

付録－8 PC－SC間所要地上回線数

市外交換機のタイプと伝送手段(メダ総括局)

SC	PC	Area Code	Trunk SM. Type				Remarks		
			1989	1994	1999	Media			
MEDAN	(MEDAN)	061	'77	A/D	D	D	T/S	MW/SBB existing	
	TEBING TINGGI	0621	'80	A	A	D	T	Spur Route existing	
	PEMATANG SIANTAR	0622	'77	A	A	D	T	MW/Spur Route existing	
	KISARAN	0623	'80	A	A	D	T	Spur Route existing	
	RANTAU PRAPAT	0624	('77)	D	D	D	T	DECF Remote Pro.	
	PARPAT	0625	'80	A	A	D	T	Spur Route existing	
	PANGURURAN	0626	('66)	D	D	D	S	100 SBK Pro.	
	SIDIKALANG	0627	'79	A	A	D	T	DECF Remote Pro.	
	KABANJAH	0628	'79	A	A	D	T	DECF Remote Pro.	
	KOTA CAHE	0629	('66)	(M)	D	D	S	SBK existing	
	PANGKALAN BRANAO	0630	'86	A	A	D	T	MW existing	
	SIBOLGA	(SIBOLGA)	0631	'81	A	A	D	T	MW existing
		BALIGE	0632	('52)	D	D	D	S	100 SBK Pro.
		TARUTUNG	0633	'87	A	A	D	T	DECF Remote Pro.
PADANG SIDEMPUAN		0634	('63)	D	D	D	T	DECF Remote Pro.	
PANYABUNGAN		0636	('66)	D	D	D	S	100 SBK Pro.	
GUNUNG SITOLI		0639	'87	D	D	D	S	SBK existing	
LANGSA		0641	'82	A	A	D	T	MW existing	
LHOKSEUMAWE	BLANGKEDJEREN	0642	('77)	D	D	D	S	100 SBK Pro.	
	TAKENON	0643	('81)	(M)	D	D	S	SBK existing	
	BIREUN	0644	'81	A	A	D	T	MW existing	
	(LHOKSEUMAWE)	0645	'81	A	A	D	T	MW existing	
	IDI	0646	'80	A	A	D	T	MW existing	
	(BANDA ACEH)	0651	'81	A	A	D	T/S	MW/SBB existing	
	SABANG	0652	'80	A	A	D	T	MW existing	
	SIGLI	0653	'80	A	A	D	T	MW existing	
	CALANG	0654	('54)	(M)	D	D	(T)	(Non-transmission media)	
	MEULABOH	0655	'87	A	A	D	S	SBK existing	
TAPAKTUAN	0656	('54)	(M)	D	D	S	SBK existing		
BANDA ACEH	BAKONGAN	0657	('54)	(M)	D	D	S	100 SBK Pro.	
	SINGKIL	0658	('66)	(M)	D	D	S	SBK existing	
	SIMASANG	0650	(?)	(M)	D	D	S	SBK existing	

Note A : Analogue Automatic Switch

D : Digital Switch

(M) : Manual Switch

T : Terrestrial Transmission System

S : Satellite Transmission System

市外交換機のタイプと伝送手段(パレンバン総括局)

SC	PC	Area Service				Trans. Media	Remarks	
		Code	In	1989	1994			
PALEMBANG	(PALEMBANG)	0711	'66	D	D	T/S	MW/SBS existing	
	KAYU AGUNG	0712	(?)	(M)	D	(T)	(Non-transmission media)	
	PRABUMULIH	0713	(59)	D	D	T	DECF Remote Pro.	
	SEKAYU	0714	(?)	(M)	D	T	DECF Remote Pro. (Additional)	
	HERTOK	0716	-	D	D	S	100 SBK Pro.	
	PANGKAL PINANG	0717	'81	A	A	(T)	(SBS existing)	
	KCSA	0718	-	-	-	S	100 SBK Pro.	
	TANJUNG PANDAN	0719	(?)	(M)	D	S	SBK existing	
	(TANJUNG KARANG)	0721	'74	A	A	T/S	MW/SBS existing	
	KOTAGUNG	0722	(?)	D	D	S	100 SBK Pro.	
TANJUNG KARANG	KULU	0723	(?)	(M)	D	S	SBK existing	
	KOTABUMI	0724	(?)	D	D	T	DECF Remote Pro.	
	METRO	0725	'81	A	A	T	MW existing	
	(LAHAT)	0731	'81	A	D	T	MW existing	
LAHAT	CURUP	0732	(?)	D	D	T	DECF Remote Pro.	
	LUBUK LINGGAU	0733	(85)	D	D	T	DECF Remote Pro.	
	MUARA ENIM	0734	'84	(M)	D	T	French Pro.	
	BATURAJA	0735	(58)	D	D	T	MW existing	
	BENGKULU	0736	'80	A	A	T	French Pro. (SBS existing)	
	MUARA AMAN	0737	(?)	D	D	S	100 SBK Pro.	
	MAINA	0739	(?)	(M)	D	S	SBK existing	
	BARAU	0730	(?)	(M)	D	S	100 SBK Pro.	
	JAMBI	(JAMBI)	0741	'76	A/D	D	T/S	MW/SBS existing
		KUALA TUNGKAL	0742	(?)	D	D	S	SBK existing
BANGKO		0746	(?)	D	D	S	100 SBK Pro.	
MARA BUNGO		0747	(?)	(M)	D	S	SBK existing	
SUNGAIPEHUH		0748	(?)	(M)	D	S	SBK existing	
(PADANG)		0751	'82	A/D	A/D	T/S	MW/SBS existing	
PADANG	BUKITTINGGI	0752	'76	A/D	D	T	MW existing	
	LURUK SIKAPING	0753	(71)	D	D	S	100 SBK Pro.	
	SILUJUNG	0754	(57)	D	D	S	100 SBK Pro.	
	SOLOK	0755	(?)	D	D	T	DECF Remote Pro.	
	PALINAN	0756	(82)	(M)	D	S	SBK existing	
	MUARA SIBERUT	0759	(82)	(M)	D	S	SBK existing	
	PAGANBARU	(PAGANBARU)	0761	'78	A/D	D	T/S	French Pro./SBS existing
		SANGKILANG	0762	(77)	D	D	T	French Pro. (100 SBK Pro.)
		DUMAI	0765	'80	A	A	T	?? Pro. (SBK existing)
		BENGKALIS	0766	(?)	(M)	D	S	SBK existing
BAGAN SIAPATI		0767	'84	A	A	T	DECF Remote Pro. (Additional)	
TEMBILAHAN		0768	(71)	(M)	D	S	SBK existing	
BENGAT		0769	(71)	(M)	D	S	SBK existing	
TELUK KUMANTAN		0760	(73)	D	D	S	100 SBK Pro.	
TANJUNG PINANG		0771	'90	A	A	T	French Pro.	
PAUAI (P. Natuna)		0773	(?)	(M)	D	S	SBK existing	
BATAM SEKUPANG	DAGO SINGKEP	0776	(?)	(M)	D	S	SBK existing	
	T. B. KALININ	0777	?	A	A	T	French Pro. (SBK existing)	
	GATAM SEKUPANG	0778	?	D	D	T/S	French Pro./SBS existing	
	TANJUNG BATU	0779	(?)	(M)	D	S	SBK existing	
	SELAT PANJANG	0770	(?)	A	A	T	French Pro.	

P C - S C 間所要地上回線数 (WITEL I)

SC Area	FC Area	End Of REPELITA-V				End Of REPELITA-VI				End Of REPELITA-VII						
		Capacity	(D.A.) Traffic	Circuit	Capacity	(D.A.) Traffic	Circuit	Capacity	(D.A.) Traffic	Circuit	Capacity	(D.A.) Traffic	Circuit			
	MDN	123,006	(200)	680.23	J	222,400	(350)	1265.46	J	538,400	(550)	1949.19	J	538,400	(550)	1949.19
	TET	3,180	(200)	17.59	27x2	5,730	(350)	32.61	45x2	8,730	(550)	50.29	64x2	8,730	(550)	50.29
	PRS	14,270	(200)	78.92	95x2	25,850	(350)	147.09	167x2	39,250	(550)	226.08	248x2	39,250	(550)	226.08
	KIS	4,100	(260)	22.68	33x2	7,400	(500)	42.11	55x2	11,200	(700)	64.52	80x2	11,200	(700)	64.52
	RAP	3,420	(260)	18.92	29x2	6,190	(500)	35.23	48x2	9,490	(700)	54.67	69x2	9,490	(700)	54.67
	PPT	1,000	(200)	5.53	12x2	1,800	(400)	10.25	18x2	2,800	(600)	16.13	26x2	2,800	(600)	16.13
	PCR	0	(200)	0	0	0	(400)	0	0	0	(600)	0	0	0	(600)	0
	SDK	1,000	(200)	5.53	12x2	1,800	(400)	10.25	18x2	2,800	(600)	16.13	26x2	2,800	(600)	16.13
	XBJ	2,650	(1,600)	14.66	24x2	4,750	(2,900)	27.03	38x2	7,250	(4,400)	41.76	55x2	7,250	(4,400)	41.76
	KTN	0	(1,600)	0	0	0	(2,900)	0	0	0	(4,400)	0	0	0	(4,400)	0
	PBD	1,250	(600)	6.92	14x2	2,250	(1,100)	12.69	21x2	3,430	(1,700)	19.76	30x2	3,430	(1,700)	19.76
	Sub-Total	133,876	(2,860)	5.53 [mE]		278,150	(5,250)	5.69 [mE]		423,350	(7,950)	5.76 [mE]		423,350	(7,950)	5.76 [mE]
	S86	2,050	(740)	20.11	J	3,750	(1,350)	37.84	J	5,650	(2,050)	57.86	J	5,650	(2,050)	57.86
	BLG	0	(740)	0	0	0	(1,350)	0	0	0	(2,050)	0	0	0	(2,050)	0
	TRT	800	(740)	7.85	15x2	1,400	(1,350)	14.13	23x2	2,200	(2,050)	22.53	33x2	2,200	(2,050)	22.53
	PSF	2,030	(740)	19.92	30x2	3,650	(1,350)	36.83	49x2	5,550	(2,050)	56.84	71x2	5,550	(2,050)	56.84
	PTB	0	(250)	0	0	0	(450)	0	0	0	(650)	0	0	0	(650)	0
	GST	0	(1,000)	0	0	0	(1,800)	0	0	0	(2,800)	0	0	0	(2,800)	0
	Sub-Total	4,880	(1,990)	9.81 [mE]		8,800	(3,600)	10.09 [mE]		13,400	(5,500)	10.24 [mE]		13,400	(5,500)	10.24 [mE]
	LSM	2,700	(200)	35.62	48x2	4,000	(300)	54.24	68x2	5,600	(400)	77.06	93x2	5,600	(400)	77.06
	BLK	0	(200)	0	0	0	(300)	0	0	0	(400)	0	0	0	(400)	0
	TRN	0	(1,000)	0	0	0	(1,500)	0	0	0	(2,100)	0	0	0	(2,100)	0
	BTR	1,650	(1,000)	21.77	32x2	2,500	(1,500)	33.90	46x2	3,400	(2,100)	46.79	60x2	3,400	(2,100)	46.79
	LSM	10,400	(1,000)	139.82	J	15,800	(1,500)	214.25	J	21,900	(2,100)	301.35	J	21,900	(2,100)	301.35
	ID	400	(1,000)	5.28	12x2	600	(200)	8.14	16x2	800	(300)	11.01	19x2	800	(300)	11.01
	Sub-Total	15,350	(1,200)	13.19 [mE]		22,900	(1,200)	13.56 [mE]		31,700	(1,200)	13.76 [mE]		31,700	(1,200)	13.76 [mE]
	BNA	10,020	(400)	64.23	J	18,370	(750)	121.43	J	28,220	(1,100)	189.08	J	28,220	(1,100)	189.08
	SAB	2,400	(400)	15.39	25x2	4,400	(750)	29.09	41x2	6,700	(1,100)	44.89	56x2	6,700	(1,100)	44.89
	SGI	1,400	(400)	8.98	17x2	2,600	(750)	17.19	27x2	4,000	(1,100)	26.80	38x2	4,000	(1,100)	26.80
	CAG	100	(996)	0.65	4x2	200	(1,846)	1.33	5x2	300	(2,646)	2.01	7x2	300	(2,646)	2.01
	M80	0	(760)	0	0	0	(1,350)	0	0	0	(2,100)	0	0	0	(2,100)	0
	ITN	0	(30)	0	0	0	(80)	0	0	0	(130)	0	0	0	(130)	0
	BAK	0	(100)	0	0	0	(200)	0	0	0	(300)	0	0	0	(300)	0
	SKL	0	(100)	0	0	0	(200)	0	0	0	(300)	0	0	0	(300)	0
	SNB	0	(100)	0	0	0	(200)	0	0	0	(300)	0	0	0	(300)	0
	Sub-Total	13,920	(2,386)	6.41 [mE]		25,570	(4,426)	6.61 [mE]		39,220	(6,776)	6.70 [mE]		39,220	(6,776)	6.70 [mE]

P C - S C 間所要地上回線数 (WITEL II)

SC	PC	End Of REPELITA-V				End Of REPELITA-VI				End Of REPELITA-VII			
		Area	Capacity	(O.A) Traffic	Circuit	Capacity	(D.A) Traffic	Circuit	Capacity	(D.A) Traffic	Circuit	Capacity	(D.A) Traffic
PD	PD	21,000	183.33	J	35,200	316.45	J	51,800	472.42	J			
	BKT	8,040	70.19	86x2	13,500	121.37	140x2	19,850	181.04	202x2			
	LBS	0	0	0	0	0	0	0	0	0			
	SJJ	0	0	0	0	0	0	0	0	0			
	SLK	2,000	17.46	27x2	3,350	30.12	42x2	4,900	44.69	58x2			
	PAI	0	0	0	0	0	0	0	0	0			
	MBT	0	0	0	0	0	0	0	0	0			
	Sub-Total	31,040	8.73 [mE]		52,050	8.99 [mE]		76,550	9.12 [mE]				
PBR	PBR	13,000	83.33	J	23,100	152.70	J	34,900	233.83	J			
	B6K	400	2.57	8x2	700	4.63	11x2	1,100	7.37	15x2			
	DWI	3,000	19.23	29x2	5,300	35.04	47x2	8,000	53.60	68x2			
	BS	0	0	0	0	0	0	0	0	0			
	BAG	1,036	6.64	14x2	1,896	12.54	21x2	2,796	18.74	29x2			
	TBN	0	0	0	0	0	0	0	0	0			
	PGT	0	0	0	0	0	0	0	0	0			
	TLK	0	0	0	0	0	0	0	0	0			
	Sub-Total	17,436	6.41 [mE]		30,996	6.61 [mE]		46,796	6.70 [mE]				
SKN	TPI	5,000	32.05	51x2	9,100	60.16	75x2	13,900	93.13	110x2			
	RAI	0	0	0	0	0	0	0	0	0			
	DBS	0	0	0	0	0	0	0	0	0			
	TBK	1,256	8.05	15x2	2,256	14.92	24x2	3,456	23.16	34x2			
	SKN	5,000	32.05	J	9,200	60.82	J	14,200	95.14	J			
	TJT	0	0	0	0	0	0	0	0	0			
	SLP	1,000	6.41	13x2	1,800	11.90	20x2	2,700	18.09	28x2			
	Sub-Total	12,256	6.41 [mE]		22,356	6.61 [mE]		34,256	6.70 [mE]				

P C - S C 間所 要地上回線数 (WITEL III)

SC	PC	End of REPELITA-V				End of REPELITA-VI				End of REPELITA-VII			
		Area	Capacity	(D.A) Traffic	Circuit	Capacity	(D.A) Traffic	Circuit	Capacity	(D.A) Traffic	Circuit	Capacity	(D.A) Traffic
P6	P6	44,020	553.48	J	72,020	594.89	J	104,720	877.56	J	104,720	877.56	J
	KAY	700	5.63	12x2	1,180	9.75	18x2	1,680	14.08	23x2	1,680	14.08	23x2
	PRN	600	4.82	11x2	1,000	8.26	16x2	1,400	11.74	20x2	1,400	11.74	20x2
	SKY	600	4.82	11x2	1,000	8.26	16x2	1,400	11.74	20x2	1,400	11.74	20x2
	MTK	0	0	0	0	0	0	0	0	0	0	0	0
	PGP	5,600	44.97	58x2	9,200	76.00	92x2	13,400	112.30	130x2	13,400	112.30	130x2
	KBA	0	0	0	0	0	0	0	0	0	0	0	0
	TJN	0	0	0	0	0	0	0	0	0	0	0	0
	Sub-Total	51,520	8.03 [mE]		84,400	8.26 [mE]		122,600	8.38 [mE]		122,600	8.38 [mE]	
TJK	TJK	35,050	305.99	J	54,350	488.61	J	76,750	699.96	J	76,750	699.96	J
	KTA	0	0	0	0	0	0	0	0	0	0	0	0
	KUR	0	0	0	0	0	0	0	0	0	0	0	0
	KB	1,200	10.48	19x2	1,800	16.19	26x2	2,600	23.72	34x2	2,600	23.72	34x2
	MET	4,000	34.92	47x2	6,200	55.74	70x2	8,750	79.80	96x2	8,750	79.80	96x2
	Sub-Total	40,250	8.73 [mE]		62,350	8.99 [mE]		88,100	9.12 [mE]		88,100	9.12 [mE]	
LT	LT	3,013	20.43	J	5,413	37.35	J	8,113	57.28	J	8,113	57.28	J
	CRP	1,000	6.78	14x2	1,800	12.55	21x2	2,800	19.77	30x2	2,800	19.77	30x2
	LLG	4,200	28.48	40x2	7,500	52.28	66x2	11,400	80.49	97x2	11,400	80.49	97x2
	MAE	2,700	18.51	28x2	4,800	33.46	46x2	7,300	51.54	66x2	7,300	51.54	66x2
	BTA	1,400	9.50	17x2	2,500	17.43	27x2	3,800	26.83	38x2	3,800	26.83	38x2
	BN	7,100	48.14	62x2	12,800	89.22	106x2	19,400	136.97	156x2	19,400	136.97	156x2
	MAW	0	0	0	0	0	0	0	0	0	0	0	0
	MNA	0	0	0	0	0	0	0	0	0	0	0	0
	BRH	0	0	0	0	0	0	0	0	0	0	0	0
	Sub-Total	19,413	6.78 [mE]		34,813	6.96 [mE]		52,813	7.06 [mE]		52,813	7.06 [mE]	
J8	J8	12,000	81.36	J	21,600	150.56	J	32,800	231.57	J	32,800	231.57	J
	KTL	0	0	0	0	0	0	0	0	0	0	0	0
	BKO	0	0	0	0	0	0	0	0	0	0	0	0
	MAB	0	0	0	0	0	0	0	0	0	0	0	0
	SPN	0	0	0	0	0	0	0	0	0	0	0	0
	Sub-Total	12,000	6.78 [mE]		21,600	6.97 [mE]		32,800	7.06 [mE]		32,800	7.06 [mE]	

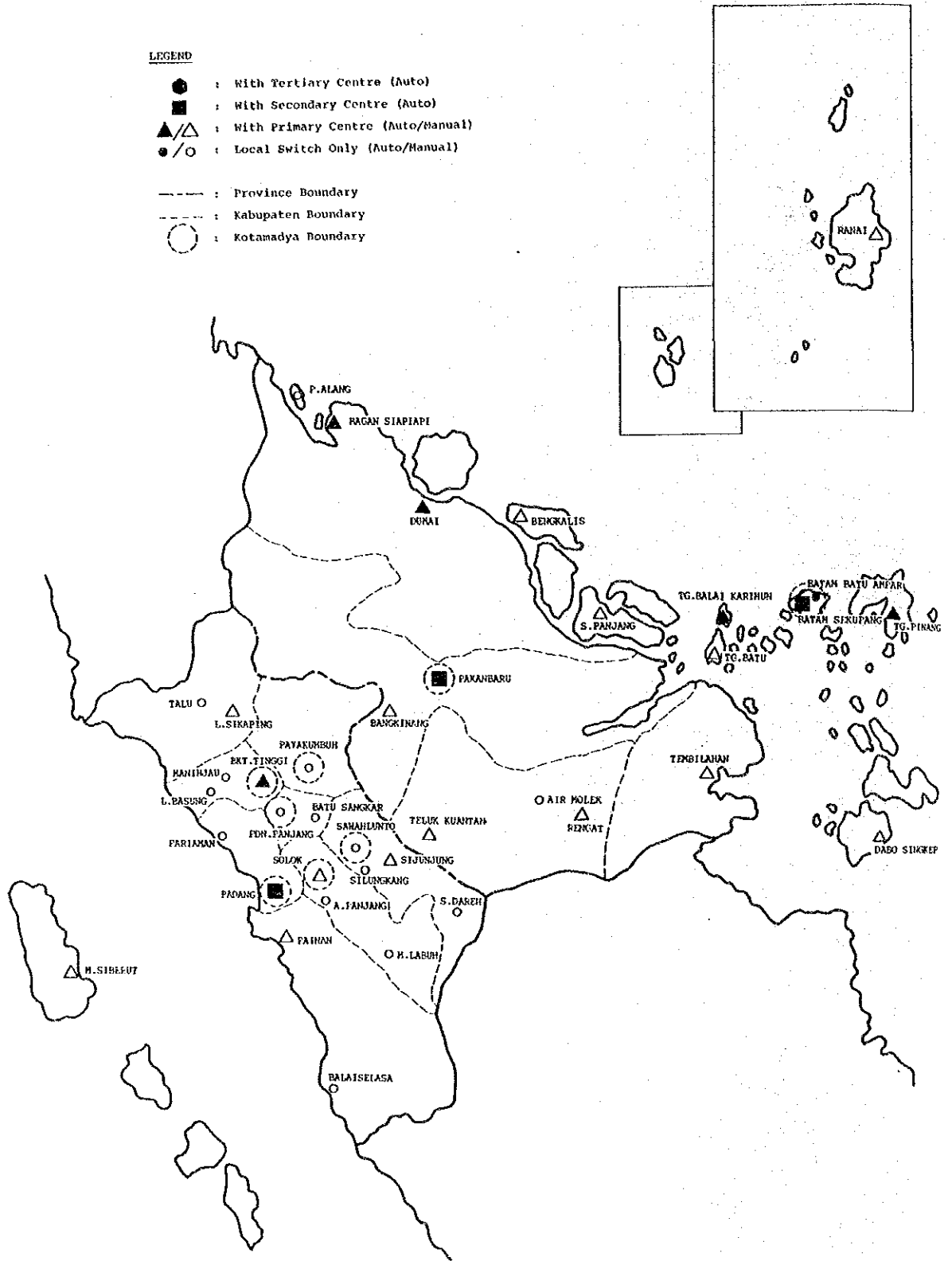
付録－9 スマトラ島内交換局配置図



交換局配置図 (WITEL I)

LEGEND

- : With Tertiary Centre (Auto)
- : With Secondary Centre (Auto)
- ▲/△ : With Primary Centre (Auto/Manual)
- /○ : Local Switch Only (Auto/Manual)
- : Province Boundary
- - - : Kabupaten Boundary
- : Kotamadya Boundary

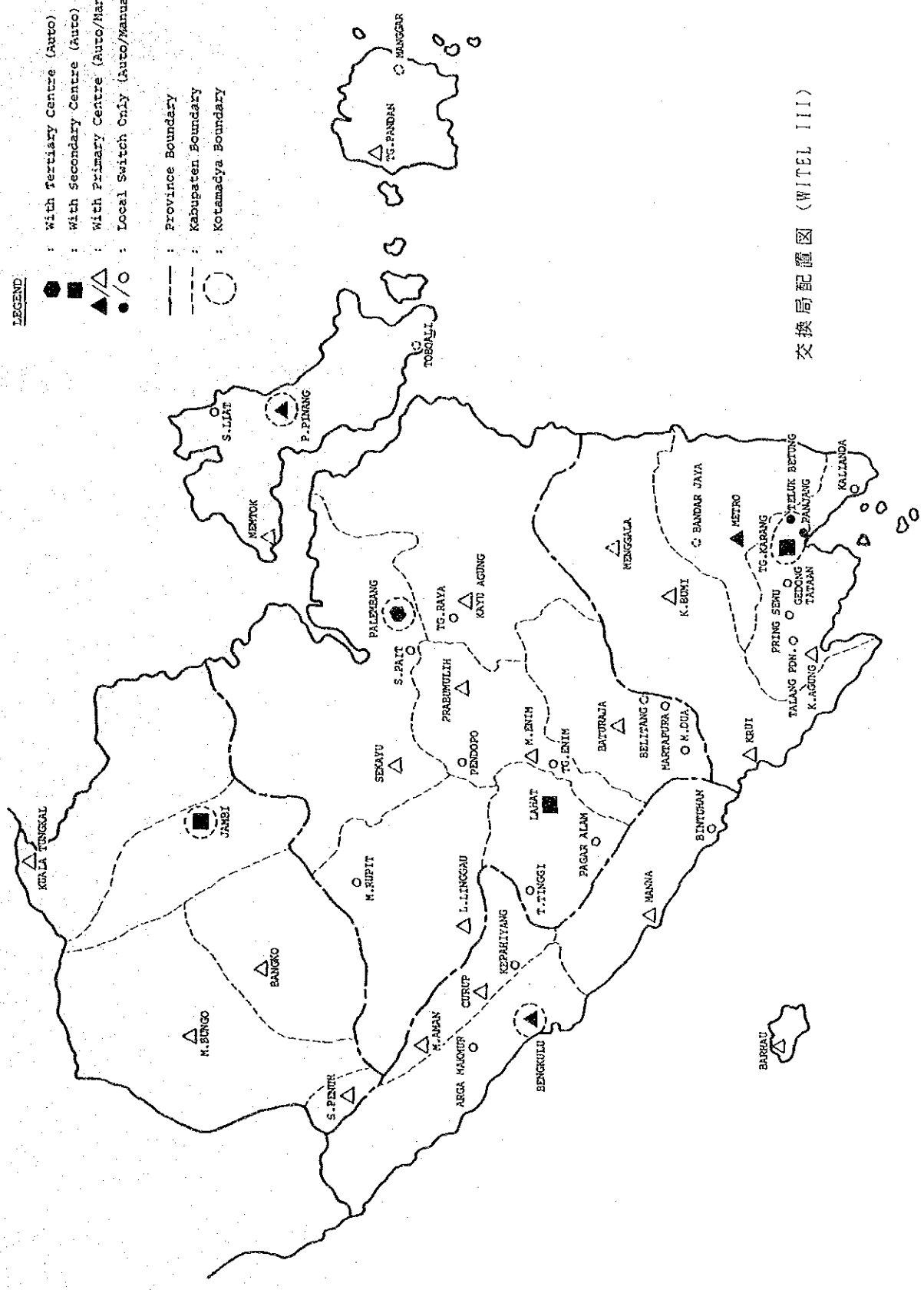


交換局配置図 (WITEL II)

LEGEND

- ▲ : With Tertiary Centre (Auto)
- : With Secondary Centre (Auto)
- ▲/△ : With Primary Centre (Auto/Manual)
- /○ : Local Switch Only (Auto/Manual)

- - - : Province Boundary
- - - : Kabupaten Boundary
- : Kotamadya Boundary



交換局配置図 (WITEL III)

付録ー10 スマトラ島内加入者交換局リスト

S. C. エリア別加入者交換局リスト (WITBL I) (1/5)

No.	Exchange Name	Type	Area Code	Existing Capacity			No. of Sub. Lists	PELITA-IV Capacity (1989)			Remarks	REPELITA-V Capacity (1994)			Exchange Total	PC Area Total	KAB/KODYA Code			
				Waiting				Manual				Manual						Auto		
				Auto	Manual	Sub.		Auto	Manual	Auto		Manual	Auto	Manual				Auto	Manual	Auto
1	MEDAN-I	UR-49a	061	8,000													1275			
2	MEDAN-II	ARF-102	061	7,000													1275			
3	MEDAN-III	PC-10C	061	10,000													1275			
4	MEDAN-IV	PC-10C	061	10,000		28,455	19,943										1275			
5	MEDAN-V	ENSJ	061														1275			
6	MEDAN PILAU BRAYAN	ENSJ	061														1275			
7	MEDAN SUKA RAMAI	ENSJ	061														1275			
8	MEDAN PADANG BULAN	ENSJ	061														1275			
9	MEDAN CINTA DAMAI	ENSJ	061														1275			
10	MEDAN SIMPANG LIMUN	ENSJ	061														1275			
11	MEDAN TANJUNG PULIA	ENSJ	061														1275			
12	BELAWAN-I	PC-1000C	0619	1,000		825	296										1275			
13	BELAWAN-II	ENSJ	0619														1275			
14	LUBUK PAKAM	ABK-206	0619			400	284	3									1210			
15	LUBUK PAKAM	ENSJ	0619														1210			
16	BINJAI-I	PC-1000C	0619	1,000			959	387									1276			
17	BINJAI-II	EL-BE	0619			6	5	0									1276			
18	BINJAI-III	ENSJ	0619														1276			
19	TEBING TINGGI	PC-1000C	0621	1,000			952	31									1276			
20	GALANG	ABH-1610	0621			100	52	0									1276			
21	SUNGAI RANPAH	ABK-206	0621			80	36	0									1276			
22	DOLOK MERANGIR	OSM	0621			70	18	0									1276			
23	DOLOK MERANGIR	ENSJ	0621														1276			
24	PEMATANG STANTAR-I	PC-1000C	0622	4,000			3,939	247									1276			
25	PEMATANG STANTAR-II	ENSJ	0622														1276			
26	P.S. RANJUNG MERAH	ENSJ	0622														1276			
27	PERLAWAN	ABK-205	0622			70	19	0									1207			
28	PERDAGANGAN	ABK-206	0622			200	100	1									1207			
29	INALUM / NEW TOWN	N-230L	0622	1,000			218	0									1206			
30	KISARAN	ABK-205	0623			80	26	0									1206			
31	KISARAN	PC-1000C	0623	1,000			685	41									1206			
32	TANJUNG BALAI	OSM	0623			570	567	17									1206			
33	TANJUNG BALAI	ENSJ	0623														1206			
34	LABUHAN RUKU	ABH-1610	0623			50	31	0									1272			
35	PULAU RAKYAT	ABH-1602	0623			50	18	0									1206			
36	RANTAU PRAPAT	ABK-2022	0624			600	583	108									1206			
37	RANTAU PRAPAT	ENSJ	0624														1206			
38	AEKKANGPAN	ABK-205	0624			100	74	0									1205			
39	AEKKANGPAN	ENSJ	0624														1205			
40	KOTA PINANG	ABK-205	0624			60	46	0									1205			
41	KOTA PINANG	ENSJ	0624														1205			

S C エリア別加入者交換局リスト (WITEL I) (2/5)

No.	Exchange Name	Type	Area Code	Existing Capacity			No. of Sub.	Waiting Lists	PELITA-IV Capacity (1989)			Remarks	REPELITA-V Capacity (1994)			Exchange Total	PC Area Total	KAB/KOTA Code
				Auto	Manual	Auto			Manual	Auto	Manual		Auto	Manual				
42	AEK NABARA	ABH-1610	0624	100	0	54	0	0	0	100		0	0	100	100	1205		
43	LABUAN BILIK	ABK-205	0624	60	0	29	0	0	0	60		0	0	60	(60)	1205		
44	NEGERIBARU	ABH-1610	0624	30	0	18	0	0	0	30		0	0	30	30	1205		
45	LINGGA PAYUNG	ABH-1610	0624	50	0	16	0	0	0	50		0	0	50	50	1205		
46	MERBAU	ABK-205	0624	40	0	21	0	0	0	40		0	0	40	40	1205		
47	PARAPAT	PC-1000C	0625	1,000	0	189	0	1,000	0	0		0	0	1,000	1,000	1207		
48	PANGURURAN	ABH-1610	0626	100	0	50	5	-100	0	0		0	0	0	0	1204		
49	PANGURURAN	ENSJ	0626	400	0	369	6	200	0	200	0 100 SBK (200)	0	0	0	(200)	0	1204	
50	SIDIKALANG	ABK-2021	0627	400	0	569	6	1,000	0	0		0	0	0	0	1208		
51	SIDIKALANG	UR-49a	0627	30	0	7	0	0	0	0		0	0	0	0	1209		
52	KABANJAH-E	UR-49a	0628	1,000	0	596	5	1,000	0	0	0 * REALOKASI from MEDAN (1,000)	0	0	0	1,000	1,000	1208	
53	KABANJAH-E	EL-8E	0628	30	0	7	0	0	0	0		0	0	0	0	1209		
54	KABANJAH-E	ENSJ	0628	400	0	223	8	-400	0	0		0	0	0	0	1209		
55	BERAS TAGI	ABK-206	0628	400	0	223	8	-400	0	0		1000	0	0	2,000	0	1209	
56	BERAS TAGI	ENSJ	0628	50	0	22	2	600	0	0	0 Ph-IV(600)	0	0	0	600	0	1209	
57	TIGA BINANGA	ABH-1610	0628	300	0	162	0	0	0	0		0	0	50	50	1209		
58	KOTA CANE	ABK-2011	0629	50	0	38	23	0	0	0		-500	0	0	50	2,650	1102	
59	KOTA CANE	ENSJ	0629	300	0	162	0	0	0	0		1600	0	0	(1,600)	0	1102	
60	PANGKALAN BRANDAN	UR-49a	0620	1,000	0	577	?	1,000	0	0		0	0	0	0	1,000	1211	
61	KUALA	ABH-1610	0620	50	0	38	23	-50	0	0		0	0	0	0	0	1211	
62	KUALA	ENSJ	0620	50	0	34	2	200	0	200	0 100 SBK (200)	0	0	0	(200)	0	1211	
63	PANGKALAN SISU	ABH-1602	0620	200	0	90	104	0	0	0		0	0	50	50	1211		
64	TANJUNGPURA	ABK-206	0620	200	0	90	104	0	0	200		0	0	200	200	1211		
65	STABAT	ENSJ	0620	400	0	104	104	400	0	400	0 100 SBK (400)	0	400	0	(400)	1,250	1211	
TOTAL (MEDAN)				47000	4296	40385	21229	86000	-2750	135000	1546	22600	-410	155,600	1,136	153,876	153,876	
										134546				156,756		2,860		

S C エリア別加入者交換局リスト (WITEL I) (3/5)

No.	Exchange Name	Type	Area Code	Existing Capacity		No. of Sub.	Waiting Lists	PELITA-TV Capacity (1989)		Remarks	REFELITA-V Capacity (1994)		Exchange PC Area		KAB/ KODYA Code	
				Auto	Manual			Auto	Manual		Auto	Manual	Total	Total		
66	SIBOLGA-I	PC-1080C	0631	2,000	0	1,005	43	2,000	0		2,000	0	0	0	1271	
67	SIBOLGA-II	EL-9E	0631	50	0	8	0	0	50		0	50	2,050	2,050	1271	
68	BALIGE	ABK-205	0632	140	0	114	7	0	0		0	0	0	0	1204	
69	BALIGE	ENS	0632	400	0	140	1	400	0	100 SBK (400)	400	0	(400)	(400)	1204	
70	DOLOK SANGGUL	ABK-205	0632	140	0	104	1	0	140		0	140	(140)	(140)	1204	
71	PORSEA	ABK-205	0632	100	0	85	2	0	100		0	100	(100)	(100)	1204	
72	SIBORONG BOKONG	ABH-162	0632	100	0	79	2	0	100		0	100	(100)	(100)	1204	
73	TARUTUNG	ABK-205	0633	250	0	235	7	0	0		0	0	0	0	1204	
74	TARUTUNG	UR-49	0633	800	0	553	12	800	0		800	0	800	800	1204	
75	PADANG SIDEMPUAN	ABK-205	0634	600	0	553	12	0	0		0	0	0	0	1202	
76	PADANG SIDEMPUAN	ENS	0634	1,000	0	20	1	1,000	0	PH-VI(1,000)	1,000	0	2,000	2,000	1202	
77	BAYANG TORU	ABH-162	0634	30	0	81	14	0	30		0	30	30	2,050	1202	
78	PANTABUNGAN	ABH-162	0636	100	0	81	14	0	0		0	0	0	0	1202	
79	PANTABUNGAN	ENS	0636	200	0	20	1	200	0	100 SBK (200)	200	0	(200)	(200)	1202	
80	KOTANDAPAN	ABH-162	0636	50	0	395	22	0	50		0	50	(50)	(50)	1202	
81	GUNUNG SITOLI	ABK-205	0639	600	0	580	22	0	0		0	0	0	0	1201	
82	GUNUNG SITOLI	ENS	0639	1,000	0	1,000	0	1,000	0		1,000	0	(1,000)	(1,000)	1201	
TOTAL (SIBOLGA)				3800	2160	2699	112	1600	-1690		1000	0	6,400	4,880	4,880	
												470	6,870	1,990		

S C エリア別加入者交換局リスト (WITEL I) (4/5)

No.	Exchange Name	Type	Area Code	Existing Capacity		No. of Waiting Lists		PELITA-IV Capacity (1989)		Remarks	REPELITA-V Capacity (1994)		Exchange PC Area Total		KAB/ KODYA Code	
				Auto	Manual	Sub.	Lists	Auto	Manual		Auto	Manual	Auto	Manual		Auto
83	LANGSA	SMD-F6a	0641	800		788	112	800	0		1,200	2,000	0	2,000	1105	
84	KUALA STIMPANG	ARF-102	0641	400		332	9	400	0		200	600	0	600	1103	
85	PEUREULAK	ABK-205	0641	100		52	0	0	100			0	100	130	2,700	
86	BLANGKEJEREN	ABH-1610	0642	50		13	0		0	-50		0	0	0	1102	
87	BLANGKEJEREN	SMSD	0642	500		244	33	200	0	100 SBK (200)		200	0	(200)	0	
88	TAKENON	ABK-206	0643	400		324	317	400	0		1000	1,000	0	(1,000)	0	
89	BIREUN-I	ARF-102	0644	400		149	15	400	0			400	0	0	1108	
90	BIREUN-II	SMSD	0644	200		45	0	1,000	0	PH-V8(1,000)		1,000	0	1,400	1108	
91	WATANGLUMPANG DUA	ABK-206	0644	50		1,541	417	2,000	0			200	0	200	1108	
92	SAWALANGA	ARF-102	0645	2,000		205	10	2,000	0			0	50	50	1,650	
93	LHOXSEUMAWI-I	SMSD	0645	400		169	20	2,000	0	PH-VI(2,000)		2,000	0	10,000	1108	
94	LHOXSEUMAWI-II	ARF-102	0645	200		127	4	400	0			400	0	400	1108	
95	LHOXSEUMAWI-III	ABK-206	0645	400		127	4	400	0			400	0	200	10,600	
96	LHOXSEUMAWI-IV	ARF-102	0646	400		127	4	400	0			400	0	400	400	
97	PANTOLABU	ARF-102	0646	400		127	4	400	0			400	0	400	400	
98	IDI			4400	1100	3989	937	3200	-50		8400	-500	16,000	550	15,350	
TOTAL (LHOXSEUMAWI)															16,550	1,200

S C エリア別加入者交換局リスト (WITEL I) (5/5)

No.	Exchange Name	Type	Area Code	Existing Capacity			No. of Sub.	Waiting Lists	PELITA-IV Capacity (1989)			Remarks	REPELLITA-V Capacity (1994)			Exchange Total	PC Area Total	KSB/ KODYA Code
				Auto	Manual	Total			Auto	Manual	Total		Auto	Manual	Total			
99	BANDA ACEH -I	ARF-102	0651	3,000		2,590	1,792	4,000		3,000	0		1,000	0	0	0	1171	
100	BANDA ACEH -II	ARF	0651					2,000		4,000	0		1,000	0	0	0	1171	
101	B. A. LHOONGA	EUSD	0651					2,000		2,000	0			0	0	10,000	1171	
102	JANTROI	EUSD	0651					400		400	0			0	0	(400)	1106	
103	SEULTHEIM	ABH-1611	0651	20	10	0	0			0	20			20	20	0	1106	
104	SIBANG-I	ARF-102	0652	400	381	100	100	2,000		400	0			0	0	0	1172	
105	SABANG-II	EUSD	0652					2,000		2,000	0		400	0	0	0	1172	
106	SIGLI	ARF-102	0653	600	425	4	4	600		600	0		400	0	0	1,000	1107	
107	BEUREUNIN	ABH-1611	0653	200	180	0	0	0		0	200			0	200	0	1107	
108	MEUREUDU	ABK-206	0653	200	54	0	0	0		0	200			0	200	0	1107	
109	CALANG	ABH-1611	0654	50	39	0	0	0		0	50			0	50	0	1105	
110	LAWIG	ABH-1610	0654	50	43	0	0	0		0	50			0	50	0	1105	
111	MEULABOH	ABK-205	0655	350	343	4	4	-350		0	0			0	0	0	1105	
112	MEULABOH	MCR	0655	896				896		896	0			0	0	(896)	1105	
113	JEURAM	KELLOS	0655	50	8	0	0	0		0	50			0	50	0	1105	
114	ALUR BILLIE	ABH-1610	0655	50	?	?	?	0		0	50			0	50	0	1105	
115	TAPAKTUAN	ABK-205	0656	240	234	4	4	0		0	240			-240	0	0	1101	
116	TAPAKTUAN	EUSD	0656					0		0	0		600	0	0	(600)	1101	
117	BLANG PIDIE	ABK-205	0656	160	159	11	11	0		0	160			0	160	0	1101	
118	BAXONGAN	ABH-1611	0657	30	23	0	0	0		0	30			0	30	0	1101	
119	SINGKIL	ABJ-10101	0658	100	60	4	4	0		0	100			0	100	0	1101	
120	SINABANG	ABJ-10101	0650	100	95	0	0	0		0	100			0	100	0	1105	
TOTAL (BANDA ACEH)				4,896	1,600	4,644	1919	84,000	-350	13,296	1250		2,000	-240	15,296	1,010	13,920	13,920
										16,306					16,306		2,386	

Total (WITEL I)

60,096 9,156 51,717 24,197 99,200 -4,840 159,296 4,316

34,000 -1,150 153,296 3,166 188,026 188,026 8,436

S C エ リ ア 別 加 入 者 交 換 局 リ ス ト (W I T E L I I) (1 / 3)

No.	Exchange Name	Type	Area Code	Existing Capacity			No. of Sub.	Waiting Lists	PELLITA-IV Capacity (1989)			Remarks	REPELITA-V Capacity (1994)			Exchange Total	PC Area Total	KAS/ KODYA Code	
				Auto	Manual	Total			Auto	Manual	Total		Auto	Manual	Total				
1	PADANG CENTRUM-I	ARF-101/2	0751	8,000	0	8,000	7,174	3,777	2,000	0	2,000	0	4,000	0	0	0	0	1371	
2	PADANG CENTRUM-II	ENSJ	0751	2,000	0	2,000	0	0	2,000	0	2,000	0	4,000	0	0	0	0	1371	
3	PADANG ULA KARANG	ENSJ	0751	3,000	0	3,000	0	0	3,000	0	3,000	0	3,000	0	0	0	0	1371	
4	PADANG BANDAR BOKI	ENSJ	0751	2,000	0	2,000	0	0	2,000	0	2,000	0	2,000	0	0	0	0	1371	
5	PADANG TELUK BAYUR	ENSJ	0751	1,000	0	1,000	0	0	1,000	0	1,000	0	1,000	0	0	0	0	1371	
6	PARIAMAN	ABK-162	0751	400	213	613	28	0	1,000	-400	600	0	1,000	0	0	0	0	1305	
7	PARTAMAN	ENSJ	0751	2,000	0	2,000	1,906	49	1,000	0	1,000	0	2,000	0	0	0	0	1305	
8	EUKITTINGGI	ARF-102	0752	2,000	0	2,000	0	0	2,000	-200	1,800	0	2,000	0	0	0	0	1374	
9	PADANG PANJANG-I	ABK-2021	0752	200	310	510	64	0	1,000	-200	800	0	1,000	0	0	0	0	1374	
10	PADANG PANJANG-II	ABH-2021	0752	200	310	510	64	0	1,000	-200	800	0	1,000	0	0	0	0	1374	
11	PADANG PANJANG	ENSJ	0752	800	781	1,581	91	0	1,000	-800	200	0	1,000	0	0	0	0	1374	
12	PAYAKUMBUH	AKK-515	0752	100	88	188	1	0	1,000	-100	900	0	1,000	0	0	0	0	1376	
13	PAYAKUMBUH	ENSJ	0752	40	32	72	1	0	200	0	200	0	200	0	0	0	0	1376	
14	LUBUK BASUNG	ABK-2021	0752	300	266	566	18	0	200	0	200	0	200	0	0	0	0	1306	
15	LUBUK BASUNG	ENSJ	0752	200	155	355	18	0	400	-200	200	0	400	0	0	0	0	1306	
16	MANinjau	ABK-2021	0752	30	25	55	4	0	200	-30	170	0	200	0	0	0	0	1306	
17	BATU SANGKAR	ABK-2021	0752	200	155	355	18	0	400	-200	200	0	400	0	0	0	0	1304	
18	BATU SANGKAR	ENSJ	0752	200	155	355	18	0	400	-200	200	0	400	0	0	0	0	1304	
19	LUBUK SIKAPING	ABK-2021	0753	30	25	55	4	0	200	-30	170	0	200	0	0	0	0	1308	
20	LUBUK SIKAPING	ENSJ	0753	200	155	355	18	0	400	-200	200	0	400	0	0	0	0	1308	
21	TALU	ABK-2021	0753	200	155	355	18	0	200	-30	170	0	200	0	0	0	0	1308	
22	TALU	ENSJ	0753	200	155	355	18	0	200	-30	170	0	200	0	0	0	0	1308	
23	SIJUNJUNG	ABK-2021	0754	200	129	329	25	0	200	-200	0	0	400	0	0	0	0	1303	
24	SIJUNJUNG	ENSJ	0754	200	129	329	25	0	200	-200	0	0	400	0	0	0	0	1303	
25	SAWAH LUNTO	ABK-2021	0754	200	129	329	25	0	200	-200	0	0	400	0	0	0	0	1303	
26	SAWAH LUNTO	ENSJ	0754	200	129	329	25	0	200	-200	0	0	400	0	0	0	0	1303	
27	SILUNGKANG	ABK-2021	0754	200	162	362	0	0	400	-200	200	0	200	0	0	0	0	1375	
28	SUNGAI DAREH	ABK-2021	0754	200	40	240	3	0	200	-200	0	0	200	0	0	0	0	1375	
29	SUNGAI DAREH	ENSJ	0754	200	40	240	3	0	200	-200	0	0	200	0	0	0	0	1375	
30	SOLOK	ABK	0755	800	727	1,527	149	0	200	-800	-600	0	1,000	0	0	0	0	1303	
31	SOLOK	ENSJ	0755	200	32	232	7	0	1,000	-200	800	0	1,000	0	0	0	0	1372	
32	ALAHAN PANJANG	ABK-2021	0755	200	32	232	7	0	200	-200	0	0	200	0	0	0	0	1302	
33	ALAHAN PANJANG	ENSJ	0755	200	32	232	7	0	200	-200	0	0	200	0	0	0	0	1302	
34	MUARALABUH	ABH-162	0755	200	49	249	5	0	200	-200	0	0	200	0	0	0	0	1302	
35	MUARALABUH	ENSJ	0755	200	49	249	5	0	200	-200	0	0	200	0	0	0	0	1302	
36	PALINAN	ABJ-101	0756	640	156	796	29	0	200	0	200	0	200	0	0	0	0	1301	
37	PALINAN	ENSJ	0756	100	47	147	0	0	200	-100	100	0	1,000	0	0	0	0	1301	
38	BALAISELASA	ABK-162	0756	200	27	227	0	0	200	0	200	0	200	0	0	0	0	1301	
39	BALAISELASA	ENSJ	0756	200	27	227	0	0	200	0	200	0	200	0	0	0	0	1301	
40	MURDA SIBERUT	ABJ-101	0759	50	27	77	0	0	50	0	50	0	50	0	0	0	0	1305	
TOTAL(PADANG)				10,000	5,060	15,060	12,397	4,287	14,200	-5,830	24,200	1,230	25,430	10,800	-940	35,000	290	31,040	1301
																		4,250	

S C エリア別加入者交換局リスト (WITEL II) (2/3)

No.	Exchange Name	Type	Area Code	Existing Capacity		No. of Sub.	Waiting Lists	PELITA-IV Capacity (1989)		Remarks	REPELITA-V Capacity (1994)		Exchange Total		PC Area Total	KAB/ KODYA Code	
				Auto	Manual			Auto	Manual		Auto	Manual	Auto	Manual			
41	PAKANBARU CENTRUM-I	ARF-102	0761	5,000	0	4,070	3,025	5,000	0	0	5,000	0	0	0	0	1471	
42	PAKANBARU CENTRUM-II	EMSD	0761	5,800	0	5,800	0	5,800	0	0 Ph-IV(2,000), Ph-Vb(3,000)	5,800	0	0	0	0	1471	
43	PAKANBARU ARENGKA	EMSD	0761	1,000	0	1,000	0	1,000	0	0 Ph-Vb(1,000)	1,000	0	0	0	0	1471	
44	PAKANBARU RUMBAL	EMSD	0761	2,000	0	2,000	0	2,000	0	0 Ph-Vb(2,000)	2,000	0	13,000	0	13,000	1471	
45	BANGKINANG	ABK-206	0762	200	0	151	0	200	-200	0	0	0	0	0	0	1404	
46	BANGKINANG	EMSD	0762	400	0	400	0	400	0	0 100 SBK(400)	400	0	400	0	400	1404	
47	DUMAI-I	ARF-102	0765	600	0	598	885	600	0	0	600	0	0	0	0	1405	
48	DUMAI-II	EMSD	0765	1,000	0	1,000	0	1,000	0	0 Ph-Vb(1,000)	1,400	0	3,000	0	3,000	1405	
49	BENGKALIS	ABK-206	0766	550	0	413	0	550	0	0	-550	0	0	0	0	1405	
50	BENGKALIS	EMSD	0766	896	0	564	4	896	0	0	1,000	0	(1,000)	0	0	1405	
51	BAGAN SIAPITAPI	MCR11-B-3	0767	40	0	11	0	40	0	0	100	0	996	0	996	1405	
52	PULAU ALANG	ABK-205	0768	800	0	545	180	800	0	0	0	40	40	0	1,036	1405	
53	TEMBILAHAN	ADK-513	0768	200	0	254	0	200	0	0	-800	0	0	0	0	1402	
54	TEMBILAHAN	EMSD	0768	100	0	100	0	100	0	0	2,000	0	(2,000)	0	0	1402	
55	RENGAT-I	ABK-206	0769	200	0	254	0	200	0	0	-200	0	0	0	0	1401	
56	RENGAT-II	ABJ-10101	0769	100	0	100	0	100	0	0	-100	0	0	0	0	1401	
57	RENGAT	EMSD	0769	50	0	59	0	50	-50	0	1,000	0	(1,000)	0	0	1401	
58	AIR MOLEK-I	ABH-1650	0769	80	0	80	0	80	-80	0	0	0	0	0	0	1401	
59	AIR MOLEK-II	ABJ-10101	0769	200	0	200	0	200	0	0 100 SBK(200)	200	0	(200)	0	0	1401	
60	AIR MOLEK	EMSD	0769	200	0	200	0	200	-200	0	0	0	0	0	0	1401	
61	TELUK KUANTAN	ABK-206	0760	200	0	200	0	200	0	0	0	0	0	0	0	1401	
62	TELUK KUANTAN	EMSD	0760	400	0	400	0	400	0	0 100 SBK(400)	400	0	(400)	0	0	1401	
TOTAL (PAKANBARU)				6,496	2,220	6,746	4,094	16,496	-530	1,690	5,500	-1,650	21,996	40	17,436	17,436	4,600
													22,036				

S C エリア別加入者交換局リスト (WITEL II) (3/3)

No.	Exchange Name	Type	Area Code	Existing Capacity			No. of Sub.	Waiting Lists	PELITA-IV Capacity (1989)			Remarks	REPELITA-V Capacity (1994)			PC Area Total	KAB/ KODYA Code		
				Auto	Manual	Total			Auto	Manual	Total		Auto	Manual	Total				
63	TANJUNG PINANG	PC-1000C	0771	2,000		980	1,461	2,000	4,000	0	0	0	PC-1000C(2,000)	1,000	0	5,000	5,000	1403	
64	RANAI (P.Natuna)	ABK-162	0773	200		36	42		0	200				0	200	(200)	0	1403	
65	DABO SINGKEP	ABK-206	0776	200		47	59		0	200				0	200	(200)	0	1403	
66	T.B.KARIMUN	AKD	0777	256		241	111	600	856					400	0	1,256	1,256	1403	
67	BATAM SEKUPANG	EUSD	0778	2,000		552	47	-2,000	0	0	0	0 * REALOKASI from BATAM(600)		0	0	0	0	1472	
68	BATAM SEKUPANG	EUSD	0778					2,000	2,000			0 * REALOKASI to ??? (2,000)		0	0	0	0	1472	
69	BATAM BATU AMPAR	EUSD	0778	1,000		695	254	-1,000	0	0	0	0 * REALOKASI to ??? (1,000)		0	0	0	0	1472	
70	BATAM BATU AMPAR	EUSD	0778					3,000	3,000			0 STO BATAM(3,000)		0	0	3,000	3,000	1472	
71	TANJUNGBATU	ABK-206	0779	200		180	59		0	200				0	200	(200)	0	1403	
72	SELAT PANJANG	ABK-206	0770	400		375	7		-400	0	0			0	0	0	0	1403	
73	SELAT PANJANG	AKD	0770					900	900			0 * REALOKASI from BATAM(900)		100	0	1,000	1,000	1405	
TOTAL (SEKUPANG)				5,256	1,000	3,106	2,040	5,500	-400	10,756	600	11356		1,500	0	12,256	600	12,256	500

Total (WITEL II)

21,752 8,280 22,249 10,421 29,700 -4,760 51,452 3,520

17,800 -2,590 69,252 930 60,732 60,732

70,182 9,450

S C エリア別加入者交換局リスト (WITEL III) (1/4)

No.	Exchange Name	Type	Area Code	Existing Capacity		No. of Waiting Lists		PELITA-IV Capacity (1989)		REPELLITA-V Capacity (1994)		Exchange PC Area		KAB/KODYA Code	
				Auto	Manual	Sub.	Lists	Auto	Manual	Auto	Manual	Auto	Manual		Total
1	PALEMBANG CENTRUM-I	ABK-1012	0711	9,000		8,454	9,776	9,000	0	15,000	0	0	0	1671	
2	PALEMBANG CENTRUM-II	ENSD	0711					10,000	0	0	0	0	0	1671	
3	P6. KERTEN UJUNG	ENSD	0711					2,000	0	15,000	0	0	0	1671	
4	P6. TALANG KELAPA	ENSD	0711					2,000	0	0	0	0	0	1671	
5	P6. SEBERANG ULU	ENSD	0711					3,000	0	0	0	0	0	1671	
6	P6. SUNGAI BUAH	ENSD	0711					3,000	0	0	0	0	0	1671	
7	SUNGAI PALI	ABU-101	0711	20	11	3	3	0	20	0	0	0	0	1671	
8	KAYU AGUNG	ABK-2012	0712	200	127	137	137	0	200	-200	0	20	44,020	1606	
9	KAYU AGUNG		0712					0	0	600	0	0	0	1602	
10	TANJUNG RAYA	ABK-2012	0712	100	36	17	17	0	100	0	0	100	700	1602	
11	PRABUMULIH	ABK-2012	0713	400	272	52	52	0	0	0	0	0	0	1603	
12	PRABUMULIH	ENSD	0713					600	0	0	0	0	600	1603	
13	SEKAYU	ABK-2012	0714	150	144	152	152	0	150	-150	0	0	0	1606	
14	SEKAYU		0714					0	0	600	0	0	0	1606	
15	MENTOK	ENSD	0716					200	0	0	0	0	0	1606	
16	PANGKAL PINRANG	PC-1000C	0717	2,000	1,996	178	178	200	0	1,000	0	0	0	1607	
17	SUNGAI LIAT	ABK-2012	0717	200	107	68	68	2,000	0	0	0	0	0	1607	
18	SUNGAI LIAT	ENSD	0717					600	0	0	0	0	0	1607	
19	TOROGALI	ENSD	0718	400	320	64	64	200	0	0	0	0	0	1607	
20	TANJUNG PANDAN	ABK-206	0719					0	400	-400	0	0	0	1608	
21	TANJUNG PANDAN		0719					0	0	600	0	0	0	1608	
22	MANGGAR	ENSD	0719					200	0	0	0	0	0	1608	
TOTAL (PALEMBANG)				11,000	1,470	11,467	10,447	23,800	-600	54,800	17,800	-750	52,600	120	51,520
													52,720	1,200	

S C エリア別加入者交換局リスト (WITEL III) (2/4)

No.	Exchange Name	Type	Area Code	Existing Capacity		No. of Waiting Lists		PELITA-IV Capacity (1989)		Remarks	REPELITA-V Capacity (1994)		Exchange PC Area		KAS/ KDBYA Code		
				Auto	Manual	Sub.	Lists	Auto	Manual		Auto	Manual	Total	Total			
23	TANJUNG KARANG	ARF-102	0721	4,000		2,940	4,677	600	4,600	0 * STD ARF/ARM (600)	4,600	0	0	0	1871		
24	TG. KARANG KEDATON	ENSU	0721					6,000	6,000	0 Ph-IV(4,000), Ph-VI(2,000)	17,000	0	0	27,600	1871		
25	PANJANG	ARK-521	0721	400		399	97	400	400		400	0	0	0	1871		
26	PANJANG	ENSU	0721					2,000	2,000	0 Ph-IV(1,000), Ph-Vb(1,000)	2,000	0	0	2,400	1871		
27	TELUK BETUNG	ARF-102	0721	5,000		2,484	2,412		5,000		5,000	0	0	5,000	1871		
28	GEDONG TATAAN	ABK-182	0721	50		41	0		0		0	50	0	50	1801		
29	KALIANDA	ABK-215	0721	200		154	30	-200	0		0	0	0	0	1801		
30	KALIANDA	ENSU	0721					200	200	0 100 SBK(200)	200	0	0	(400)	1801		
31	KOTAASUNG	ABK-215	0722			100	55	-100	0		0	0	0	0	1801		
32	KOTAAGUNG	ENSU	0722			200		200	200	0 100 SBK(200)	0	200	0	(200)	1801		
33	TALANGPADANG	ABK-205	0722			200	3		0		0	0	0	0	1801		
34	PRINGSSEWU	ABK-205	0722			200	148	-200	0		0	0	0	0	1801		
35	PRINGSSEWU	ENSU	0722					400	400	0 100 SBK(400)	400	0	0	(400)	0 1801		
36	KRUI	ABK-215	0723			100	52		0		0	0	0	0	1803		
37	KOTASUMI	ABK-205	0724	600		444	124	-600	0		0	0	0	0	1803		
38	KOTASUMI	ENSU	0724					1,000	1,000	0 Ph-IV(1,000)	200	0	0	1,200	1803		
39	METRO-I	PC-1000C	0725	1,000		751	487	2,000	3,000	0 PC-1000C(2,000)	3,000	0	0	0	1802		
40	METRO-II	ENSU	0725					1,000	1,000	0 Ph-Vb(1,000)	1,000	0	0	4,000	1802		
41	SANDAR JAYA	ENSU	0725					200	200	0 100 SBK(200)	200	0	0	(200)	0 1802		
TOTAL (TANJUNG KARANG)				10,400	1,450	7,644	7,953	13,600	-1,100	24,000	350	17,400	0	41,400	350	40,250	40,250
										24,350				41,750		1,500	1,500

S C エリア別加入者交換局リスト (WITEL III) (3/4)

No.	Exchange Name	Type	Area Code	Existing Capacity			No. of Sub.	Waitings Lists	PELITA-IV Capacity (1989)			Remarks	REPELITA-Y			Capacity (1994)			Exchange Total	PC Area Total	KAB/ KODYA Code
				Auto	Manual	Total			Auto	Manual	Total		Auto	Manual	Total	Auto	Manual	Total			
42	LAHAT	PC-1000C	0731	1,213	600	998	137	1,000	2,213	0	600	0	PC 1000C(1,000)	0	0	0	2,213	0	2,213	1604	
43	PAGAR ALAM	ABK-2012	0731		537	137			0	0	0			-600	0	0	0	0	0	1604	
44	PAGAR ALAM	ABK-2012	0731		200	121	11	-200	0	0	0	800		800	0	0	0	0	800	1604	
45	TEBINGTINGGI	ABK-2012	0731		600	548	92	400	400	0	0	100 SBK(400)		0	0	0	0	0	(400)	1604	
46	TEBINGTINGGI	ABK-2012	0731		200	120	102	1,000	1,000	0	200	0	PH-IV(1,000)		0	0	0	0	1,000	1702	
47	CURUP	ABK-2012	0732		200	120	102	1,000	1,000	0	200	0	PH-IV(1,000)		0	0	0	0	1,000	1702	
48	CURUP	ABK-2012	0732		200	120	102	1,000	1,000	0	200	0	PH-IV(1,000)		0	0	0	0	1,000	1702	
49	ARGA MAMUR	ABK-2012	0732		200	120	102	1,000	1,000	0	200	0	PH-IV(1,000)		0	0	0	0	1,000	1702	
50	ARGA MAMUR	ABK-2012	0732		200	120	102	1,000	1,000	0	200	0	PH-IV(1,000)		0	0	0	0	1,000	1702	
51	LUBUK LINGGAU	ABK-503	0733		1,120	915	267	-1,120	0	0	0	0		600	0	0	0	0	(600)	1705	
52	LUBUK LINGGAU	ABK-503	0733		1,120	915	267	-1,120	0	0	0	0		600	0	0	0	0	(600)	1705	
53	LUBUK LINGGAU	ABK-2012	0733		200	59	1	2,000	2,000	0	200	0	PH-IV(2,000)		0	0	0	0	4,000	1605	
54	MUARAPUIT	ABK-2012	0734		400	224	47	400	0	400	0	400		-400	0	0	0	200	200	1605	
55	MUARA ENIM	ABK-2012	0734		200	94	22	0	0	0	0	0		600	0	0	0	0	600	1605	
56	TANJUNG ENIM	ABK-2012	0734		200	94	22	-200	0	0	0	0		600	0	0	0	0	600	1605	
57	TANJUNG ENIM	ABK-2012	0734		200	94	22	-200	0	0	0	0		600	0	0	0	0	600	1605	
58	TANJUNG ENIM	ABK-2012	0734		200	94	22	-200	0	0	0	0		600	0	0	0	0	600	1605	
59	PENDOPO	ABK-2012	0734		100	41	3	1,000	1,000	0	0	0		1,000	0	0	0	0	1,000	1603	
60	BATURAJA	ABK-2012	0735		600	590	117	1,000	1,000	0	100	0	0		1,000	0	0	0	2,000	1603	
61	BATURAJA	ABK-2012	0735		600	590	117	1,000	1,000	0	100	0	0		1,000	0	0	0	2,000	1603	
62	MARTAPURA	ABK-2012	0735		200	129	3	200	200	0	200	0	PH-IV(1,000)		0	0	0	0	1,200	1601	
63	BELITANG	ABK-2012	0735		100	75	2	200	200	0	0	0		200	0	0	0	0	200	1601	
64	MUARA DUA	ABK-2012	0735		100	75	2	-100	0	0	0	0		200	0	0	0	0	(200)	1601	
65	MUARA DUA	ABK-2012	0735		100	75	2	-100	0	0	0	0		200	0	0	0	0	(200)	1601	
66	BENGKULU CENTRUM-I	PC-1000C	0736		2,000	960	1,404	2,000	2,000	0	0	0	0		4,000	0	0	0	0	1,400	1601
67	BENGKULU CENTRUM-II	ABK-206	0736		100	64	13	1,000	1,000	0	100	0	0		2,000	0	0	0	0	1,400	1601
68	BENGKULU PULAU BEY	ABK-206	0736		100	29	2	2,000	2,000	0	100	0	0		2,000	0	0	0	0	1,400	1601
69	KEPAHIYANG	ABK-205	0737		150	119	82	200	200	0	150	0	0		1,000	0	0	0	0	1,400	1601
70	MUARA AMAN	ABK-205	0737		100	29	2	200	200	0	150	0	0		1,000	0	0	0	0	1,400	1601
71	MUARA AMAN	ABK-205	0737		100	29	2	200	200	0	150	0	0		1,000	0	0	0	0	1,400	1601
72	MANNA	ABK-205	0739		100	44	19	400	400	0	0	0	0		400	0	0	0	0	1,400	1601
73	MANNA	ABK-205	0739		100	44	19	400	400	0	0	0	0		400	0	0	0	0	1,400	1601
74	BINTULIHAN	ABK-16	0730		50	?	?	0	0	0	50	0		0	0	0	0	0	0	1,400	
75	BARRAU (P. Engasato)	ABK-16	0730		50	?	?	0	0	0	50	0		0	0	0	0	0	0	1,400	
TOTAL (LAHAT)				3,213	5,020	5,667	2,461	13,000	-2,920	16,213	2,100	18,313		4,600	-1,350	20,813	750	19,413	19,413	2,150	

S C エ リ ア 別 加 入 者 交 換 局 リ ス ト (W I T E L I I I) (4 / 4)

No.	Exchange Name	Type	Area Code	Existing Capacity			No. of Sub.	Waiting Lists	PELITA-IV Capacity (1989)			Remarks	PELITA-V Capacity (1994)			Exchange PC Area		KAB/KODYA Code	
				Auto	Manual	Total			Auto	Manual	Total		Auto	Manual	Total	Auto	Manual		Total
76	JAMBI CENTRUM-I	ARF-102	0741	5,000			3,729	2,905										1571	
77	JAMBI CENTRUM-II	EUSD	0741						2,000									1571	
78	JAMBI TELERAIPIRA	EUSD	0741						3,000									1571	
79	JAMBI KOTABARU	EUSD	0741						1,000									1571	
80	KUALA TUNGKAL	ADK-513	0742	650			405	29		-650								1504	
81	KUALA TUNGKAL	EUSD	0742						1,000									1504	
82	BANGKO	ABG-1503	0746	20			0	0		-20								1502	
83	BANGKO	EUSD	0746						600									1502	
84	MUARA BUNGO	ABJ-101	0747	200			85	161										1505	
85	MUARA BUNGO	EUSD	0747						0									1505	
86	SUNGAIPENUH	ADK-513	0748	800			614	69										1501	
87	SUNGAIPENUH	EUSD	0748						0									1501	
TOTAL (JAMBI)				5,000	1,670	4,681	3,164	5,164	7,600	-670	12,600	1,000	13,600	3,400	-1,000	16,000	0	12,000	12,000
															16,000	4,000			

PELITA-III																
Total (WITEL-III)		29,613	9,610	29,609	24,025	58,000	-5,290	87,613	4,320	43,200	-3,100	130,813	1,220	125,183	125,183	8,850

付録ー11 電波通路クリアランスと鉄塔高

付録-1-1 電波通路クリアランスと鉄塔局

電波通路クリアランスの選び方次第で、システムの性能、鉄塔高およびホップ数に影響が出てくる。

インドネシアで採用されているクリアランスの基準は、必ずしも標準化されていないが、トランス・スマトラ（アナログ）システムに適用されたもの、スラウェシ・マイクロウェーブ・システムに適用されたもの、およびCCIR Report 338-5に記載されているものについて、ホップ長10～60km、球面平滑大地および使用周波数6770MHzの条件で所要鉄塔高を比較し、その結果を表-1に示す。

この表では、伝搬路両端で同一アンテナ高であること、伝搬路中央に20mの樹木があることを想定した。（但し、水田、湿地については10mの樹木高。）

CCIR Report 338-5に拠る表の所要アンテナ高は、熱帯地方についてのものであり、50km以上の伝搬路については最も楽な数値である。一方、トランス・スマトラ（アナログ）システムに適用された基準は、最も厳しいものとなる。

トランス・スマトラ（アナログ）システムに適用されたクリアランス基準1.および2.は、球面平滑大地伝搬路には適用すべきではなく、表-1の数値は参考値である。

本調査では、スラウェシ・マイクロウェーブ・プロジェクトに適用されたのと同じ基準を採用する。

電波通路クリアランスと鉄塔高

(球面平滑大地伝搬)

Relevant Document	Clearance Rule	Formula	Required antenna height (m) for each hop length					
			10 km	20 km	30 km	40 km	50 km	60 km
CCIR Report 338-	1. 1.0 F1 for 50% value of the point K	For K = 1.52 $H = D^2/77.5 + 3.33\sqrt{D} + 20^*$	31.8	40.1	49.9	61.7	75.8	92.3
	2. 0.6 F1 for path length ≥ 40 km 40 km: K = 0.75 50 km: K = 0.8 60 km: K = 0.83	K = 0.75 $H = D^2/38.2 + 2.0\sqrt{D} + 20^*$ K = 0.8 $H = D^2/40.8 + 2.0\sqrt{D} + 20^*$ K = 0.83 $H = D^2/42.8 + 2.0\sqrt{D} + 20^*$				74.5	95.4	120.6
Sulawesi Microwave System Project (Digital)	1. 1.0 F1 for K = 4/3	$H = D^2/67.9 + 3.33\sqrt{D} + 20^*$	32.0	40.8	51.8	64.6	80.4	98.8
	2. 0.3 F1 for K = 2/3	$H = D^2/34.0 + \sqrt{D} + 20^*$	26.1	36.2	52.0	73.4	100.6	133.6
Trans Sumatera Microwave System Project (Analog)	1. Mountainous area	$H = D^2/51.0 + 2.0\sqrt{D} + 20^*$	28.3	36.8	48.6	64.0	83.2	106.1
	2. Normal broken type country	$H = D^2/40.8 + 2.0\sqrt{D} + 20^*$	28.8	38.8	53.0	71.9	94.0	123.8
	3. Wet rice field, swampy	$H = D^2/30.6 + 2.0\sqrt{D} + 10^*$	19.6	32.0	50.4	75.0	105.9	143.2

Note: F1: First Fresnel zone radius K: Effective earth radius factor D: Hop length (km)
* : Assumed tree height H: Required antenna height

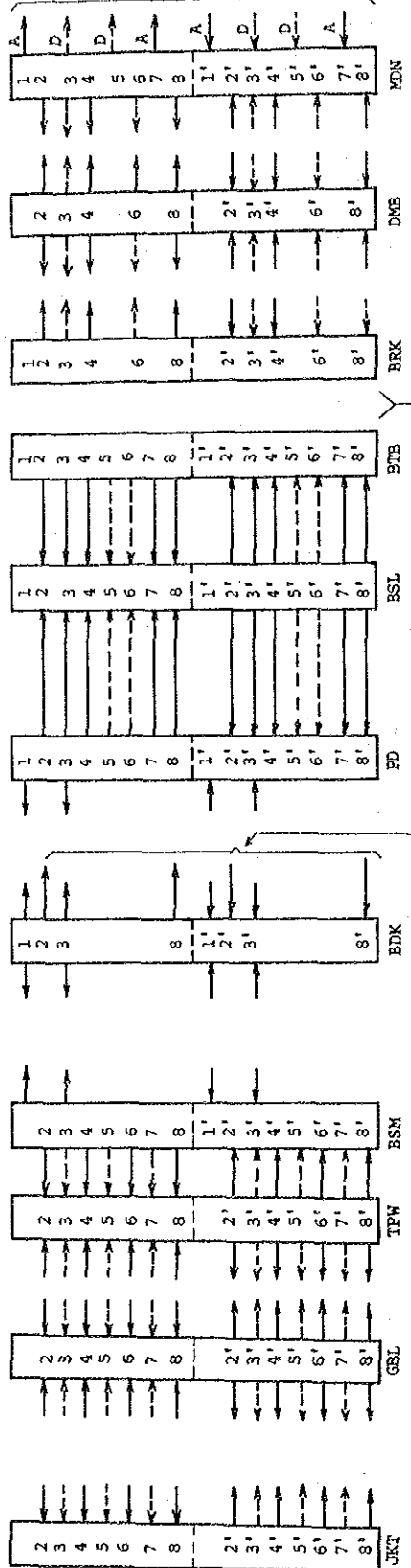
付録—12 周波数配置計画

付録 - 1 2 周波数配置計画

POSTELによる周波数配置基準

System	Connection	Capacity	Freq. Band
Backbone	TC - TC	≥ 140 Mb/s	Upper 6 GHz
	TC - SC	34 Mb/s	8 GHz
	SC - SC		
Ring Belt	SC - PC	34 - 140 Mb/s	2 GHz
	PC - PC		8 GHz 11 GHz
Terminal Trans. (Spur Route)	PC - Local Exc.	8 - 34 Mb/s	1.5 GHz 7 GHz
Subscriber Trans.	Local Exc. - Sub.	2 Mb/s	0.8 GHz 1.5 GHz
Multi-Exc. Area		≥ 140 Mb/s	≥ 11 GHz

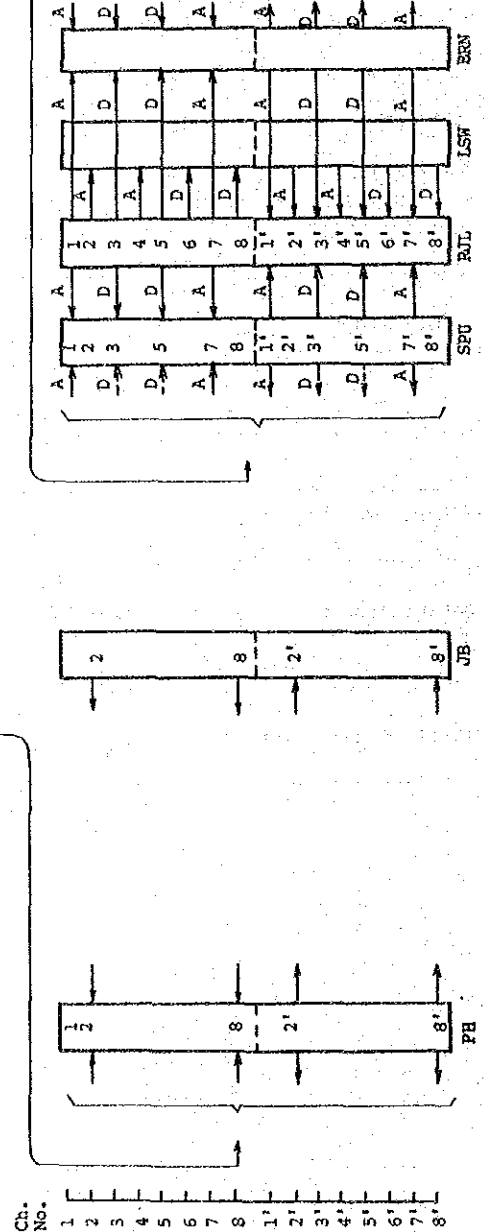
Frequency (MHz)	Ch. No.
6460	1
6500	2
6540	3
6580	4
6620	5
6600	6
6700	7
6740	8
6800	1'
6840	2'
6880	3'
6920	4'
6960	5'
7000	6'
7040	7'
7080	8'



2 GHz band (For example)
(T.S. Dig. Micro W.)

Other project (3,3'; 7,7')
This plan (2,2'; 4,4'; 5,5'; 6,6'; 8,8')

Other project (1,1'; 3,3')
This plan (2,2'; 8,8')



Note: A ... Analog
D ... Digital

周波数配置計画

付録ー13 デジタル無線伝送品質

付録 - 13 デジタル無線伝送システムの性能

(1) モデル性能計算をGn. Pinang~Rajabasa、Cikupa~Gn. Pinang区間を含む16区間について行った。

この性能は、下記条件の下でBER が 1×10^{-3} を超える総時間で規定される瞬断により検討した。

1) 無線周波数帯	上部6 GHz帯 (中心周波数6770 MHz)
2) 伝送容量	140 Mb/s
3) 変調	16 QAM
4) RFチャンネル数	所要数
5) 周波数および時間領域等化器	全局に使用
6) スペース・ダイバシティ(SD)	同相型

計算では、大地反射と無線ダクト中での多重路伝搬により生じる一様フェージングと振幅歪フェージングによる影響が考慮されている。

(2) 表1は、モデル計算を集約したものである。この表から次のことがわかる。

- 1) 既存の区間、すなわちCikupa~G. Pinang とGn. Pinang~Rajabasaは、デジタル性能目標値を満足するとは思われないが、Gn. Pinangの代わりにMancakサイトを使用すると、性能がかなり改善されるものと思われる。

2) 今回の調査では、30km以上の無線区間ではスペースダイバシティが必要と仮定した。本表によるとPedukuh ~Pauh区間(29km)は、スペースダイバシティを必要としないが、Bkt.sulasih ~Bkt.Tambulun区間(25.7km)にはスペースダイバシティが必要である。

このことは、実施段階での詳細調査によるよりきめ細かい調整が、必要であることを示している。

しかし、総体的には30kmという値は、スペースダイバシティ適用の目安として妥当なものと思う。

3) この表のあとに挿入した図は、16 QAM伝送システムの一般的な性能を示す。

表1 モデル性能計算

Item	Path	Cikupa	G. Pinang	Cikupa	Mancak	Rajabasa	T. Tangkas	Bejubang	Padang
Path length (km)		49.9	57.7	57.1	54.5	54.4	32.7	39.7	44.6
Path type		Plain	Sea	Plain	Sea	Mountain	Plain	Plain	Sea
Ant. average height(m)		169	242.5	225	302.9	173.5	195	99	138
Transmit power (dBm)		30	30	30	30	28	28	28	30
Antenna diameter-1 (m)		3.0	3.6	3.0	3.6	3.0	3.0	3.0	3.6
Antenna diameter-2 (m)		3.0	3.6	3.0	3.6	3.0	3.0	3.0	3.6
Outage, EQL, only (%)		0.00643	0.12260	0.01235	0.02178	0.00562	0.00163	0.00210	0.02436
Outage, SD + EQL (%)		0.00010	0.00623	0.00025	0.00030	0.00014	0.00003	0.00002	0.00045
Outage objective (%)		0.00108	0.00125	0.00123	0.00118	0.00118	0.00071	0.00086	0.00096

Item	Path	B.Sulasih	B.Sarik	Lubuk Arau	Pagarantorga	D.Sibohi	D.Tolong	D.Singkut Pedukuh
Path length (km)		25.7	60.9	15.4	49.7	55.7	63.8	45.4
Path type		Mountain	Plain	Mountain	Plain	Plain	Mountain	Plain
Ant. average height(m)		826	320.5	245	380.5	855.5	716	580.1
Transmit power (dBm)		28	30	24	28	28	28	28
Antenna diameter-1 (m)		3.0	3.6	2.4	3.0	3.0	3.0	3.0
Antenna diameter-2 (m)		3.0	3.6	2.4	3.0	3.0	3.0	3.0
Outage, EQL, only (%)		0.00014	0.02304	0.00008	0.01190	0.01981	0.01220	0.00278
Outage, SD + EQL (%)		0.00000	0.00070	0.00000	0.00036	0.00079	0.00043	0.00007
Outage objective (%)		0.00056	0.00132	0.00033	0.00107	0.00120	0.00138	0.00098

Outage Probability

vs.

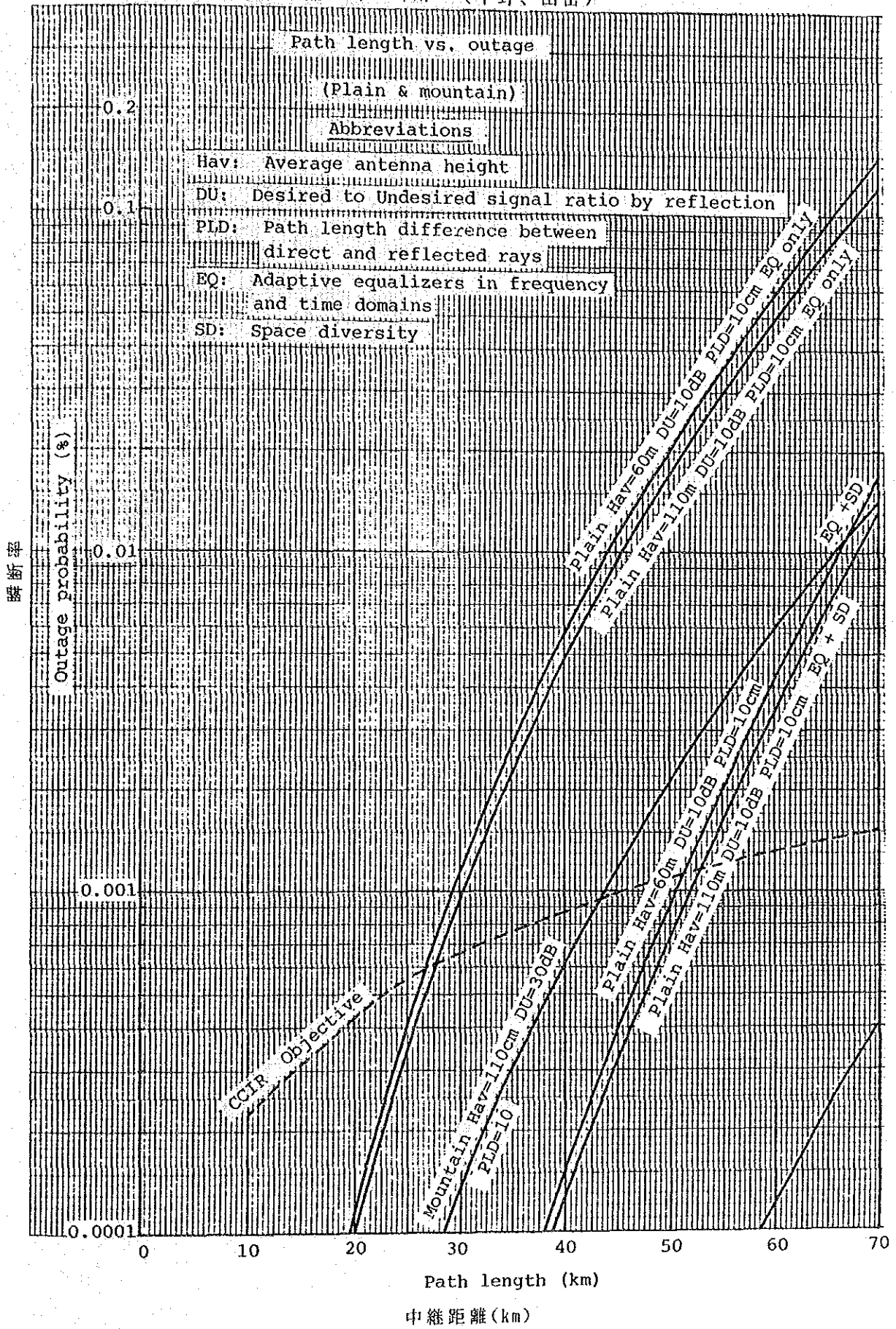
Path Length, Path Length Difference & Average Antenna Height

over Typical Path

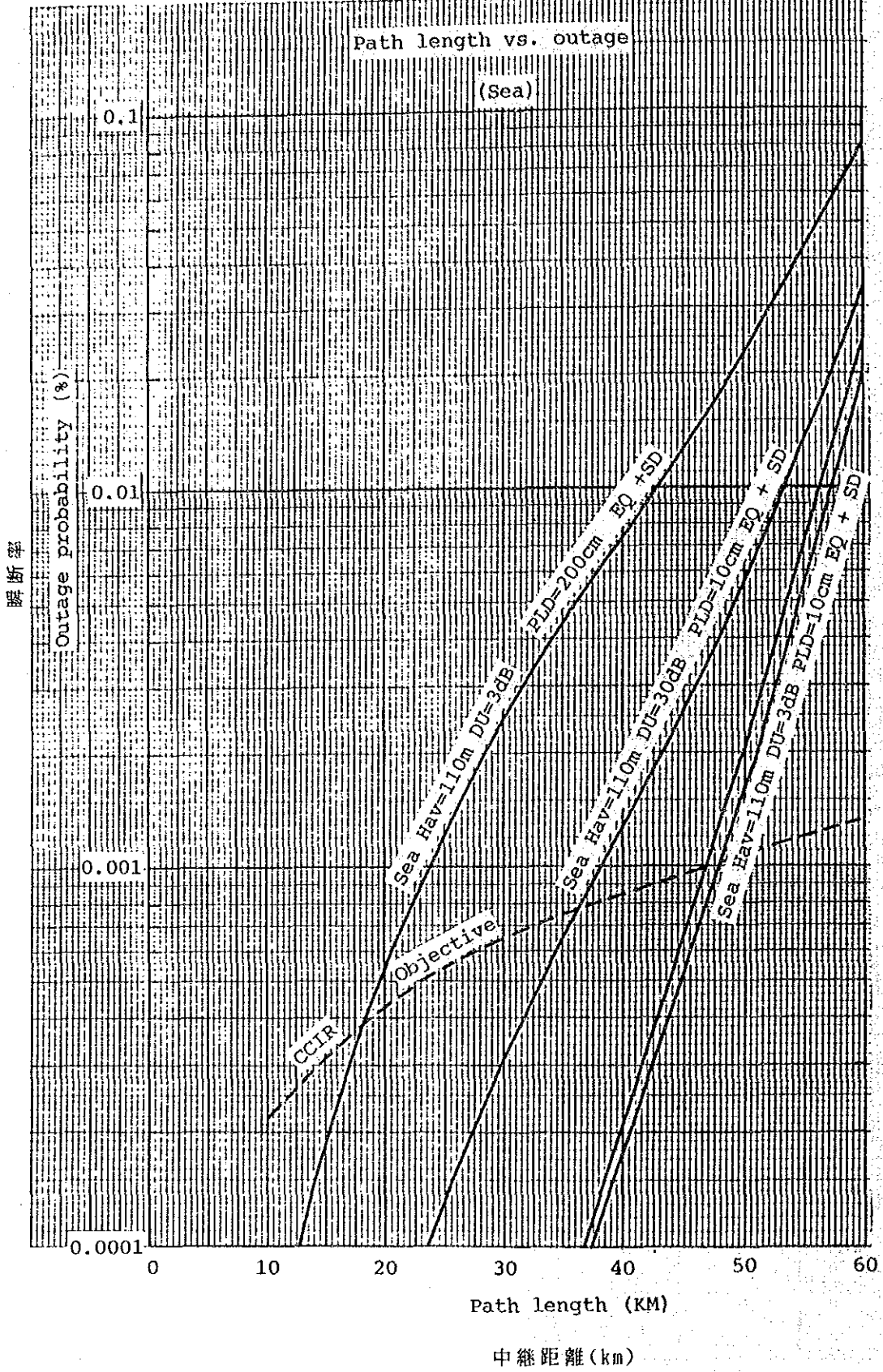
Typical Conditions

Frequency:	6770 MHz	Path type:	Sea, Plain, Mountain
Bit rate:	140 Mb/s		
Modulation:	16 QAM	Transmit power:	28 dBm
Noise figure:	3 dB	TX, RX antenna gain:	44.0 dB each
KTBF:	-95.6 dBm	Antenna spacing:	6 - 12 m
Branch filter loss:	4 dB	D/U for reflect. ray	
Feeder loss:	0.045 dB/m	(DU):	10 - 30 dB
Feeder length (TX+RX):	200 m	Path length difference (PLD)	
Average antenna height		for reflected ray:	10 cm - 800 cm
(Hav):	60 m/110 m	C/N variable:	43.4 dB
Path length:	10 - 70 km	C/N fixed:	54.3 dB

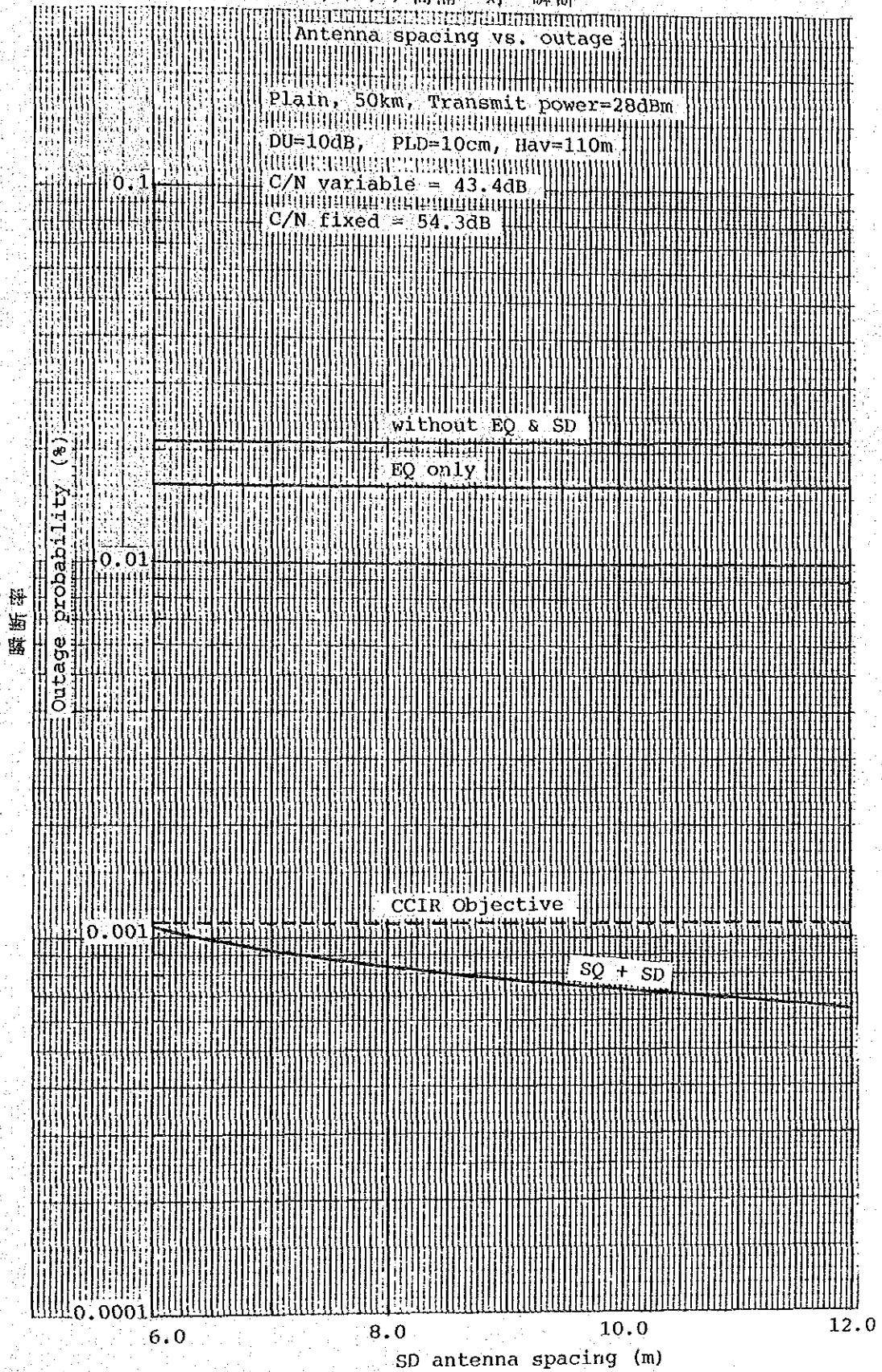
中継距離 対 瞬断 (平野、山岳)



中継距離 対 瞬断 (海)



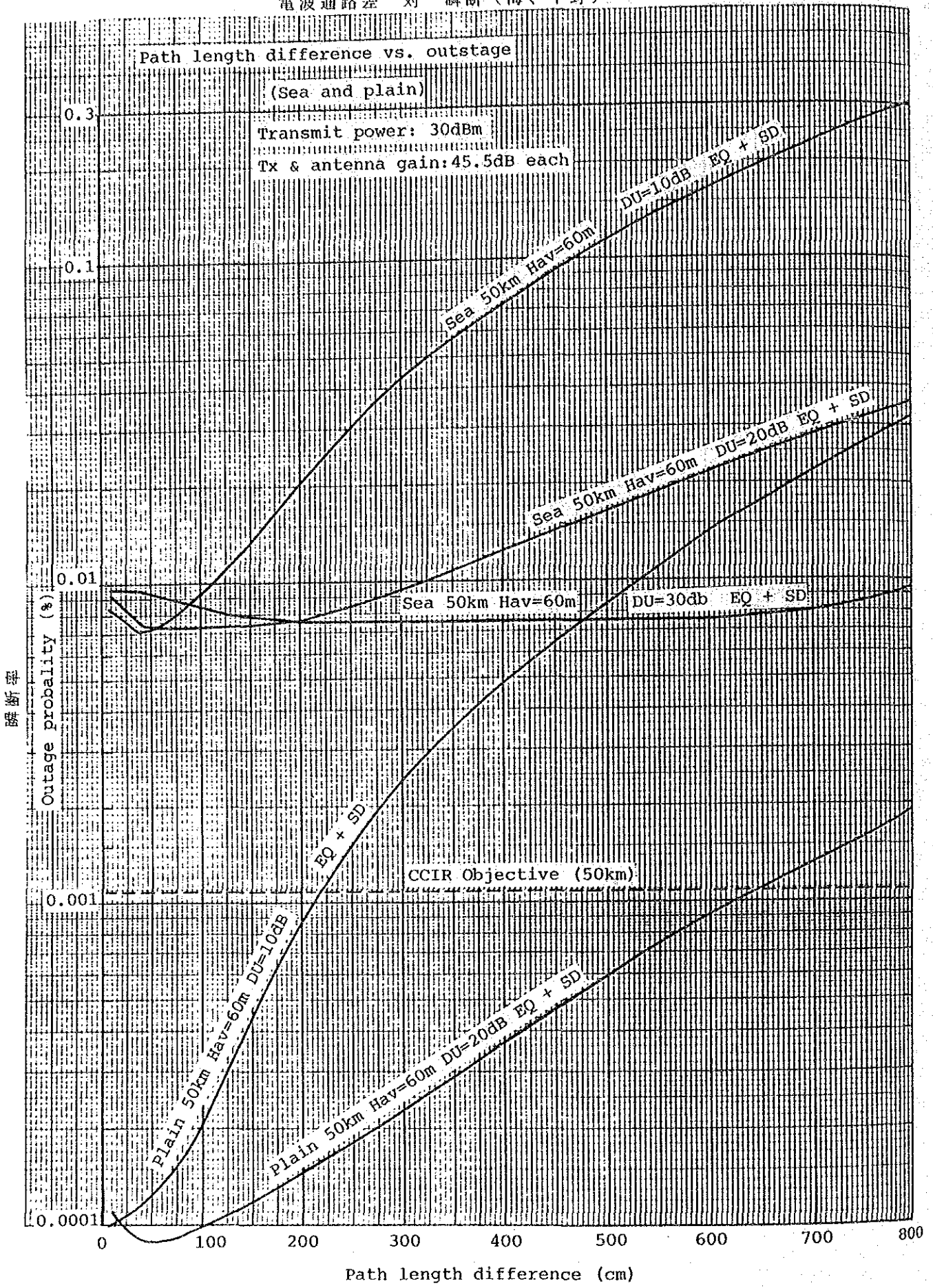
アンテナ間隔 対 瞬断



瞬断率

SDアンテナ間隔

電波通路差 对 瞬断 (海、平野)



瞬断率

電波通路差

付録－14 スマトラ島内の電力施設の現状

付録-14 スマトラ島内の電力施設の現状

No.	Site Name	Power Supply System	AC Mains (KVA)	DEG Set Q'ty (Pc)	Cap (KVA)	Rectifier or SID Q'ty (Pc)	DC (V)	Cap (A)	Battery Q'ty (Pc)	Cap (AH)	DC Load (W)	Sea Level (m)	Remarks
1	Jakarta (SMG-II)	SS	48	1	76	2	48	400	2	1,400	4,160	14	
2	Kalibata	SS	41	2	80	5	48	60	3	1,300	4,320	25	
3	Cikupa	DP	23	2	10	2	24	90	2	500	880	28	
4	Mancak											350	New Station
5	Rajabasa	CD		2	2	2	24	33	2	700	1,060	150	
6	Gn. Balau	CD		2	15	2	24	175	2	1,000	1,702	380	
7	Negara Bunihilir	CD		2	2	2	24	25	2	600	880	54	
8	Bkt. Kemuning	CD		2	2	2	24	25	2	600	880	322	
9	Tb. Tangkas	CD		2	2	2	24	25	2	600	880	277	
10	Simpang Perikanan	CD		2	2	2	24	25	2	600	880	108	
11	Tb. Felawi	CD		2	2	2	24	33	2	800	1,135	217	
12	Bkt. Asam	SS	20	1	20	2	24	225	2	1,400	2,243	277	
13	Panggung Pinang	CD		2	2	2	24	25	2	600	880	56	
14	Lorok	CD		2	2	2	24	33	2	700	1,060	12	
15	Palembang	SS	160	1	225	4	48	315	2	2,000	28,080	4.5	
16	G. Gadjah	SS	6	1	6	2	24	90	2	500	890	185	
17	Tebing Tinggi	CD		2	2	2	24	25	2	600	900	140	
18	Bkt. Sulap	CD		2	2	2	24	25	2	600	880	240	
19	G. Padan	CD		2	2	2	24	25	2	600	880	327	
20	Surulangun Rawas	CD		2	2	2	24	25	2	600	880	97	
21	Bkt. Pedukuh	CD		2	2	2	24	42	2	1,200	1,820	53	
22	Pauh	CD		2	2	2	24	25	2	600	880	38	
23	Muara Ketalo	CD		2	2	2	24	25	2	600	880	49	
24	Bkt. Paku	CD		2	2	2	24	25	2	600	890	65	
25	Bejubang	CD		2	2	2	24	25	2	600	890	90	
26	Jambi	SS	76	2	100	4	48	100	2	600	8,880	15	
27	Bangko	CD		2	2	2	24	25	2	600	880	110	
28	Panjang	CD		2	2	2	24	25	2	600	880	198	
29	AMPELU	CD		2	2	2	24	25	2	600	880	114	
30	G. Medan	CD		2	2	2	24	25	2	600	890	299	
31	Rasantapanggang	CD		2	2	2	24	25	2	600	900	900	
32	Ngalau Basurat	CD		2	2	2	24	25	2	600	900	800	
33	Bkt. Subang	CD		2	2	2	24	25	2	600	880	1,223	
34	Padang	SS	160	1	200	2	48	400	2	1,875	2,910	5	
35	Bkt. Sulasih	CD		2	2	2	24	33	2	700	1,060	196	
36	Bkt. Tambulun	CD		2	2	2	24	33	2	800	1,145	1,530	
37	Bkt. Sarik	CD		2	2	2	24	25	2	600	880	747	
38	Lubuk Arau	CD		2	2	2	24	25	2	600	890	306	
39	Bkt. Bapagar	CD		2	2	2	24	25	2	600	880	1,019	
40	Pagarantonga	CD		2	2	2	24	25	2	600	890	970	

No.	Site Name	Power Supply System	AC Mains (KVA)	DEG Q'ty (Pc)	Set Cap (KVA)	Rectifier Q'ty (Pc)	or DC (V)	SID Cap (A)	Battery Q'ty (Pc)	Cap (AH)	DC Load (W)	Sea Level (m)	Remarks
41	Uluair Silaia	CD		2	2	2	24	25	2	600	880	360	
42	Dk. Sibohi	CD		2	2	2	24	25	2	600	900	1,301	
43	Dk. Martinbang	CD		2	2	2	24	50	2	1,000	1,430	1,560	
44	Dk. Tolong	CD		2	2	2	24	25	2	600	890	1,513	
45	Dk. Simarjarunjung	CD		2	2	2	24	33	2	800	880	1,608	
46	Dk. Singkut	CD		2	2	2	24	33	2	800	1,165	1,650	
47	P. Brayan											22	New Station
48	Gohor Lama	CD		2	3.5		24		2	1,800	481	6	
49	P. Brandan	SS	25	1	12.5	2	24	70	2	400	1,300	5	
50	Bukit Batutiga	CD		2	3.5		24		2	1,600	433	75	
51	Langsa	DP	25	2	12.5	2	24	70	2	500	1,533	8	
52	Bukit Imum	CD		2	3.5		24		2	1,600	395	100	
53	Idi	SS	17	1		2	24	40	2	290	698	3	
54	Simpangulim	CD		2	3.5		24		2	1,800	481	2	
55	Rajalanang	DP		3	21	2	24	70	2	500	1,422	130	
56	Bireun	SS	17	1		2	24	40	2	290	838	10	
57	Glecut	CD		2	3.5		24		2	1,800	470	180	
58	Sigli	SS	17	1		2	24	40	2	290	779	5	
59	Bl. Basah	CD		2	3.5		24		2	1,400	358	473	
60	Cot Mineui	CD	17	2	3.5		24		2	1,600	414	135	
61	Banda Ache	SS	17	1	27	2	24	50	2	400	1,163	25	
62	Tanjung Karang	SS	215	1	225	4	48	160	2	1,300	12,720	100	
63	Lahat	SS	9.5	1	6	2	24	50	2	290	468	110	
64	T. Singali Ngali	SS					24					905	
65	Sibolga	SS	125	2	125	2	48	280	2	380	1,440	5	
66	Lhok Seumawe	SS	17	1	27	2	24	50	2	290	974	2	
67	Medan	SS	25	1	450	3	48	800	3	500	2,300	22	

(Note) SS: Single Stand-by DEG System
DP: Dual Prime DEG System
CD: Charge-Discharge System

付録ー15 新デジタル伝送システムの
所要電力容量

付録-15 新デジタル伝送システムの所要電力容量

No.	Site Name	DC Load (W)			Volt (V)	Code No.
		1994	1999	2004		
1	Jakarta (SMG-II)	1,737	2,007	2,414	48	100
2	Kalibata	975	1,200	1,612	48	
3	Cikupa	1,499	1,847	2,543	24	110
4	Mancak	1,499	1,847	2,543	24	
5	Rajabasa	1,499	1,847	2,543	24	130
6	Gn. Balau	2,496	3,004	3,960	24	200
7	Negara Bumiilir	1,463	1,802	2,480	24	210
8	Bkt. Kemuning	1,583	1,922	2,600	24	220
9	Tb. Tangkas	1,499	1,847	2,543	24	230
10	Simpang Perikanan	1,499	1,847	2,543	24	240
11	Tb. Pelawi	1,619	1,967	2,663	24	250
12	Bkt. Asam	2,927	3,385	4,326	24	300
13	Panggung Pinang	1,151	1,151	1,499	24	310
14	Lorok	1,151	1,151	1,499	24	320
15	Palembang	1,253	1,253	1,427	48	400
16	G. Gadjah	1,124	1,463	2,141	24	410
17	Tebing Tinggi	1,151	1,499	2,195	24	420
18	Bkt. Sulap	1,151	1,499	2,195	24	430
19	G. Padan	1,151	1,499	2,195	24	440
20	Surulangun Rawas	1,151	1,499	2,195	24	450
21	Bkt. Pedukuh	1,692	2,046	2,789	24	500
22	Pauh	767	767	767	24	510
23	Muara Ketalo	785	785	785	24	520
24	Bkt. Paku	803	803	803	24	530
25	Bejubang	803	803	803	24	540
26	Jambi	1,199	1,224	1,224	48	600
27	Bangko	1,151	1,499	2,195	24	610
28	Panjang	1,151	1,499	2,195	24	620
29	Ampelu	1,151	1,499	2,195	24	630
30	G. Medan	1,151	1,499	2,195	24	640
31	Rasamtampang	1,151	1,499	2,195	24	650
32	Ngalau Basurat	1,151	1,499	2,195	24	660
33	Bkt. Subang	1,124	1,463	2,141	24	670
34	Padang	2,043	2,467	3,011	48	700
35	Bkt. Sulasih	1,124	1,463	1,802	24	710
36	Bkt. Tambulun	1,399	1,738	2,117	24	720
37	Bkt. Sarik	1,151	1,499	1,847	24	730
38	Lubuk Arau	1,124	1,463	1,802	24	740
39	Bkt. Bapagar	1,124	1,463	1,802	24	750
40	Pagarantonga	1,151	1,499	1,847	24	760

No.	Site Name	DC Load (W)			Volt (V)	Code No.
		1994	1999	2004		
41	Uluair Silaia	1,151	1,499	1,847	24	770
42	Dk. Sibohi	1,271	1,604	1,967	24	780
43	Dk. Martinbang	2,208	2,556	2,944	24	800
44	Dk. Tolong	1,151	1,499	1,847	24	810
45	Dk. Simarjarunjung	1,361	1,724	2,072	24	820
46	Dk. Singkut	1,256	1,739	2,087	24	830
47	P. Brayon	1,849	2,059	2,339	48	
48	Gohor Lama	995	1,035	1,075	24	
49	P. Brandan	785	785	785	24	
50	Bukit Batutiga	785	785	785	24	
51	Langsa	767	767	767	24	
52	Bukit Imum	767	767	767	24	
53	Idi	785	785	785	24	
54	Simpangulim	803	803	803	24	
55	Rajalanang	1,293	1,293	1,293	24	
56	Bireun	803	803	803	24	
57	Glecut	803	803	803	24	
58	Sigli	785	785	785	24	
59	Bl. Basah	767	767	767	24	
60	COT Mineui	786	785	785	24	
61	Banda Ache	455	455	455	24	
62	Tanjung Karang	988	1,003	1,003	48	201
63	Lahat	964	979	979	24	301
64	T. Singali Ngali	767	767	767	24	
65	Sibolga	676	686	686	48	801
66	Lhok Seumawe	437	437	437	24	
67	Medan	528	758	1,048	48	900

付録一16 モデル構造解析

(Bkt. Asam/Rasamtapanggang)

1. 当初の設計条件

TSMSルート上の既設鉄塔は、「The Technical Requirement for Antenna Support Structure」に基づき、1973年に設計された。

当初の設計条件を次に示す。

(1) 風荷重

$$V = 110 \text{ km/h (地上)}$$

高さごとに、風速の割増しを考慮する(図1)。

例えば、

高さ(m)	風速(km/h)
90	133
60	129
30	121
0	110

(2) 風圧

$$P = 0.005 \times C_d \times V^2$$

P : 風圧(kg/m²)

C_d: 風力係数(素材が形材の場合 1.6)

(素材がパイプの場合 1.35)

V : 風速(km/h)

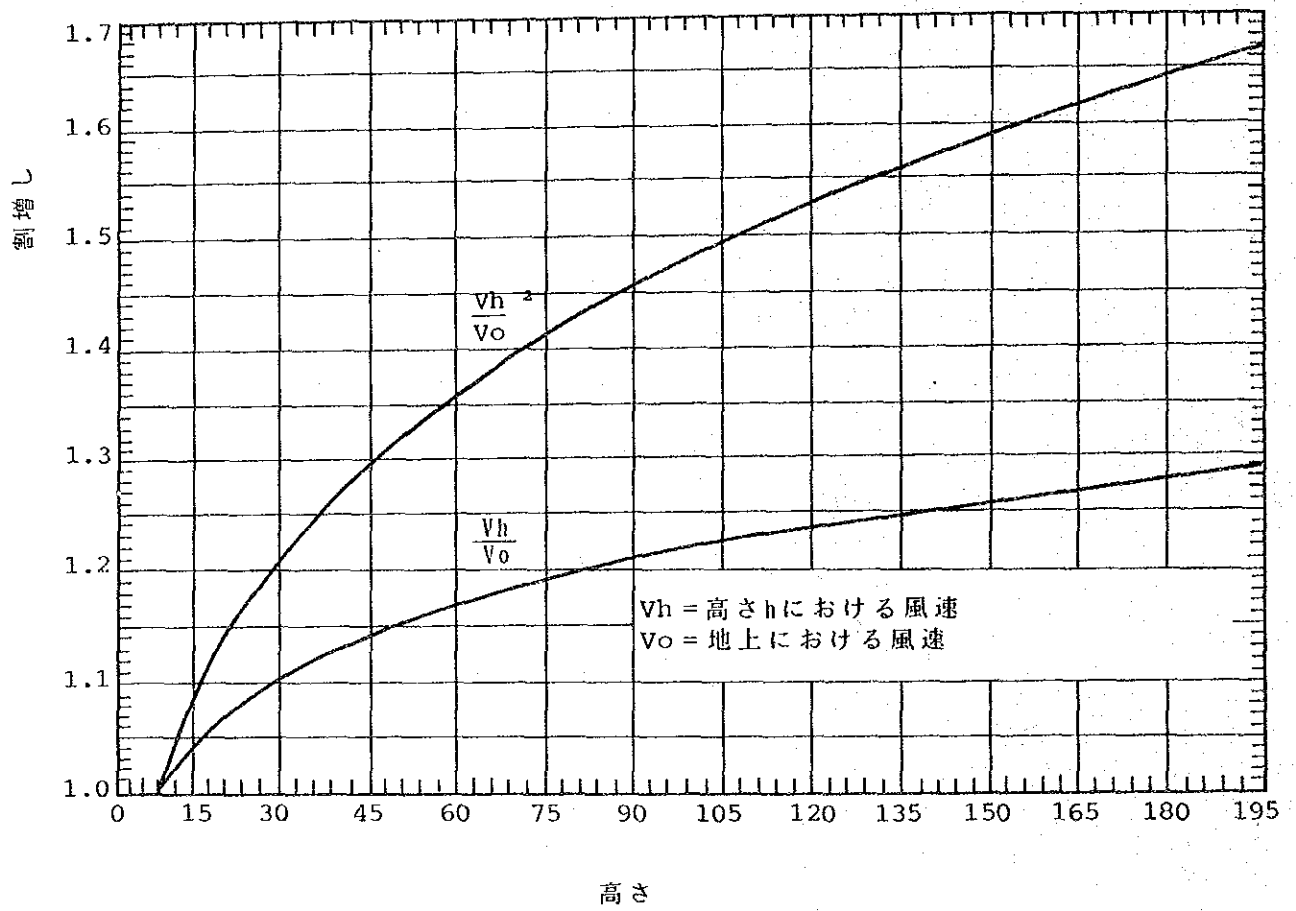


図1 風速

(3) 受圧

受圧面係数 : 1.75

風向き $\theta = 45^\circ$ の場合の風圧力割増し : 1.1



受風面積 : A

受圧面積 : $1.75A$ ($\theta = 0^\circ$)

受圧面積 : $1.75A \times 1.1$ ($\theta = 45^\circ$)

(4) アンテナ風圧力

i) 直径4mのパラボラ・アンテナ (プレートタイプ) 1面 :

$$P = 0.125 \times V^2 \text{ (kg)}$$

ii) 2面の場合 :

$$P = 0.185 \times V^2 \text{ (kg)}$$

iii) 4面の場合 :

$$P = 0.35 \times V^2 \text{ (kg)}$$

アンテナの搭載条件(標準90m鉄塔)を、図2に示す。

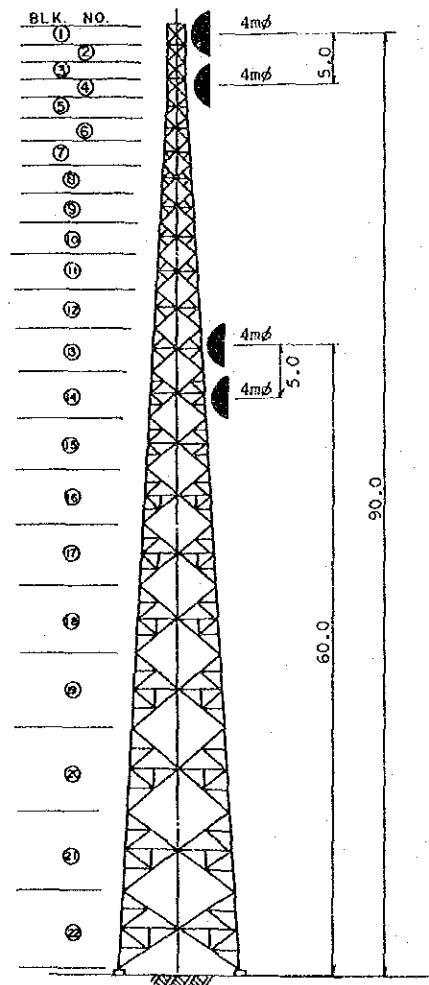


図2 アンテナ搭載条件 (標準鉄塔 H = 90m)

2. モデル構造解析の計算条件

荷重条件、部材の強度など諸条件は、全て当初の設計条件にならう。

新たに、追加される導波管とアンテナに対しては、自重および風荷重を考慮しないものとする。

現況の資料不足により、基礎構造の安定計算は行わない。

3. モデル構造解析 (Bkt. Asam)

(1) アンテナ風圧力

風向き、アンテナ方向に対する、風力係数は、1.84とする。ただし、Pg. Panggunghinang向けのアンテナに対しては、1.03とする。

$$h = 89.6 \text{ m} \quad \text{TB. PELAWI} \quad 3.3 \text{ m} \phi \text{ P.P.}$$

$$H_a = 1.84 \times 0.059 \times \frac{3.3^2 \pi}{4} \times 1.46 = 1.36^t$$

$$h = 84.6 \text{ m} \quad \text{TB. PELAWI} \quad 3.6 \text{ m} \phi \text{ P.P.}$$

$$H_a = 1.84 \times 0.059 \times \frac{3.6^2 \pi}{4} \times 1.44 = 1.59^t$$

$$h = 74.6 \text{ m} \quad \text{TB. PELAWI} \quad 3.6 \text{ m} \phi \text{ P.P.}$$

$$H_a = 1.84 \times 0.059 \times \frac{3.6^2 \pi}{4} \times 1.41 = 1.56^t$$

$$h = 59.4 \text{ m} \quad \text{LAHAT} \quad 3.3 \text{ m} \phi \text{ P.P.}$$

$$H_a = 1.84 \times 0.059 \times \frac{3.3^2 \pi}{4} \times 1.36 = 1.26^t$$

h = 55.1 m GN. GAJAH 3.3 mφ P.P and PG. PANGUPINANG 3.3 mφ P.P

$$H_a = (1.84 + 1.03) \times 0.059 \times \frac{3.3^2 \pi}{4} \times 1.34 = 1.94^t$$

h = 22.0 m PG. PANGGUNGPINANG 3.0 mφ P.P

$$H_a = 1.84 \times 0.059 \times \frac{3.0^2 \pi}{4} \times 1.14 = 0.87^t$$

h = 20 m TG. ENIM 2.0 mφ P.P

$$H_a = 1.84 \times 0.059 \times \frac{2.0^2 \pi}{4} \times 1.13 = 0.39^t$$

h = 14.0 m MUARA ENIM 2.0 mφ P.P and LAHAT 2.0 mφ P.P

$$H_a = (1.84 + 1.03) \times 0.059 \times \frac{2.0^2 \pi}{4} \times 1.06 = 0.56^t$$

h = 12.0 m GN. GADJAH 3.0 mφ P.P and PG. PANGGUNGPINANG 3.0 mφ P.P

$$H_a = (1.84 + 1.03) \times 0.059 \times \frac{3.0^2 \pi}{4} \times 1.05 = 1.26^t$$

4. モデル構造解析 (Rasamtapanggang)

構造解析は、鉄塔利用計画に基づいて行う。

(1) アンテナ風圧力

h = 32.3 m GN. MEDAN 3.3 mφ P.P and N. BASULAT 3.3 mφ P.P

$$H_a = (1.84 + 1.03) \times 0.059 \times \frac{3.3^2 \pi}{4} \times 1.23 = 1.79^t$$

h = 31.0 m GN. MEDAN 2.4 mφ P.P and N. BASULAT 2.4 mφ P.P

$$H_a = (1.84 + 1.03) \times 0.059 \times \frac{2.4^2 \pi}{4} \times 1.22 = 0.94^t$$

h = 21.0 m GN. MEDAN 2.4 mφ P.P and N. BASULAT 2.4 mφ P.P

$$H_a = (1.84 + 1.03) \times 0.059 \times \frac{2.4^2 \pi}{4} \times 1.14 = 0.88^t$$

(2) 解析結果 (BKT, ASAM)

Case 1 (Existing tower)								
Main leg (Compression)								
Block No.	Design load (t)	Member			Bolt			Remark
		Member	Allow. Strength (t)	S.F.	No Size	Allow. Strength (t)	S.F.	
1	0.59	L90x7						OK
2	1.58	L90x7						"
3	3.02	L90x7						"
4	4.72	L90x7	10.09		4-W7/8	D.S. 11.72		"
5	6.52	L100x7						"
6	8.09	L100x7	19.03		6-W7/8	D.S. 17.58		"
7	9.82	L120x8						"
8	11.62	L120x8	26.36		8-W7/8	D.S. 26.72		"
9	13.58	L130x9						"
10	15.58	L130x9	43.86		8-W7/8	D.S. 47.72		"
11	17.87	L130x9	41.96		8-W7/8	D.S. 47.72		"
12	20.29	L130x12						"
13	23.23	L130x12	50.50		10-W7/8	56.40		"
14	27.04	L150x12	74.93		10-W7/8	56.40		"
15	31.82	L150x12	73.89		10-W7/8	56.40		"
16	37.19	L150x12	72.88		10-W7/8	56.40		"
17	42.62	L150x12	71.04		12-W7/8	D.S. 67.68		"
18	48.57	L175x12	84.12		12-W7/8	D.S. 67.68		"
19	54.79	L175x15	100.32		14-W7/8	D.S. 78.96		"
20	61.82	L175x15	97.46		16-W7/8	D.S. 90.24		"
21	69.07	L175x15	100.00		16-W7/8	D.S. 90.24		"
22	75.88	L200x15	120.47		18-W7/8	101.52		"

Case 1 (Existing tower)
Diagonal (Compression)

Block No.	Design load (t)	Member			Bolt		Remark
		Member	Allow. Strength (t)	S.F.	No Size	Allow. Strength (t)	
1	0.28	L60x5	3.45		2-W5/8	2.38	OK
2	0.58	L60x5	3.71		2-W5/8	2.38	"
3	0.66	L60x5	3.71		2-W5/8	2.38	"
4	0.82	L60x5	3.45		2-W5/8	2.38	"
5	0.66	L60x5	2.96		2-W5/8	2.38	"
6	0.69	L60x5	2.73		2-W5/8	2.38	"
7	0.71	L60x5	2.73		2-W5/8	2.38	"
8	0.74	L60x5	3.58		2-W5/8	2.38	"
9	0.79	L60x5	3.16		2-W5/8	2.38	"
10	0.88	L60x5	2.87		2-W5/8	2.38	"
11	0.96	L65x6	3.61		2-W5/8	2.38	"
12	1.08	L65x6	3.24		2-W5/8	2.38	"
13	1.39	L75x6	4.01		2-W5/8	2.38	"
14	2.03	L65x6	3.36		2-W3/4	3.52	"
15	2.44	L70x6	3.63		2-W3/4	3.52	"
16	2.47	L75x6	3.76		2-W3/4	3.52	"
17	2.61	L75x6	3.15		2-W3/4	3.52	"
18	2.74	L90x6	4.42		2-W7/8	4.32	"
19	2.93	L90x6	3.60		2-W7/8	4.32	"
20	3.12	L100x7	4.82		2-W7/8	5.04	"
21	2.53	L100x7	4.60		2-W7/8	5.04	"
22	3.30	L100x7	4.19		2-W7/8	5.04	"

Case 2 (Tower Utilization Plan 2)
Main leg (Compression)

Block No.	Design load (t)	Member			Bolt			Remark
		Member	Allow. Strength (t)	S.F.	No Size	Allow. Strength (t)	S.F.	
1	0.59	L90x7						OK
2	1.58	L90x7						"
3	3.02	L90x7						"
4	4.72	L90x7	10.09	2.14	4-W7/8	D.S. 11.72	2.48	"
5	6.52	L100x7						"
6	8.09	L100x7	19.03	2.35	6-W7/8	D.S. 17.58	2.17	"
7	9.82	L120x8						"
8	11.62	L120x8	26.36	2.27	8-W7/8	D.S. 26.72	2.30	"
9	13.58	L130x9						"
10	15.58	L130x9	43.86	2.82	8-W7/8	D.S. 47.72	2.74	"
11	17.87	L130x9	41.96	2.35	8-W7/8	D.S. 47.72	2.39	"
12	20.29	L130x12						"
13	23.23	L130x12	50.50	2.17	10-W7/8	56.40	2.43	"
14	27.04	L150x12	74.93	2.77	10-W7/8	56.40	2.09	"
15	32.09	L150x12	73.89	2.32	10-W7/8	56.40	1.77	"
16	38.20	L150x12	72.88	1.96	10-W7/8	56.40	1.52	"
17	44.68	L150x12	71.04	1.67	12-W7/8	D.S. 67.68	1.59	"
18	51.79	L175x12	84.12	1.73	12-W7/8	D.S. 67.68	1.39	"
19	59.18	L175x15	100.32	3.56	14-W7/8	D.S. 78.96	1.44	"
20	67.33	L175x15	97.46	1.57	16-W7/8	D.S. 90.24	1.45	"
21	75.80	L175x15	100.00	1.42	16-W7/8	D.S. 90.24	1.28	"
22	83.83	L200x15	120.47	1.54	18-W7/8	101.52	1.30	"

Case 2 (Tower Utilization Plan 2)							
Diagonal (Compression)							
Block No.	Design load (t)	Member			Bolt		Remark
		Member	Allow. Strength (t)	S.F.	No Size	Allow. Strength (t)	
1	0.28	L60x5	3.45		2-W5/8	2.38	OK
2	0.58	L60x5	3.71		2-W5/8	2.38	"
3	0.66	L60x5	3.71		2-W5/8	2.38	"
4	0.82	L60x5	3.45		2-W5/8	2.38	"
5	0.66	L60x5	2.96		2-W5/8	2.38	"
6	0.69	L60x5	2.73		2-W5/8	2.38	"
7	0.71	L60x5	2.73		2-W5/8	2.38	"
8	0.74	L60x5	3.58		2-W5/8	2.38	"
9	0.79	L60x5	3.16		2-W5/8	2.38	"
10	0.88	L60x5	2.87		2-W5/8	2.38	"
11	0.96	L65x6	3.61		2-W5/8	2.38	"
12	1.08	L65x6	3.24		2-W5/8	2.38	"
13	1.39	L75x6	4.01		2-W5/8	2.38	"
14	2.03	L65x6	3.36		2-W3/4	3.52	"
15	2.72	L70x6	3.63		2-W3/4	3.52	"
16	3.01	L75x6	3.76		2-W3/4	3.52	"
17	3.22	L75x6	3.15		2-W3/4	3.52	"
18	3.42	L90x6	4.42		2-W7/8	4.32	"
19	3.55	L90x6	3.60		2-W7/8	4.32	"
20	3.74	L100x7	4.82		2-W7/8	5.04	"
21	3.33	L100x7	4.60		2-W7/8	5.04	"
22	4.02	L100x7	4.19		2-W7/8	5.04	"

Case 3 (Tower Utilization Plan 3)
Main leg (Compression)

Block No.	Design load (t)	Member			Bolt		Remark
		Member	Allow. Strength (t)	S.F.	No Size	Allow. Strength (t)	
1	0.59	L90x7					OK
2	1.58	L90x7					"
3	3.02	L90x7					"
4	5.00	L90x7	10.09		4-W7/8	D.S. 11.72	"
5	7.60	L100x7					"
6	10.74	L100x7	19.03		6-W7/8	D.S. 17.58	"
7	12.70	L120x8					"
8	15.21	L120x8	26.36		8-W7/8	D.S. 26.72	"
9	18.27	L130x9					"
10	21.71	L130x9	43.86		8-W7/8	D.S. 47.72	"
11	25.27	L130x9	41.96		8-W7/8	D.S. 47.72	"
12	28.83	L130x12					"
13	32.77	L130x12	50.50		10-W7/8	56.40	"
14	37.49	L150x12	74.93		10-W7/8	56.40	"
15	43.33	L150x12	73.89		10-W7/8	56.40	"
16	50.15	L150x12	72.88		10-W7/8	56.40	"
17	57.27	L150x12	71.04		12-W7/8	D.S. 67.68	"
18	64.96	L175x12	84.12		12-W7/8	D.S. 67.68	"
19	72.88	L175x15	100.32		14-W7/8	D.S. 78.96	"
20	81.50	L175x15	97.46		16-W7/8	D.S. 90.24	"
21	90.37	L175x15	100.00		16-W7/8	D.S. 90.24	"
22	98.72	L200x15	120.47		18-W7/8	101.52	"

Case 3 (Tower Utilization Plan 3)							
Diagonal (Compression)							
Block No.	Design load (t)	Member			Bolt		Remark
		Member	Allow. Strength (t)	S.F.	No Size	Allow. Strength (t)	
1	0.28	L60x5	3.45		2-W5/8	2.38	OK
2	0.58	L60x5	3.71		2-W5/8	2.38	"
3	0.66	L60x5	3.71		2-W5/8	2.38	"
4	0.10	L60x5	3.45		2-W5/8	2.38	"
5	1.17	L60x5	2.96		2-W5/8	2.38	"
6	1.13	L60x5	2.73		2-W5/8	2.38	"
7	1.10	L60x5	2.73		2-W5/8	2.38	"
8	1.08	L60x5	3.58		2-W5/8	2.38	"
9	1.59	L60x5	3.16		2-W5/8	2.38	"
10	1.59	L60x5	2.87		2-W5/8	2.38	"
11	1.60	L65x6	3.61		2-W5/8	2.38	"
12	1.64	L65x6	3.24		2-W5/8	2.38	"
13	1.91	L75x6	4.01		2-W5/8	2.38	"
14	2.48	L65x6	3.36		2-W3/4	3.52	"
15	2.85	L70x6	3.63		2-W3/4	3.52	"
16	2.84	L75x6	3.76		2-W3/4	3.52	"
17	2.95	L75x6	3.15		2-W3/4	3.52	"
18	3.05	L90x6	4.42		2-W7/8	4.32	"
19	3.21	L90x6	3.60		2-W7/8	4.32	"
20	3.70	L100x7	4.82		2-W7/8	5.04	"
21	3.43	L100x7	4.60		2-W7/8	5.04	"
22	4.30	L100x7	4.19	0.97	2-W7/8	5.04	OUT

(3) 解析結果 (RASANTAPANGGANG)

Tower Utilization Plan									
Main leg (Compression)									
Block No.	Design load (t)	Member			Bolt			Remark	
		Member	Allow. Strength (t)	S.F.	No Size	Allow. Strength (t)	S.F.		
1	0.53	L90x7							OK
2	1.73	L90x7							"
3	3.89	L90x7							"
4	6.51	L90x7	10.09	1.55	4-W7/8	D.S. 11.72	1.80		"
5	9.15	L100x7							"
6	11.36	L100x7	19.03	1.68	6-W7/8	D.S. 17.58	1.55		"
7	13.74	L120x8							"
8	16.37	L120x8	26.36	1.61	8-W7/8	D.S. 26.72	1.63		"
9	19.25	L130x9							"
10	22.04	L130x9	43.86	1.99	8-W7/8	D.S. 47.72	1.94		"
11	25.03	L130x9	41.96	1.68	8-W7/8	D.S. 47.72	1.71		"
12	28.08	L130x12							"
13	31.39	L130x12	50.50	1.61	10-W7/8	56.40	1.80		"

Tower Utilization Plan Diagonal (Compression)								
Block No.	Design load (t)	Member			Bolt			Remark
		Member	Allow. Strength (t)	S.F.	No Size	Allow. Strength (t)	S.F.	
1	0.22	L60x5	3.45	15.68	2-W5/8	2.38	10.82	OK
2	0.89	L60x5	3.71	4.17	2-W5/8	2.38	2.67	"
3	1.12	L60x5	3.71	3.31	2-W5/8	2.38	2.13	"
4	1.31	L60x5	3.45	2.63	2-W5/8	2.38	1.82	"
5	1.00	L60x5	2.96	2.96	2-W5/8	2.38	2.38	"
6	0.98	L60x5	2.73	2.79	2-W5/8	2.38	2.43	"
7	1.07	L60x5	2.73	2.55	2-W5/8	2.38	2.22	"
8	1.24	L60x5	3.58	2.89	2-W5/8	2.38	1.92	"
9	1.23	L60x5	3.16	2.57	2-W5/8	2.38	1.93	"
10	1.27	L60x5	2.87	2.26	2-W5/8	2.38	1.87	"
11	1.31	L65x6	3.61	2.76	2-W5/8	2.38	1.82	"
12	1.39	L65x6	3.24	2.33	2-W5/8	2.38	1.71	"
13	1.48	L75x6	4.01	2.71	2-W5/8	2.38	1.61	"