

BAB V

KESIMPULAN

Berdasarkan data dan analisis perhitungan *link* pada sistem komunikasi video MPEG-2, maka dapat ditarik kesimpulan bahwa:

1. Sistem komunikasi gambar penerima TV MPEG-2 untuk memperoleh level daya dengan kualitas yang memenuhi persyaratan diperlukan gain receiver (penerima) antena sebesar sebesar 38 dB atau setara dengan diameter antena 2,4 meter dimana EIRP satelit di lokasi tersebut. Sebesar 37,24 dBm untuk data MPEG-2 DVB dan untuk data lapangan sebesar 35,54 dBm.
2. Dengan level daya penerima minimum pada data existing MPEG-2 sebesar antara -45 dBm sampai dengan -93 dBm sedangkan nilai batas ambang (theshold -96 dBm).
3. Dengan level daya penerima hasil analisis perhitungan data MPEG-2 DVB untuk Down link sebesar -93,52 dBm dan data lapangan untuk Down link sebesar -92,91 dBm pada carrier to noise output (C/No) sebesar 82,42 dB dan, untuk hasil kualitas yang baik perlu ada peng-case-an pada (C/No).hasil yang dihitung dengan data standard hingga.dapat menjamin kualitas gambar yang dihasilkan sangat baik.



LAMPIRAN 1

A

APLIKASI DATA MPEG
PT. SATELINDO

ELLITE:	PALAPA C2	113	LOST OF LINK/YEAR	4.38	
CARRIER TYPE:	42185.0	KBPS	Availability (%)	99.9749969	
ORANGE:	ASEAN BEAM		Number Of Transponder	10 H H	
ELLITE PARAMETER		UNIT	CARRIER PARAMETER	UNIT	
Power saturated at location	38.48	dBW	Information rate	42185.0	
Power at location	0.89	dB/K	BEF of Reed Solomon Cod. rate	0.9231	
Power at location	98.25	dB/m2	FEC	3/4	
Frequency uplink (fu)	6	dB	Mod scheme (BPSK=1, QPSK= 2)	2	
Frequency downlink (fd)	6.305	MHz	Transmission rate	56.247	Kbps
Gain linear	4.080	MHz	Symbol rate	28.123	Kbps
Gain non linear	6	dB	Overhead	0	Kbps
Gain TO satellite	0.00000000	dB	Bandwidth Occupied (KHz)	33.748	KHz
Gain for 1 meter antenne TX (G1)	110.28248040	dB - Hz	Bandwidth Occupied (dB)	75.28	dB
Do you use Reed Solomon Codec	37.44	dB	Bandwidth allocated (KHz)	37966.5	KHz
Overhead	N		Eb/No required	8	dB
	N		Bandwidth at Transponder	37980	KHz
LINK PARAMETER					
UPLINK			DOWNLINK		
UPLINK POWER CONTROL (UPC)		N			N
ZONE/CLEAR SKY CONDITION	K	Y	ZONE/CLEAR SKY CONDITION	K	Y
Transmitter Location	JAKARTA		Receiver Location	JAKARTA	
Latitude/Elevation	45.72	79.71	Azimuth/Elevation	45.72	79.71
Transmitting antenne Diameter	9	Metres	IBO per carrier	1.24	dB
Transmitting antenne gain	53.26	dB	OBO per carrier	1.24	dB
Earth Station EIRP/carrier	69.09	dBW	Receiving antenne Diameter	2.4	metres
Power	199.54	dB	Receiving antenne Gain	38.00	dB
Power Flux Density (PFD) per carrier	93.49	dB / Hz	LNA noise temperature	45	K
Pointing Error	0.48	dB	G/T earth station	18.00	dB/ K
Path attenuation	0.00	dB	EIRP satellite	37.24	dBW
Uplink	98.56	dB	FSLd	195.76	dB
Waveguide Loss	3.00	dB	Pointing Error	0.01	dB
Power SSPA	76.3619	Watts	Rain Attenuation	0.00	dB
Link Autotrack/untracked	Untrack		C/No downlink	88.06	dB-Hz
Downlink Autotrack/untracked	Untrack		C/To adjacent satellite	97.70	dB
Number of Carrier (Bandwidth)	1.90		C/No total	87.19	dB
Number of Carrier (power)	1.33		Eb/No total	9.69	dB
Link margin	OK		Eb/No required	8.00	dB
			Margin	1.69	dB

**DATA LAPANGAN
PT. SATELINDO**

TELECOM SATELLITE :	PALAPA C2	113	LOST OF LINK/YEAR	4.38	
CARRIER TYPE:	42185.0	K	Availability (%)	99.9749969	
ORBITAL PERIOD:		BPS			
BEAM COVERAGE:	ASEAN BEAM		Number Of Transponder	10H H	
TELECOM SATELLITE PARAMETER		UNIT	CARRIER PARAMETER		UNIT
Power spectral density saturated at location	38.48	dBW	Information rate	42185.0	
Power spectral density at location	0.89	dB/K	BEF of Reed Solomon Cod. rate	0.9231	
Power spectral density at location	98.25	dB/m2	FEC	3/4	
Frequency uplink (fu)	6	dB	Mod scheme (BPSK=1, QPSK=2)	2	
Frequency uplink (fu)	6.305	MHz	Transmission rate	56.247	Kbps
Frequency downlink (fd)	4.080	MHz	Symbol rate	28.123	Kbps
Non-linear	6	dB	Overhead	0	Kbps
Non-linear	0.00000000	dB	Bandwidth Occupied (KHz)	33.748	KHz
Power of satellite	110.28248040	dB - Hz	Bandwidth Occupied (dB)	75.28	dB
Gain of 1 meter antenne TX (G1)	37.44	dBi	Bandwidth allocated (KHz)	37966.5	KHz
Do you use Reed Solomon Codec	N		Eb/No required	8	dB
Overhead	N		Bandwidth at Transponder	37980	KHz
LINK PARAMETER					
UPLINK			DOWNLINK		
UPLINK POWER CONTROL (UPC)		N			N
ZONE/CLEAR SKY CONDITION	K	Y	ZONE/CLEAR SKY CONDITION	K	Y
Transmitter Location	JAKARTA		Receiver Location	JAKARTA	
Azimuth/Elevation	45.72	79.71	Azimuth/Elevation	45.72	79.71
Transmitting antenne Diameter	9	Metres	IBO per carrier	1.24	dB
Transmitting antenne gain	53.26	dBi	OBO per carrier	1.24	dB
Transmitting Station EIRP/carrier	68.31	dBW	Receiving antenne Diameter	2.4	metres
Transmitting Station EIRP/carrier	199.08	dB	Receiving antenne Gain	38.00	dBi
Carrier Flux Density (PFD) per carrier	93.49	dB / Hz	LNA noise temperature	45	K
Pointing Error	0.48	dB	G/T earth station	18.00	dB/K
Free space attenuation	0.00	dB	EIRP satellite	35.54	dBW
Free space attenuation uplink	98.56	dB	FSLd	195.23	dB
Free space attenuation downlink	3.00	dB	Pointing Error	0.01	dB
Power per SSPA	76.3619	Watts	Rain Attenuation	0.00	dB
Uplink Autotrack/untracked	Untrack		C/No downlink	88.06	dB-Hz
Downlink Autotrack/untracked	Untrack		C/No adjacent satellite	97.70	dB
Number of Carrier (Bandwidth)	1.90		C/No total	87.19	dB
Number of Carrier (power)	1.33		Eb/No total	9.69	dB
Link margin	OK		Eb/No required	8.00	dB
			Margin	1.69	dB



LAMPIRAN

B

SUDUT ELEVASI DAN AZIMUTH STASIUN BUMI
TERHADAP POSISI SATELIT PALAPA $\pm C2$

No	Stasiun Bumi	Kedudukan		Sudut Elevasi	Sudut Azimuth
		Bujur	Lintang		
1	Ambon	128,2 ^o BT	3,7 ^o LS	71,69 ^o	-76,63 ^o
2	Banda Aceh	95,9 ^o BT	5,6 ^o LU	68,25 ^o	72,99 ^o
3	Banlung	107,6 ^o BT	6,9 ^o LS	79,60 ^o	88,19 ^o
4	Banjarmasin	114,7 ^o BT	3,2 ^o LS	85,73 ^o	-27,99 ^o
5	Batam	104,0 ^o BT	1,1 ^o LU	79,32 ^o	83,06 ^o
6	Bengkulu	102,3 ^o BT	3,7 ^o LS	76,69 ^o	71,14 ^o
7	Biak	136,0 ^o BT	1,0 ^o LS	28,08 ^o	-87,64 ^o
8	Cilacap	109,9 ^o BT	7,8 ^o LS	80,12 ^o	21,75 ^o
9	Dampar	115,1 ^o BT	8,6 ^o LS	79,58 ^o	-19,77 ^o
10	Pakpak	132,2 ^o BT	2,9 ^o LS	67,24 ^o	-89,87 ^o
11	JAKARTA	106,9 ^o BT	6,43 ^o LS	75,54 ^o	45,55 ^o
12	Jambi	103,6 ^o BT	1,6 ^o LS	78,78 ^o	80,42 ^o
13	Jayapura	140,6 ^o BT	2,5 ^o LU	57,65 ^o	-85,23 ^o
14	Kendari	122,5 ^o BT	4,9 ^o LS	77,44 ^o	-62,95 ^o
15	Kupang	123,9 ^o BT	10,2 ^o LS	73,26 ^o	-44,87 ^o
16	Manokwari	134,0 ^o BT	0,0 ^o LU	65,37 ^o	-87,65 ^o
17	Mataram	116,0 ^o BT	8,9 ^o LS	78,95 ^o	-18,71 ^o
18	Medan	98,7 ^o BT	3,6 ^o LU	77,60 ^o	76,16 ^o
19	Menado	124,8 ^o BT	1,5 ^o LU	76,01 ^o	-82,85 ^o
20	Merauke	140,0 ^o BT	8,4 ^o LS	57,10 ^o	-74,00 ^o
21	Padang	100,4 ^o BT	0,8 ^o LS	75,15 ^o	86,42 ^o
22	Pekanbaru	101,4 ^o BT	0,6 ^o LU	76,34 ^o	87,02 ^o
23	Pangkalanaya	114,0 ^o BT	2,2 ^o LS	87,16 ^o	-74,45 ^o
24	Palembang	104,7 ^o BT	2,0 ^o LS	81,19 ^o	70,87 ^o
25	Palu	119,9 ^o BT	0,9 ^o LU	81,81 ^o	-82,60 ^o
26	P.L. Panjang	106,1 ^o BT	2,6 ^o LS	81,32 ^o	69,45 ^o
27	Pontianak	109,3 ^o BT	0,0 ^o	85,15 ^o	00,00 ^o
28	P.W. agao	129,9 ^o BT	0,4 ^o LS	70,15 ^o	-88,68 ^o
29	Samarinda	117,2 ^o BT	0,4 ^o LS	85,04 ^o	-84,56 ^o
30	Samarang	110,4 ^o BT	7,0 ^o LS	81,71 ^o	20,45 ^o
31	Sarooko	121,0 ^o BT	2,0 ^o LS	80,29 ^o	-76,05 ^o
32	Sorong	131,3 ^o BT	0,8 ^o LS	68,51 ^o	-87,58 ^o
33	Surabaya	112,8 ^o BT	7,4 ^o LS	81,28 ^o	1,53 ^o
34	Tj. Karang	104,2 ^o BT	5,3 ^o LS	79,92 ^o	59,17 ^o
35	Tarakan	117,6 ^o BT	9,5 ^o LU	83,20 ^o	-52,81 ^o
36	Tembagapura	138,5 ^o BT	4,5 ^o LS	59,77 ^o	-80,63 ^o
37	Terhate	127,3 ^o BT	0,8 ^o LS	73,16 ^o	-86,86 ^o
38	Uj. Pandang	119,4 ^o BT	5,2 ^o LS	88,31 ^o	-31,06 ^o
39	Waingapu	120,3 ^o BT	9,7 ^o LS	75,75 ^o	-37,24 ^o
40	Yogyakarta	110,3 ^o BT	7,8 ^o LS	86,78 ^o	19,16 ^o

with coverage of up to 10 years. Palapa-C will cover a much wider area.



1. Standard C-Band frequency

Covering Hong Kong, Myanmar, Cambodia, Vietnam, Macao, New Zealand and Eastern Australia.

2. Extended C-Band frequency

Covering India, Bangladesh, Thailand, Myanmar, Malaysia, Thailand, Taiwan, Korea, Japan, Siberia and part of China.

3. Ku-Band frequency

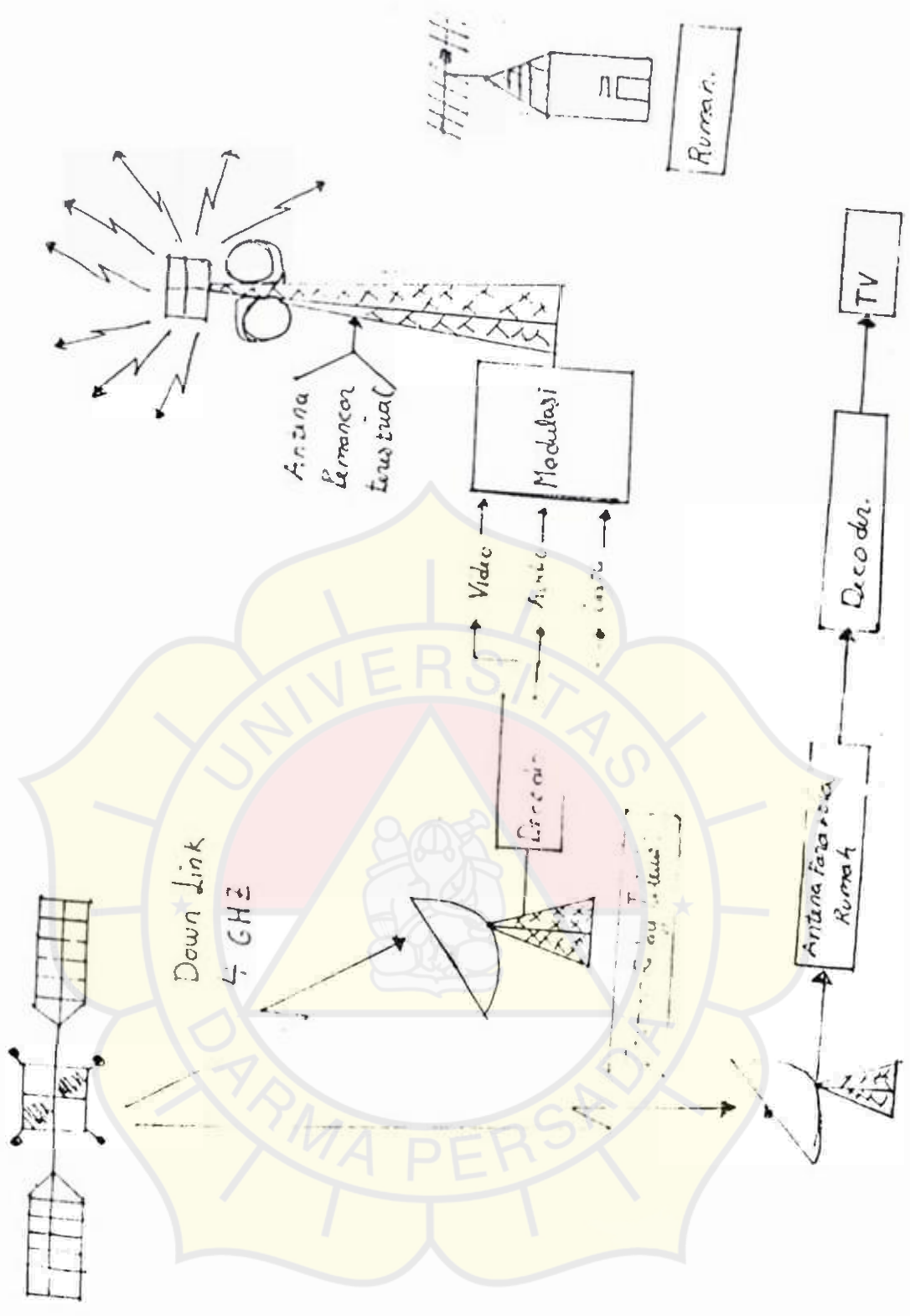
Covering Japan, Korea, Hong Kong, Taiwan, Thailand, Malaysia, Singapore and part of Indonesia.

EIRP AND G/T 'N MAJOR CITIES

CITY	C - BAND ASEAN BEAM		C - BAND ASIA BEAM		K U - BAND NORTH BEAM		K U - BAND SOUTH BEAM	
	EIRP (DBW)	G/T (DB/K)	EIRP (DBW)	G/T (DB/K)	EIRP (DBW)	G/T (DB/K)	EIRP (DBW)	G/T (DB/K)
BEIJING	24	NA	37.5	2	51	6	NA	NA
SHANG HAI	27	NA	38.5	1	51	5	NA	NA
TAIPEI	33	6	37.5	0	51	5	47	1
TOKYO	NA	NA	37.5	-2	51.5	6	NA	NA
SEOUL	NA	NA	38.5	1.5	50	4	NA	NA
RANGOON MYANMAR	38	1	38	0	NA	NA	49	0
PHNOM PENH	39	1	37.5	2	NA	NA	51.5	4
HANOI	47	0	38.5	0.5	NA	-2	50	4
HONGKONG	35	5	38	-2	51	5	50	3
BANGKOK	39.5	1	38	-3.2	NA	NA	50.5	5
SINGAPORE	38.5	0	37	-2	NA	NA	51	5
KUALA LUMPUR	39	1	37	1	NA	NA	51	5
MANILA	38.5	0	32	-7	NA	NA	50.5	2
JAKARTA	38	2	31	8	NA	NA	51	5
DENPASAR	38	2	30	-9	NA	NA	51	3.5
PORT MORESBY	33	5	NA	NA	NA	NA	NA	NA
CAI CUIA	35	5	38	0	NA	NA	NA	NA
DIAKA	36	4	38	0	NA	NA	NA	NA
NEW DELHI	NA	NA	38.5	2	NA	NA	NA	NA
KARACHI	NA	NA	36	1	NA	NA	NA	NA
DUBAI	NA	NA	37.5	5	NA	NA	NA	NA
ISLAMABAD	NA	NA	36	0.5	NA	NA	NA	NA
TEHRAN	NA	NA	32	5	NA	NA	NA	NA
MELBOURNE	38	1.5	NA	NA	NA	NA	NA	NA
DARWIN	37	7	NA	NA	NA	NA	NA	NA
SIDNEY	35	6	NA	NA	NA	NA	NA	NA
AUCKLAND	36	5	NA	NA	NA	NA	NA	NA
GLA M	NA	NA	NA	NA	50	1	NA	NA

PALAPA-6d

FALAH - 6d



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