

BAB V

KESIMPULAN

1. Dari hasil rancangan ini untuk *frekuensi* 23 GHz dengan ketinggian antenna dari tanah 141 m pada BSC Istana Harmoni dan ketinggian antenna dari tanah 42 m pada linderaves menunjukkan tingkat *LOS* yang baik.
2. Dari hasil rancangan diperoleh *RSL* untuk *Uplink* sebesar -40,25 dBm dan untuk *Downlink* sebesar -40,41 dBm. Bila ditinjau dari *power threshold* sebesar -81 dBm, maka diperoleh *Fade Margin* = 40,75 dB pada *Uplink* dan 40,59 dB pada *Downlink* maka secara keseluruhan hasil rancangan cukup baik yaitu 99,99 % pada *Single – Hop Propagation Reliability*.
3. Dari hasil rancangan ratio *Eb/No* untuk *Uplink* didapat sebesar 64,63 dB dan untuk *Downlink* sebesar 64,77 dB. Sedangkan untuk mencapai BER 10^{-6} (QPSK). Diperlukan *Eb/No* sebesar 10,6 dB. Sehingga kualitasnya sudah melebihi standart (lampiran IV).

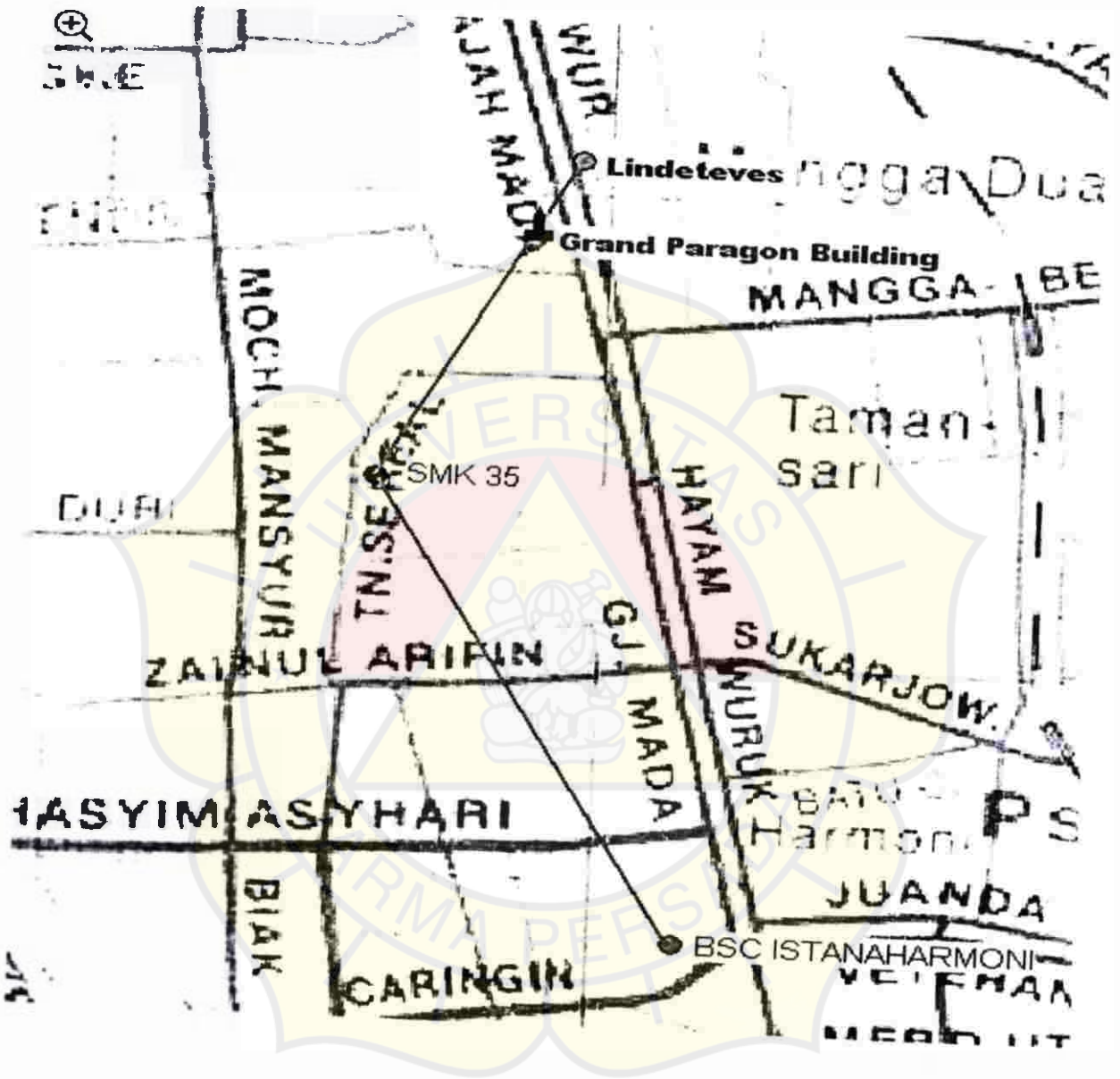
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7. Suhana Ir, "Buku Pegangan Teknik Telekomunikasi", PT . Pradya Paramitha, Jakarta, 1991
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The logo of Universitas Darma Persada is a yellow five-petaled flower shape. Inside the flower is a circular emblem with a red and yellow triangle at the top, a white shield with a figure, and a banner at the bottom. The text 'UNIVERSITAS' is written in a semi-circle above the triangle, and 'DARMA PERSADA' is written in a semi-circle below the banner. Two small stars are positioned on either side of the central shield.

LAMPIRAN

PETA LOKASI AWAL



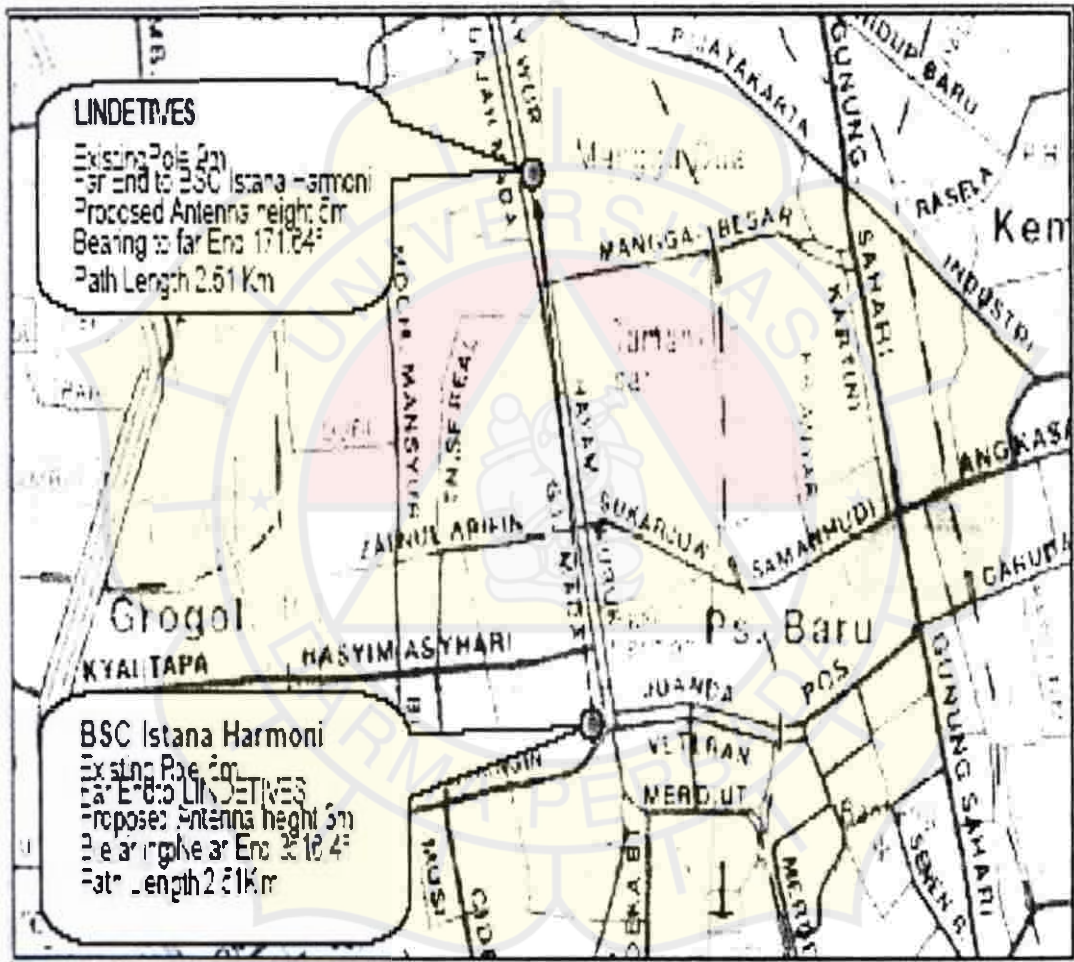
PETA LOKASI LINDETEVES FAR END BSC ISTANA HARMONI

NOKIA

BSC Istana Harmoni

LOS REPORT

Ver 1.0

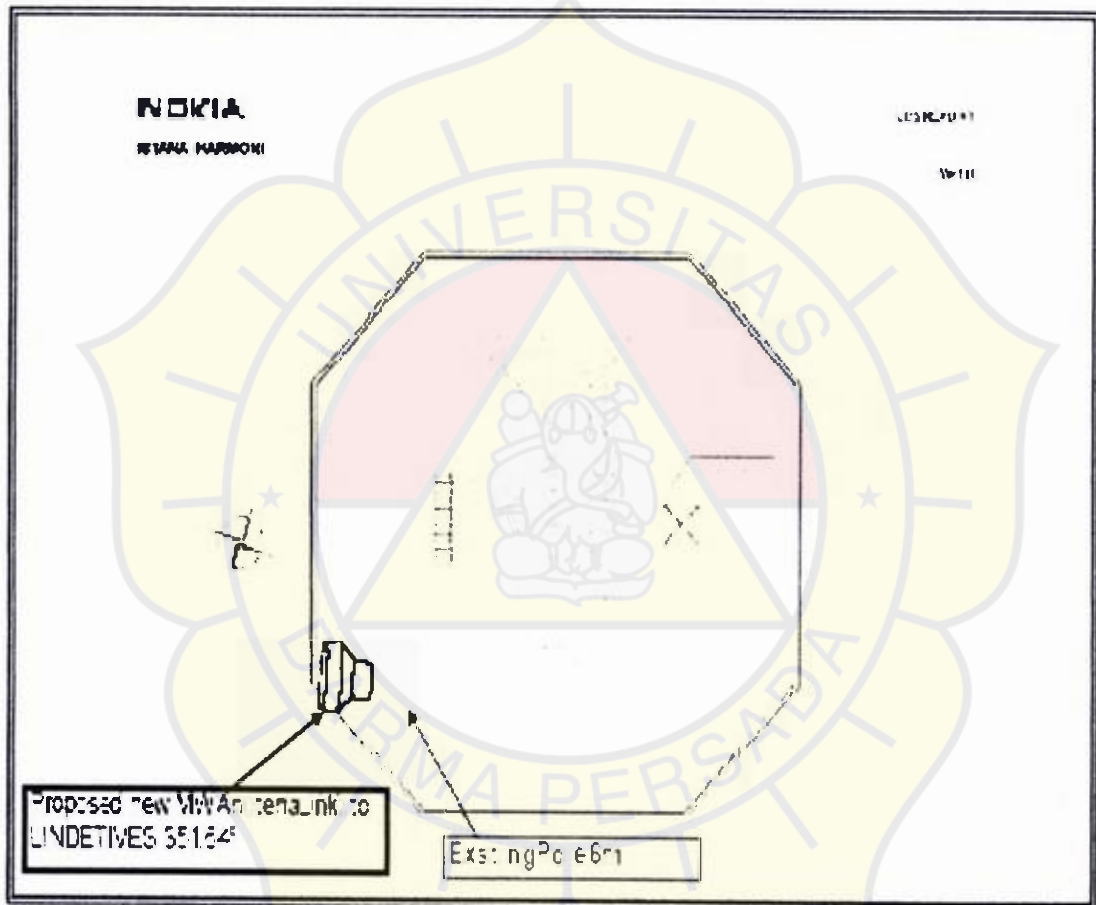


**GAMBAR PERENCANAAN PENEMPATAN ANTENA PADA BSC ISTANA
HARMONI**

NOKIA
BSC Istana Harmoni

LOS REPORT

Ver 1.0



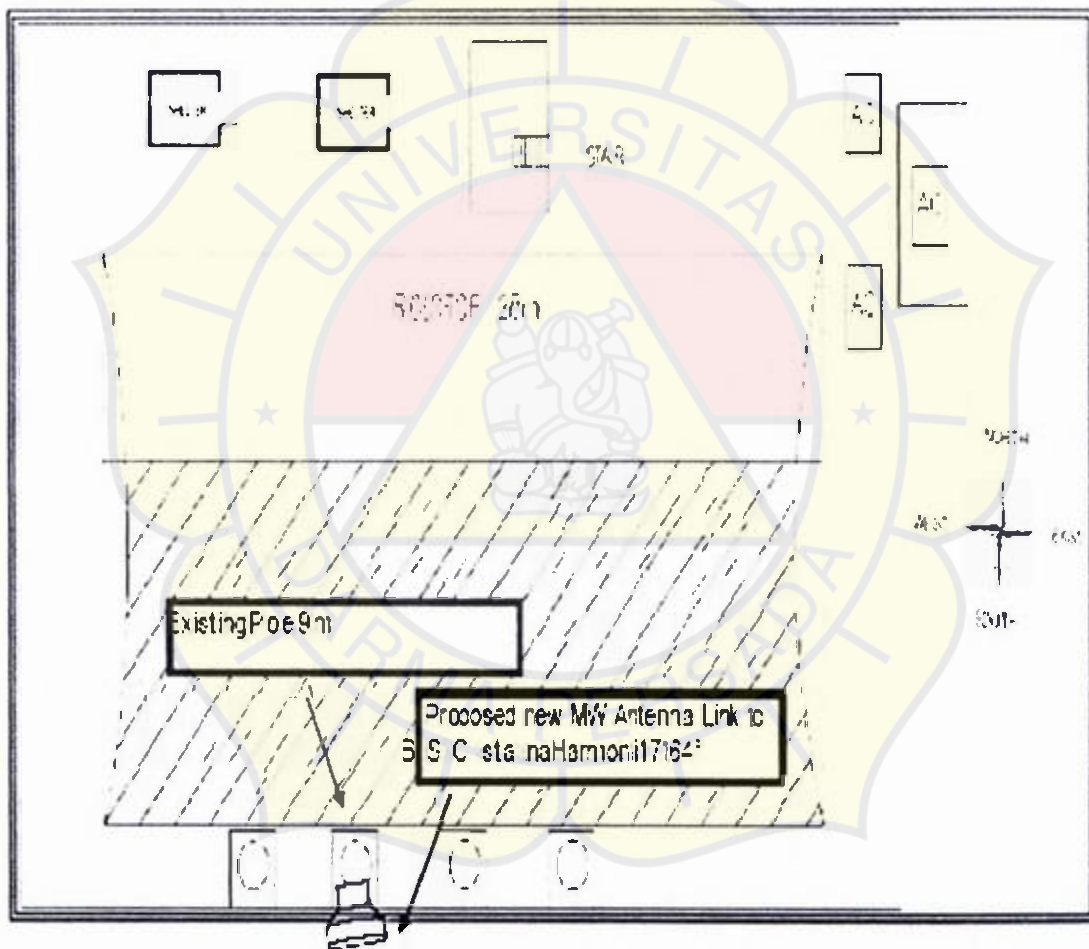
Sketch Location

GAMBAR PERENCANAAN PENEMPATAN ANTENA DI LINDETEVES

NOKIA
LINDETTES

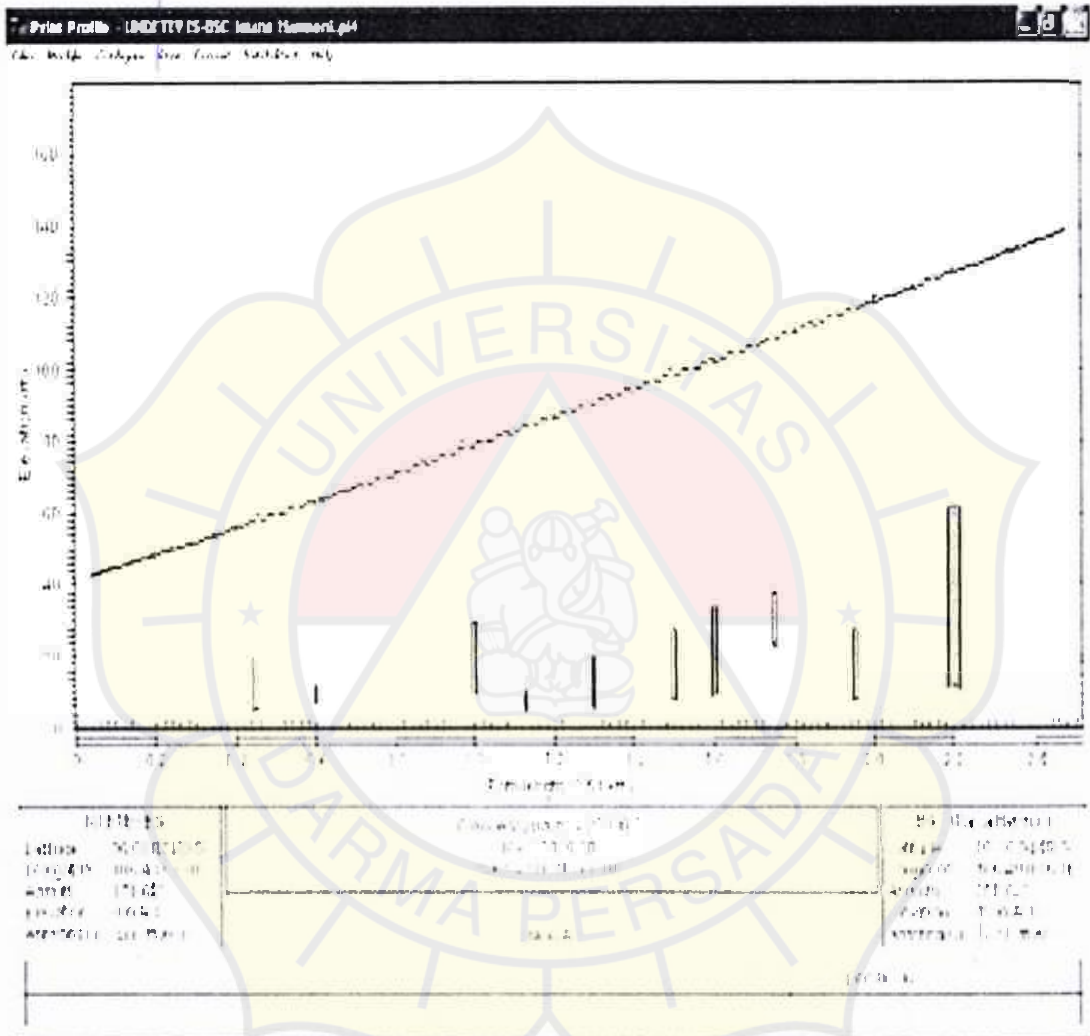
LOS REPORT

Ver1.0



PRINT PROFIL

Print Profile



TERRAIN DATA LINDETEVES – BSC ISTANA HARMONI

Terrain Data - LINDETEVES-BSC Istana Harmoni.pl4

LINDETEVES BSCIstanaHarmoni

Latitude	03°04'43.40 S	06°00'44.00 S
Longitude	100°42'57.70 E	100°49'09.00 E
True Azimuth	17°35'07.71	25°35'15.43
Calculated Distance (km)	2516	
Profile Distance (m)	2516	
Datum	WGS1984	
UTM Zone	48S	48S
Easting (km)	700.922	701.325
Northing (km)	9320.322	9317.892
Elevation (m)	5.72	15.80

Distance (km) Elevation (m) GroundStructure (m)

0.000	2.70	AG
0.050	2.63	AG
0.100	2.81	AG
0.150	2.92	AG
0.200	2.42	AG
0.250	3.35	AG
0.300	3.52	AG
0.350	4.81	AG
0.400	4.59	AG
0.450	4.84	AG 15m Building
0.500	5.12	AG
0.550	5.82	AG
0.600	6.32	AG 30m Tree
0.650	5.41	AG
0.700	4.39	AG
0.750	4.45	AG
0.800	4.60	AG
0.850	5.62	AG
0.900	7.17	AG
0.950	6.39	AG
1.000	6.67	AG 20m Building
1.050	6.62	AG
1.100	4.75	AG
1.127	4.52	AG 20m Tree
1.150	4.32	AG
1.200	4.64	AG
1.250	5.14	AG
1.300	5.15	AG 150m Building
1.350	5.01	AG
1.400	5.66	AG
1.450	6.61	AG
1.500	7.37	AG 200m Building
1.550	7.83	AG
1.600	2.79	AG 25m Building
1.650	12.45	AG
1.700	21.52	AG
1.750	23.27	AG 150m Building

SPECTRUM MASK

NOKIA

Technical specifications

Table 26. Transmitter frequency adjustment and stability

Frequency adjustment step*	0.001 MHz
Frequency stability in all conditions	< ± 10 ppm
Ageing	< ± 1 ppm/year < ± 5 ppm/15 years
*The software allows a 1 kHz step and this is implemented by electrical fine tuning of the reference oscillator in addition to the coarse raster. Due to hardware limitations (such as D/A step size) the actual resolution is 10-25 kHz depending on the frequency band used.	

8.2.2 Modulation and demodulation

Table 27. Modulation

Modulation method	$\pi/4$ -DQPSK
Demodulation method	Partially differential

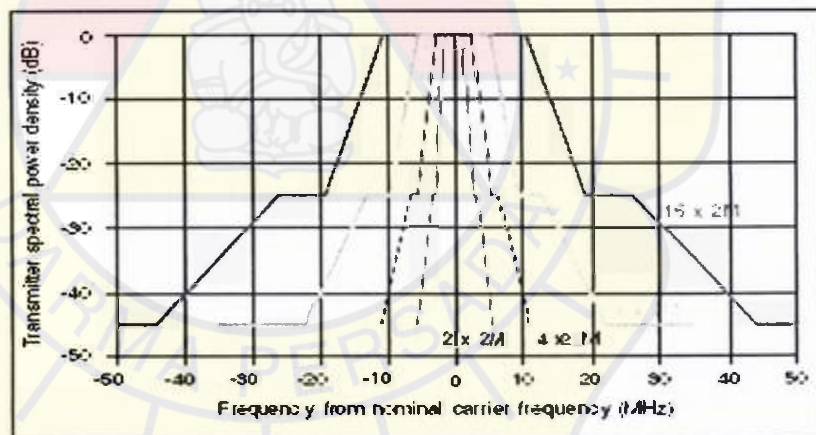


Figure 28. Spectrum mask

THE BASIC NOKIA FLEXIHOPPER NODE CONFIGURATION

NOKIA

Nokia FlexiHopper Microwave Radio

3.4 Integrated radio and cross-connect

2 Mbit/s cross-connection is integrated into the indoor units and is freely programmable between different Flexbuses and 2 Mbit/s interfaces. The indoor unit has two TXC RRI, RRI(C) or four (FIU, I9(E), IFUE) totally independent framing/deframing sections, which can be cross-connected to external or internal Flexbus interfaces.

Flexbus – single cable interconnections

The bidirectional Flexbus cable connects all system elements together. Flexbus carries digital 2-16x2 Mbit/s signals and control data between the elements of the node, from the indoor unit to the outdoor unit, as well as from one indoor unit to another indoor unit. Flexbus also feeds DC power to the outdoor unit.

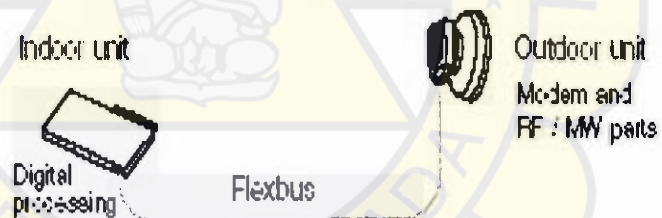


Figure 3. The basic Nokia FlexiHopper node configuration, one indoor unit and one outdoor unit

TABEL(BER)

Singgel – Hop Propagation Reabiability (%)	Required Fade Margin (dB)
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90	8
99	18
99,9	28
99,99	38
99,999	48

