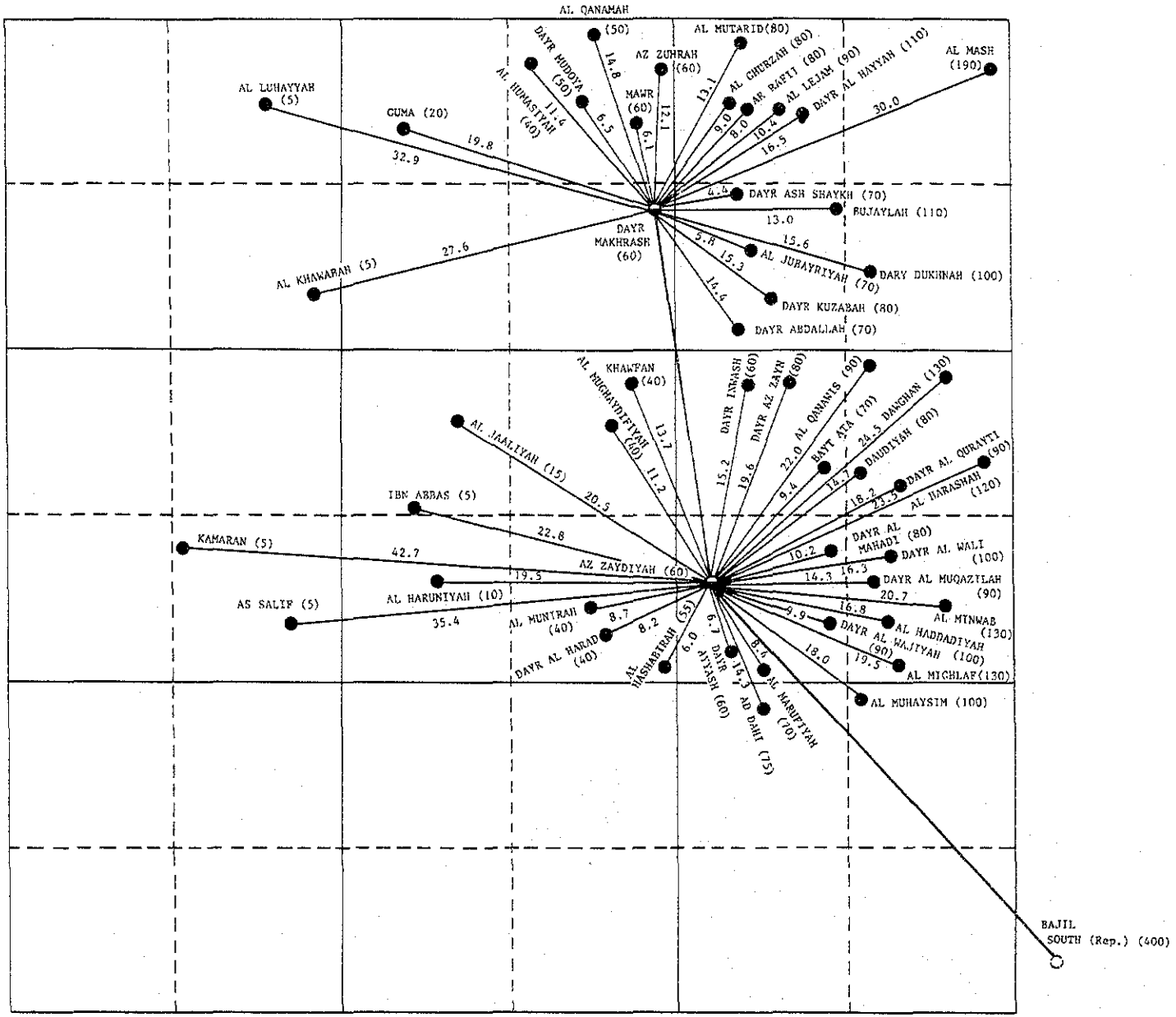
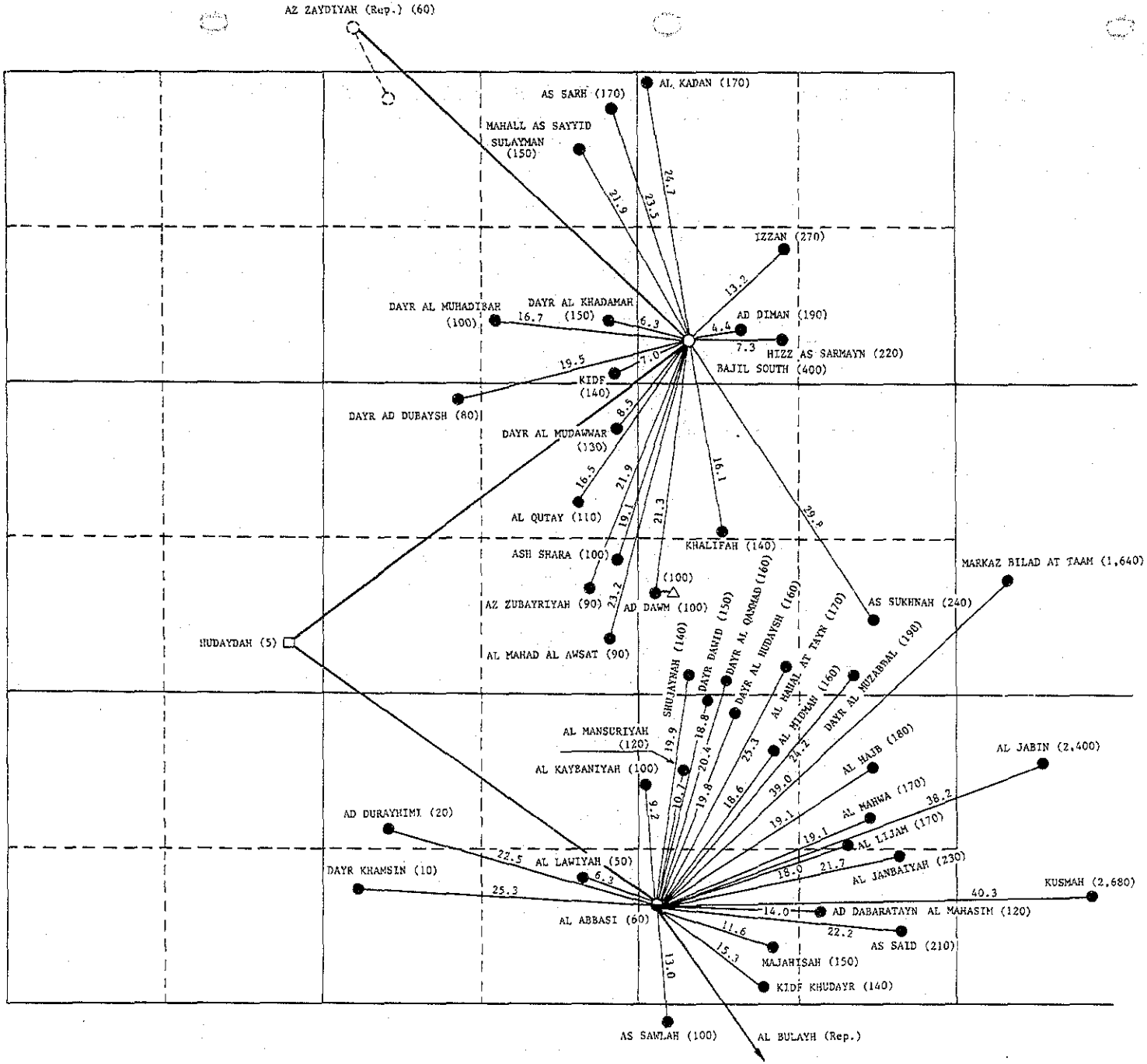


Figure A-IV (13/15) SUBSCRIBER STATION DISTRIBUTING PLAN

RELATED MAP NUMBER

1542 B3	1542 B4	1543 A3
1542 D1	1542 D2	1543 C1
1542 D3	1542 D4	1543 C3



RELATED MAP NUMBER

1542 D4	1543 C3	1543 C4	
1442 B2	1443 A1	1443 A2	1443 B1
1442 B4	1443 A3	1443 A4	1443 B3

Figure A-IV (14/15) SUBSCRIBER STATION DISTRIBUTING PLAN

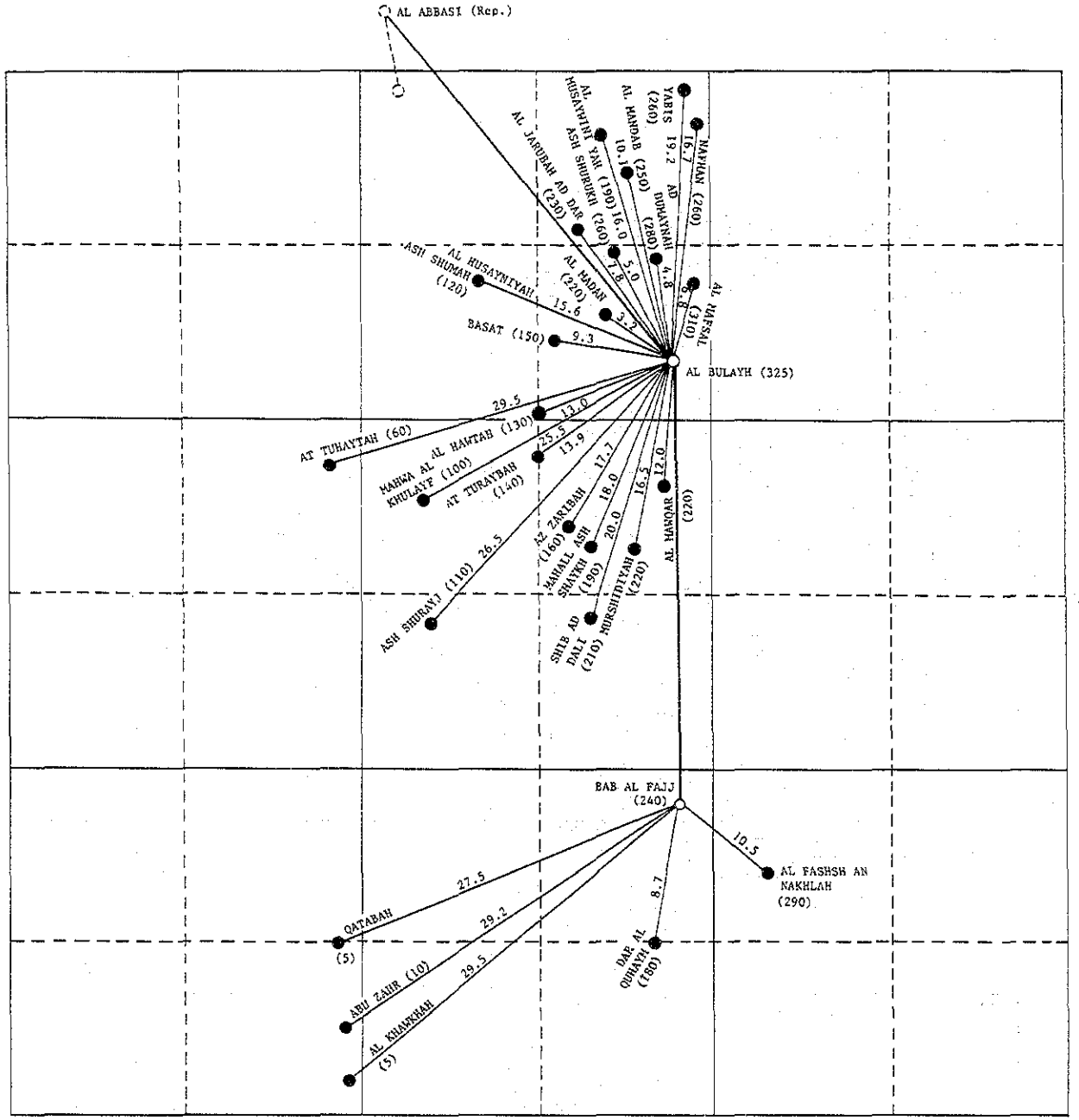


Figure A-IV (15/15) SUBSCRIBER STATION DISTRIBUTING PLAN

RELATED MAP NUMBER

1443 C1	1443 C2	1443 D1
1443 C3	1443 C4	1443 D3
1343 A1	1343 A2	1343 B1

ANNEX-V COORDINATES AND GROUND ELEVATION OF SITES

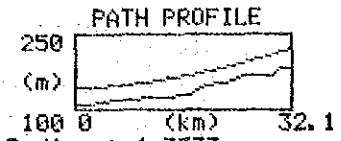
Table A-V (1/2) COORDINATES AND GROUND ELEVATION OF SITES

Base/Repeater Station	Coordinates		Ground Elevation (m)
	Longitude	Latitude	
HAYRAN	43°05'08"	16°16'01"	114
ABS	43°11'55"	15°59'54"	180
AL JUBAYL	43°27'43"	15°58'29"	2,040
J. SHAMSAN	43°34'15"	15°43'54"	1,990
J. ASHMUR	43°45'14"	15°41'46"	2,833
HAJJAH (BS)	43°36'18"	15°41'30"	1,740
J. IYAL YAZID	43°51'32"	15°45'57"	2,830
J. DHARWAH	44°06'42"	15°57'38"	2,670
DAYN	44°02'46"	15°35'49"	3,010
SANA'A (BS)	44°12'34"	15°22'07"	2,242
AYBAN	44°07'23"	15°17'45"	3,186
AL MIFTAH	44°24'32"	15°31'33"	2,520
J. HARWAH	44°20'09"	15°13'37"	2,700
J. AL QULBY	44°20'23"	15°07'12"	2,720
J. QUYFAN	43°59'58"	15°11'47"	3,000
MASAR	43°40'39"	15°04'40"	2,750
J. YASLAH	44°16'41"	14°56'54"	2,894
J. AL MODBA'AH	44°25'48"	14°48'43"	2,380
J. AL LISI	44°32'03"	14°32'38"	2,852
DHAMAR (BS)	44°23'16"	14°33'40"	2,430
J. KIBAH	44°06'19"	14°30'09"	2,920
AD DANN	43°51'11"	14°21'04"	2,480
J. SUMARAH	44°16'30"	14°11'01"	2,793
J. AL QABRAYN	44°06'09"	13°53'27"	2,948
IBB (BS)	44°11'08"	13°58'37"	1,985
MASHWARAH	44°06'06"	13°58'29"	2,300
AL AKHTUR	44°10'52"	13°49'48"	2,150
SHURAMI	44°17'40"	13°39'02"	1,320
J. HALYAN	43°58'11"	13°50'09"	2,280
TAIZZ (BS)	44°01'06"	13°34'34"	1,340

Table A-V (2/2) COORDINATES AND GROUND ELEVATION OF SITES

Base/Repeater Station	Coordinates		Ground Elevation (m)
	Longitude	Latitude	
ARUS (O/H)	44°02'53"	13°32'20"	2,820
J. HABASHI	43°52'37"	13°27'43"	2,320
ARID	43°55'33"	13°20'47"	1,600
J. SABARAN	44°08'58"	13°14'01"	2,080
H. AN HANAN	43°40'47"	13°24'27"	460
J. AN NAR	43°28'44"	13°19'10"	340
J. AL UMARI	43°28'52"	13°10'22"	300
DAYR MAKHRASH	42°59'16"	15°36'52"	60
AZ ZAYDIYAH	43°00'35"	15°19'58"	60
BAJIL SOUTH	43°17'30"	15°01'34"	400
HUDAYDAH (BS)	42°57'02"	14°48'04"	6
AL ABBASI	43°15'37"	14°35'50"	60
AL BULAYH	43°27'40"	14°19'29"	325
BAB AL FAJJ	43°28'30"	13°57'40"	240

ANNEX-Ⅵ PATH PROFILE

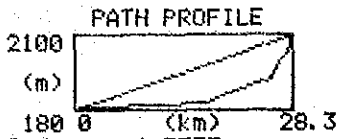


Radius : 1.3333

HAYRAN--ABS

Ground Hght 1:	114.0	m
Ground Hght 2:	180.0	m
Path Distance:	32.1	km
Frequency:	850	MHz
Ant Height 1:	29.0	m
Ant Height 2:	40.0	m
Critc Point:	19.8	km
Ridge Height:	150.0	m
Tree Height:	3.0	m
Fresnel Dip:	51.7	m
Clearance:	23.2	m
Clearance Fact:	0.4	
Free Spc Loss:	121.2	dB
Ridge Loss:	0.9	dB
Total Loss:	122.1	dB

File Name:HAJ-1 (READ)
Counter: 0 -- 76

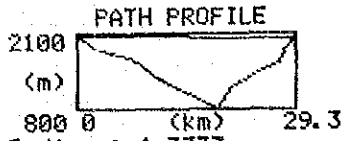


Radius : 1.3333

ABS--AL JUBAYL

Ground Hght 1:	180.0	m
Ground Hght 2:	2040.0	m
Path Distance:	28.3	km
Frequency:	850	MHz
Ant Height 1:	39.0	m
Ant Height 2:	15.0	m
Critc Point:	1.2	km
Ridge Height:	260.0	m
Tree Height:	3.0	m
Fresnel Dip:	20.1	m
Clearance:	31.9	m
Clearance Fact:	1.6	
Free Spc Loss:	120.1	dB
Ridge Loss:	0.0	dB
Total Loss:	120.1	dB

File Name:HAJ-2 (READ)
Counter: 77 -- 180

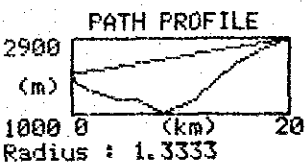


Radius : 1.3333

AL JUBAYL--J.SHAMSAN

Ground Hght 1:	2040.0	m
Ground Hght 2:	1990.0	m
Path Distance:	29.3	km
Frequency:	850	MHz
Ant Height 1:	14.0	m
Ant Height 2:	20.0	m
Critc Point:	0.8	km
Ridge Height:	1980.0	m
Tree Height:	3.0	m
Fresnel Dip:	16.6	m
Clearance:	68.5	m
Clearance Fact:	4.1	
Free Spc Loss:	120.4	dB
Ridge Loss:	0.0	dB
Total Loss:	120.4	dB

File Name:HAJ-3 (READ)
Counter: 180 -- 281

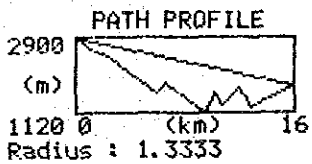


Radius : 1.3333

J.SHAMSAN--ASHMUR

Ground Hght 1:	1990.0	m
Ground Hght 2:	2833.0	m
Path Distance:	20.0	km
Frequency:	850	MHz
Ant Height 1:	19.0	m
Ant Height 2:	19.0	m
Critc Point:	19.6	km
Ridge Height:	2800.0	m
Tree Height:	3.0	m
Fresnel Dip:	11.8	m
Clearance:	31.7	m
Clearance Fact:	2.7	
Free Spc Loss:	117.1	dB
Ridge Loss:	0.0	dB
Total Loss:	117.1	dB

File Name:HAJ-4 (READ)
Counter: 281 -- 380

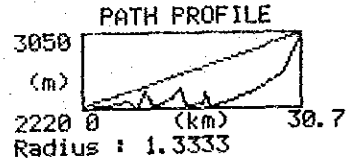


Radius : 1.3333

ASHMUR--HAJJAH

Ground Hght 1:	2833.0	m
Ground Hght 2:	1740.0	m
Path Distance:	16.0	km
Frequency:	850	MHz
Ant Height 1:	20.0	m
Ant Height 2:	20.0	m
Critc Point:	0.4	km
Ridge Height:	2800.0	m
Tree Height:	3.0	m
Fresnel Dip:	11.7	m
Clearance:	22.3	m
Clearance Fact:	1.9	
Free Spc Loss:	115.1	dB
Ridge Loss:	0.0	dB
Total Loss:	115.1	dB

File Name:HAJ-5 (READ)
Counter: 380 -- 477



Radius : 1.3333

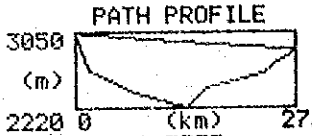
SANA'A--DAYN

Ground Hght 1:	2242.0	m
Ground Hght 2:	3010.0	m
Path Distance:	30.7	km
Frequency:	850	MHz
Ant Height 1:	20.0	m
Ant Height 2:	18.0	m
Critc Point:	9.0	km
Ridge Height:	2425.0	m
Tree Height:	3.0	m
Fresnel Dip:	47.4	m
Clearance:	47.1	m
Clearance Fact:	1.0	
Free Spc Loss:	120.8	dB
Ridge Loss:	0.0	dB
Total Loss:	120.8	dB

File Name:SAN-1 (READ)
Counter: 477 -- 576

Figure A-VI (1/7) PATH PROFILE

PATH PROFILE



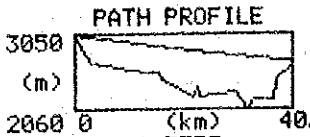
Radius : 1.3333

DAYN--J. IYAL YAZID

Ground Hght 1:	3010.0 m
Ground Hght 2:	2830.0 m
Path Distance:	27.4 km
Frequency:	850 MHz
Ant Height 1:	20.0 m
Ant Height 2:	18.0 m
Critc Point:	26.8 km
Ridge Height:	2800.0 m
Tree Height:	3.0 m
Fresnel Dip:	14.4 m
Clearance:	48.0 m
Clearance Fact:	3.3
Free Spc Loss:	119.8 dB
Ridge Loss:	0.0 dB
Total Loss:	119.8 dB

File Name:SAN-2 (READ)
Counter: 576 -- 669

PATH PROFILE



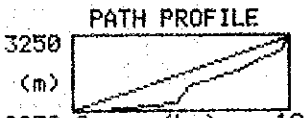
Radius : 1.3333

DAYN--J. DHARWAH

Ground Hght 1:	3010.0 m
Ground Hght 2:	2670.0 m
Path Distance:	40.8 km
Frequency:	850 MHz
Ant Height 1:	20.0 m
Ant Height 2:	14.0 m
Critc Point:	15.8 km
Ridge Height:	2540.0 m
Tree Height:	3.0 m
Fresnel Dip:	58.5 m
Clearance:	329.8 m
Clearance Fact:	5.6
Free Spc Loss:	123.3 dB
Ridge Loss:	0.0 dB
Total Loss:	123.3 dB

File Name:SAN-3 (READ)
Counter: 669 -- 785

PATH PROFILE



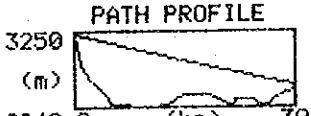
Radius : 1.3333

SANA'A--AYBAN

Ground Hght 1:	2242.0 m
Ground Hght 2:	3186.0 m
Path Distance:	12.3 km
Frequency:	850 MHz
Ant Height 1:	22.0 m
Ant Height 2:	18.0 m
Critc Point:	6.7 km
Ridge Height:	2580.0 m
Tree Height:	3.0 m
Fresnel Dip:	32.8 m
Clearance:	190.8 m
Clearance Fact:	5.8
Free Spc Loss:	112.8 dB
Ridge Loss:	0.0 dB
Total Loss:	112.8 dB

File Name:SAN-4 (READ)
Counter: 785 -- 875

PATH PROFILE



Radius : 1.3333

AYBAN--AL MIFTAH

Ground Hght 1:	3186.0 m
Ground Hght 2:	2520.0 m
Path Distance:	39.8 km
Frequency:	850 MHz
Ant Height 1:	20.0 m
Ant Height 2:	18.0 m
Critc Point:	37.5 km
Ridge Height:	2400.0 m
Tree Height:	3.0 m
Fresnel Dip:	27.7 m
Clearance:	168.5 m
Clearance Fact:	6.1
Free Spc Loss:	123.0 dB
Ridge Loss:	0.0 dB
Total Loss:	123.0 dB

File Name:SAN-5 (READ)
Counter: 875 -- 961

PATH PROFILE

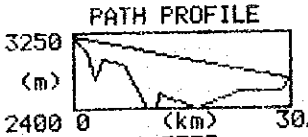
Radius : 1.3333

AYBAN--J. HARWAH

Ground Hght 1:	3186.0 m
Ground Hght 2:	2700.0 m
Path Distance:	24.1 km
Frequency:	850 MHz
Ant Height 1:	20.0 m
Ant Height 2:	10.0 m
Critc Point:	1.2 km
Ridge Height:	3080.0 m
Tree Height:	3.0 m
Fresnel Dip:	20.1 m
Clearance:	96.7 m
Clearance Fact:	4.8
Free Spc Loss:	118.7 dB
Ridge Loss:	0.0 dB
Total Loss:	118.7 dB

File Name:SAN-6 (READ)
Counter: 961 -- 1046

PATH PROFILE



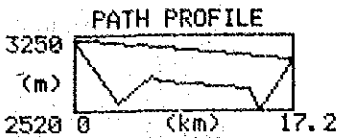
Radius : 1.3333

AYBAN--J. AL QULBY

Ground Hght 1:	3186.0 m
Ground Hght 2:	2720.0 m
Path Distance:	30.3 km
Frequency:	850 MHz
Ant Height 1:	20.0 m
Ant Height 2:	10.0 m
Critc Point:	7.2 km
Ridge Height:	2900.0 m
Tree Height:	3.0 m
Fresnel Dip:	44.0 m
Clearance:	180.1 m
Clearance Fact:	4.1
Free Spc Loss:	120.7 dB
Ridge Loss:	0.0 dB
Total Loss:	120.7 dB

File Name:SAN-7 (READ)
Counter: 1046 -- 1132

Figure A-VI (2/7) PATH PROFILE

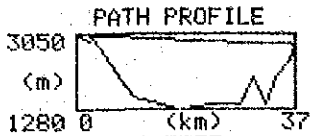


Radius : 1.3333

AYBAN--J. QUVFAN

Ground Hght 1:	3186.0 m
Ground Hght 2:	3000.0 m
Path Distance:	17.2 km
Frequency:	850 MHz
Ant Height 1:	20.0 m
Ant Height 2:	10.0 m
Critc Point:	6.2 km
Ridge Height:	2860.0 m
Tree Height:	3.0 m
Fresnel Dip:	37.4 m
Clearance:	268.3 m
Clearance Fact:	7.2
Free Spc Loss:	115.8 dB
Ridge Loss:	0.0 dB
Total Loss:	115.8 dB

File Name:SAN-8 (READ)
Counter: 1132 -- 1215

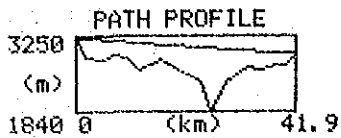


Radius : 1.3333

J. QUVFAN--MASAR

Ground Hght 1:	3000.0 m
Ground Hght 2:	2750.0 m
Path Distance:	37.0 km
Frequency:	850 MHz
Ant Height 1:	15.0 m
Ant Height 2:	20.0 m
Critc Point:	3.0 km
Ridge Height:	2920.0 m
Tree Height:	3.0 m
Fresnel Dip:	31.2 m
Clearance:	66.1 m
Clearance Fact:	2.1
Free Spc Loss:	122.4 dB
Ridge Loss:	0.0 dB
Total Loss:	122.4 dB

File Name:SAN-9 (READ)
Counter: 1215 -- 1297

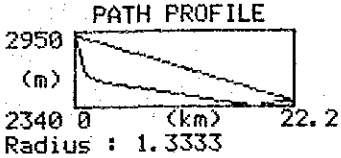


Radius : 1.3333

AYBAN--J. YASLAH

Ground Hght 1:	3186.0 m
Ground Hght 2:	2894.0 m
Path Distance:	41.9 km
Frequency:	850 MHz
Ant Height 1:	20.0 m
Ant Height 2:	8.0 m
Critc Point:	16.7 km
Ridge Height:	2800.0 m
Tree Height:	3.0 m
Fresnel Dip:	59.5 m
Clearance:	257.1 m
Clearance Fact:	4.3
Free Spc Loss:	123.5 dB
Ridge Loss:	0.0 dB
Total Loss:	123.5 dB

File Name:SAN-10 (READ)
Counter: 1297 -- 1377

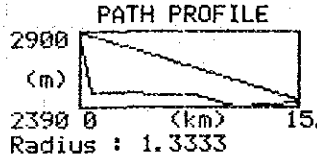


Radius : 1.3333

J. YASLAH--J. AL MODBA'AH

Ground Hght 1:	2894.0 m
Ground Hght 2:	2380.0 m
Path Distance:	22.2 km
Frequency:	850 MHz
Ant Height 1:	22.0 m
Ant Height 2:	10.0 m
Critc Point:	20.8 km
Ridge Height:	2380.0 m
Tree Height:	3.0 m
Fresnel Dip:	21.5 m
Clearance:	38.5 m
Clearance Fact:	1.8
Free Spc Loss:	118.0 dB
Ridge Loss:	0.0 dB
Total Loss:	118.0 dB

File Name:SAN-11 (READ)
Counter: 1377 -- 1455

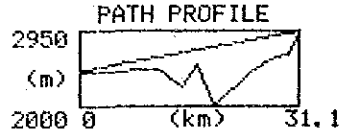


Radius : 1.3333

J. AL LISI--DAMAR

Ground Hght 1:	2852.0 m
Ground Hght 2:	2430.0 m
Path Distance:	15.9 km
Frequency:	850 MHz
Ant Height 1:	36.0 m
Ant Height 2:	18.0 m
Critc Point:	8.5 km
Ridge Height:	2480.0 m
Tree Height:	3.0 m
Fresnel Dip:	37.4 m
Clearance:	166.1 m
Clearance Fact:	4.4
Free Spc Loss:	115.1 dB
Ridge Loss:	0.0 dB
Total Loss:	115.1 dB

File Name:DAM-1 (READ)
Counter: 1455 -- 1557



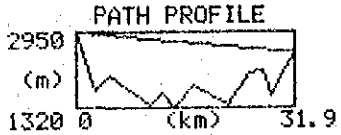
Radius : 1.3333

DAMAR--J. KIBAH

Ground Hght 1:	2430.0 m
Ground Hght 2:	2920.0 m
Path Distance:	31.1 km
Frequency:	850 MHz
Ant Height 1:	20.0 m
Ant Height 2:	12.0 m
Critc Point:	3.0 km
Ridge Height:	2440.0 m
Tree Height:	3.0 m
Fresnel Dip:	30.9 m
Clearance:	48.5 m
Clearance Fact:	1.6
Free Spc Loss:	120.9 dB
Ridge Loss:	0.0 dB
Total Loss:	120.9 dB

File Name:DAM-2 (READ)
Counter: 1557 -- 1633

Figure A-VI (3/7) PATH PROFILE

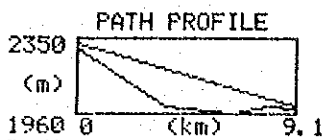


Radius : 1.3333

J.KIBAH--AD DANN

Ground Hght 1:	2920.0 m
Ground Hght 2:	2480.0 m
Path Distance:	31.9 km
Frequency:	850 MHz
Ant Height 1:	15.0 m
Ant Height 2:	12.0 m
Critc Point:	25.3 km
Ridge Height:	2080.0 m
Tree Height:	3.0 m
Fresnel Dir:	43.0 m
Clearance:	490.8 m
Clearance Fact:	11.4
Free Spc Loss:	121.1 dB
Ridge Loss:	0.0 dB
Total Loss:	121.1 dB

File Name:DAM-3 (READ)
Counter: 1633 -- 1709

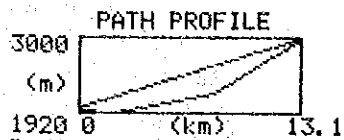


Radius : 1.3333

MASHWARAH--IBB

Ground Hght 1:	2300.0 m
Ground Hght 2:	1985.0 m
Path Distance:	9.1 km
Frequency:	850 MHz
Ant Height 1:	18.0 m
Ant Height 2:	18.0 m
Critc Point:	8.0 km
Ridge Height:	2000.0 m
Tree Height:	3.0 m
Fresnel Dir:	18.5 m
Clearance:	37.6 m
Clearance Fact:	2.0
Free Spc Loss:	110.2 dB
Ridge Loss:	0.0 dB
Total Loss:	110.2 dB

File Name:IBB-1 (READ)
Counter: 1709 -- 1784

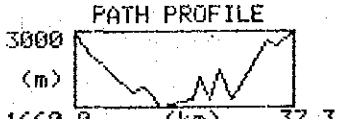


Radius : 1.3333

IBB--J.AL QABRAYN

Ground Hght 1:	1985.0 m
Ground Hght 2:	2948.0 m
Path Distance:	13.1 km
Frequency:	850 MHz
Ant Height 1:	20.0 m
Ant Height 2:	20.0 m
Critc Point:	10.8 km
Ridge Height:	2600.0 m
Tree Height:	3.0 m
Fresnel Dir:	25.9 m
Clearance:	194.5 m
Clearance Fact:	7.5
Free Spc Loss:	113.4 dB
Ridge Loss:	0.0 dB
Total Loss:	113.4 dB

File Name:IBB-2 (READ)
Counter: 1784 -- 1859

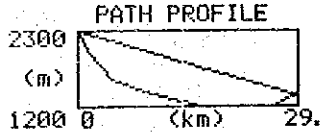


Radius : 1.3333

J.AL QABRAYN--J.SUMARAH

Ground Hght 1:	2948.0 m
Ground Hght 2:	2973.0 m
Path Distance:	37.3 km
Frequency:	850 MHz
Ant Height 1:	30.0 m
Ant Height 2:	15.0 m
Critc Point:	33.0 km
Ridge Height:	2800.0 m
Tree Height:	3.0 m
Fresnel Dir:	36.6 m
Clearance:	175.5 m
Clearance Fact:	4.8
Free Spc Loss:	122.5 dB
Ridge Loss:	0.0 dB
Total Loss:	122.5 dB

File Name:IBB-3 (READ)
Counter: 1859 -- 1932

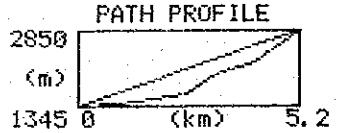


Radius : 1.3333

J.HALYAN--TAIZZ

Ground Hght 1:	2280.0 m
Ground Hght 2:	1345.0 m
Path Distance:	29.2 km
Frequency:	850 MHz
Ant Height 1:	10.0 m
Ant Height 2:	20.0 m
Critc Point:	28.8 km
Ridge Height:	1360.0 m
Tree Height:	3.0 m
Fresnel Dir:	11.8 m
Clearance:	14.0 m
Clearance Fact:	1.2
Free Spc Loss:	120.4 dB
Ridge Loss:	0.0 dB
Total Loss:	120.4 dB

File Name:TAI-1 (READ)
Counter: 1932 -- 2010



Radius : 1.3333

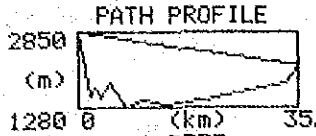
TAIZZ--ARUS OH

Ground Hght 1:	1345.0 m
Ground Hght 2:	2820.0 m
Path Distance:	5.2 km
Frequency:	850 MHz
Ant Height 1:	15.0 m
Ant Height 2:	10.0 m
Critc Point:	3.3 km
Ridge Height:	2000.0 m
Tree Height:	3.0 m
Fresnel Dir:	20.6 m
Clearance:	289.5 m
Clearance Fact:	14.0
Free Spc Loss:	105.4 dB
Ridge Loss:	0.0 dB
Total Loss:	105.4 dB

File Name:TAI-2 (READ)
Counter: 2010 -- 2081

Figure A-VI (4/7) PATH PROFILE

PATH PROFILE



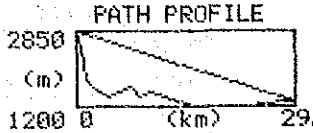
Radius : 1.3333

ARUS OH--AL AKHTUR

Ground Hght 1:	2820.0 m
Ground Hght 2:	2150.0 m
Path Distance:	35.2 km
Frequency:	850 MHz
Ant Height 1:	15.0 m
Ant Height 2:	10.0 m
Critc Point:	25.8 km
Ridge Height:	1600.0 m
Tree Height:	3.0 m
Fresnel Dif:	49.3 m
Clearance:	723.0 m
Clearance Fact:	14.7
Free Spc Loss:	122.0 dB
Ridge Loss:	0.0 dB
Total Loss:	122.0 dB

File Name:TAI-3 (READ)
Counter: 2081 -- 2151

PATH PROFILE



Radius : 1.3333

ARUS OH--SHURAMI

Ground Hght 1:	2820.0 m
Ground Hght 2:	1320.0 m
Path Distance:	29.4 km
Frequency:	850 MHz
Ant Height 1:	15.0 m
Ant Height 2:	10.0 m
Critc Point:	28.0 km
Ridge Height:	1320.0 m
Tree Height:	3.0 m
Fresnel Dif:	21.7 m
Clearance:	76.4 m
Clearance Fact:	3.5
Free Spc Loss:	120.4 dB
Ridge Loss:	0.0 dB
Total Loss:	120.4 dB

File Name:TAI-4 (READ)
Counter: 2151 -- 2219

PATH PROFILE

Radius : 1.3333

ARUS OH--J.HABASHI

Ground Hght 1:	2820.0 m
Ground Hght 2:	2320.0 m
Path Distance:	20.4 km
Frequency:	850 MHz
Ant Height 1:	15.0 m
Ant Height 2:	15.0 m
Critc Point:	1.8 km
Ridge Height:	2760.0 m
Tree Height:	3.0 m
Fresnel Dif:	24.1 m
Clearance:	25.9 m
Clearance Fact:	1.1
Free Spc Loss:	117.2 dB
Ridge Loss:	0.0 dB
Total Loss:	117.2 dB

File Name:TAI-5 (READ)
Counter: 2219 -- 2271

PATH PROFILE

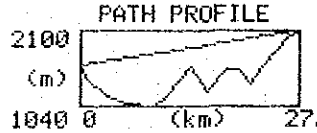
Radius : 1.3333

J.HABASHI--ARID

Ground Hght 1:	2320.0 m
Ground Hght 2:	1600.0 m
Path Distance:	13.8 km
Frequency:	850 MHz
Ant Height 1:	40.0 m
Ant Height 2:	15.0 m
Critc Point:	13.1 km
Ridge Height:	1600.0 m
Tree Height:	3.0 m
Fresnel Dif:	15.3 m
Clearance:	49.3 m
Clearance Fact:	3.2
Free Spc Loss:	113.8 dB
Ridge Loss:	0.0 dB
Total Loss:	113.8 dB

File Name:TAI-6 (READ)
Counter: 2271 -- 2338

PATH PROFILE



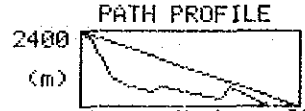
Radius : 1.3333

ARID--J.SABARAN

Ground Hght 1:	1600.0 m
Ground Hght 2:	2080.0 m
Path Distance:	27.2 km
Frequency:	850 MHz
Ant Height 1:	20.0 m
Ant Height 2:	10.0 m
Critc Point:	26.0 km
Ridge Height:	2000.0 m
Tree Height:	3.0 m
Fresnel Dif:	20.1 m
Clearance:	64.4 m
Clearance Fact:	3.2
Free Spc Loss:	119.7 dB
Ridge Loss:	0.0 dB
Total Loss:	119.7 dB

File Name:TAI-7 (READ)
Counter: 2338 -- 2405

PATH PROFILE



Radius : 1.3333

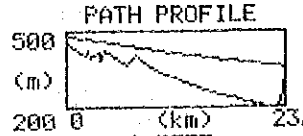
J.HABASHI--H.AN HANAN

Ground Hght 1:	2320.0 m
Ground Hght 2:	460.0 m
Path Distance:	22.2 km
Frequency:	850 MHz
Ant Height 1:	40.0 m
Ant Height 2:	18.0 m
Critc Point:	0.4 km
Ridge Height:	2320.0 m
Tree Height:	3.0 m
Fresnel Dif:	11.8 m
Clearance:	2.6 m
Clearance Fact:	0.2
Free Spc Loss:	118.0 dB
Ridge Loss:	3.4 dB
Total Loss:	121.3 dB

File Name:TAI-8 (READ)
Counter: 2405 -- 2472

Figure A-VI (5/7) PATH PROFILE

PATH PROFILE



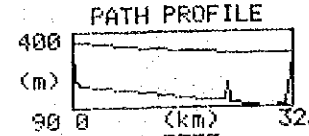
Radius : 1.3333

H.AN HANAN--J.AN NAR

Ground Hght 1:	460.0 m
Ground Hght 2:	340.0 m
Path Distance:	23.8 km
Frequency:	850 MHz
Ant Height 1:	20.0 m
Ant Height 2:	18.0 m
Critc Point:	7.7 km
Ridge Height:	400.0 m
Tree Height:	3.0 m
Fresnel Dir:	42.9 m
Clearance:	30.2 m
Clearance Fact:	0.7
Free Spc Loss:	118.6 dB
Ridge Loss:	0.0 dB
Total Loss:	118.6 dB

File Name:TAI-9 (READ)
Counter: 2472 -- 2548

PATH PROFILE



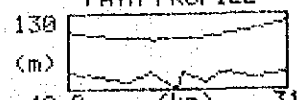
Radius : 1.3333

J.AN NAR--J.AL UMARI

Ground Hght 1:	340.0 m
Ground Hght 2:	300.0 m
Path Distance:	32.8 km
Frequency:	850 MHz
Ant Height 1:	20.0 m
Ant Height 2:	10.0 m
Critc Point:	23.4 km
Ridge Height:	189.0 m
Tree Height:	3.0 m
Fresnel Dir:	48.7 m
Clearance:	119.4 m
Clearance Fact:	2.5
Free Spc Loss:	121.4 dB
Ridge Loss:	0.0 dB
Total Loss:	121.4 dB

File Name:TAI-10 (READ)
Counter: 2548 -- 2612

PATH PROFILE



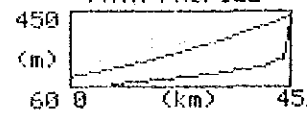
Radius : 1.3333

DAYR MAKHRASH--
AZ ZAYDIYAH

Ground Hght 1:	60.0 m
Ground Hght 2:	60.0 m
Path Distance:	31.2 km
Frequency:	850 MHz
Ant Height 1:	48.0 m
Ant Height 2:	60.0 m
Critc Point:	12.0 km
Ridge Height:	60.0 m
Tree Height:	3.0 m
Fresnel Dir:	51.1 m
Clearance:	36.1 m
Clearance Fact:	0.7
Free Spc Loss:	120.9 dB
Ridge Loss:	0.0 dB
Total Loss:	120.9 dB

File Name:HUD-1 (READ)
Counter: 2612 -- 2679

PATH PROFILE



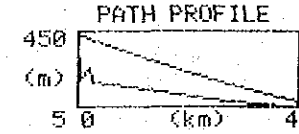
Radius : 1.3333

AZ ZAYDIYAH--BAJIL SOUTH

Ground Hght 1:	60.0 m
Ground Hght 2:	400.0 m
Path Distance:	45.4 km
Frequency:	850 MHz
Ant Height 1:	58.0 m
Ant Height 2:	20.0 m
Critc Point:	13.0 km
Ridge Height:	90.0 m
Tree Height:	3.0 m
Fresnel Dir:	57.2 m
Clearance:	86.7 m
Clearance Fact:	1.5
Free Spc Loss:	124.2 dB
Ridge Loss:	0.0 dB
Total Loss:	124.2 dB

File Name:HUD-2 (READ)
Counter: 2679 -- 2744

PATH PROFILE



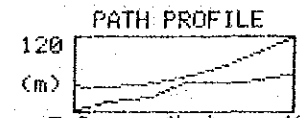
Radius : 1.3333

BAJIL SOUTH--HUDAYDAH

Ground Hght 1:	400.0 m
Ground Hght 2:	5.0 m
Path Distance:	44.3 km
Frequency:	850 MHz
Ant Height 1:	25.0 m
Ant Height 2:	38.0 m
Critc Point:	37.5 km
Ridge Height:	20.0 m
Tree Height:	3.0 m
Fresnel Dir:	45.1 m
Clearance:	63.6 m
Clearance Fact:	1.4
Free Spc Loss:	124.0 dB
Ridge Loss:	0.0 dB
Total Loss:	124.0 dB

File Name:HUD-3 (READ)
Counter: 2744 -- 2809

PATH PROFILE



Radius : 1.3333

HUDAYDAH--AL ABBASI

Ground Hght 1:	5.0 m
Ground Hght 2:	60.0 m
Path Distance:	40.2 km
Frequency:	850 MHz
Ant Height 1:	40.0 m
Ant Height 2:	58.0 m
Critc Point:	21.2 km
Ridge Height:	50.0 m
Tree Height:	3.0 m
Fresnel Dir:	59.5 m
Clearance:	6.8 m
Clearance Fact:	0.1
Free Spc Loss:	123.1 dB
Ridge Loss:	4.6 dB
Total Loss:	127.8 dB

File Name:HUD-4 (READ)
Counter: 2809 -- 2872

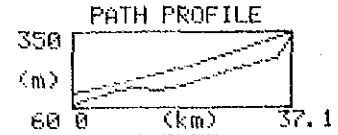
Figure A-VI (6/7) PATH PROFILE

Radius : 1.3333

AL BULAYH--BAB AL FAJJ

Ground Hght 1:	325.0 m
Ground Hght 2:	240.0 m
Path Distance:	40.2 km
Frequency:	850 MHz
Ant Height 1:	20.0 m
Ant Height 2:	19.0 m
Critc Point:	22.8 km
Ridge Height:	250.0 m
Tree Height:	3.0 m
Fresnel Dip:	59.0 m
Clearance:	19.9 m
Clearance Fact:	0.3
Free Spc Loss:	123.1 dB
Ridge Loss:	2.0 dB
Total Loss:	125.2 dB

File Name:HUD-6 (READ)
Counter: 2934 -- 2995



Radius : 1.3333

AL ABBASI--AL BULAYH

Ground Hght 1:	60.0 m
Ground Hght 2:	325.0 m
Path Distance:	37.1 km
Frequency:	850 MHz
Ant Height 1:	60.0 m
Ant Height 2:	19.0 m
Critc Point:	8.1 km
Ridge Height:	130.0 m
Tree Height:	3.0 m
Fresnel Dip:	47.3 m
Clearance:	22.1 m
Clearance Fact:	0.5
Free Spc Loss:	122.4 dB
Ridge Loss:	0.7 dB
Total Loss:	123.1 dB

File Name:HUD-5 (READ)
Counter: 2872 -- 2934

Figure A-VI (7/7) PATH PROFILE

ANNEX-Ⅶ METEOROLOGICAL DATA

Solar Radiation
Sunshine Duration
Wind Speed
Temperature
Relative Humidity
Precipitation