



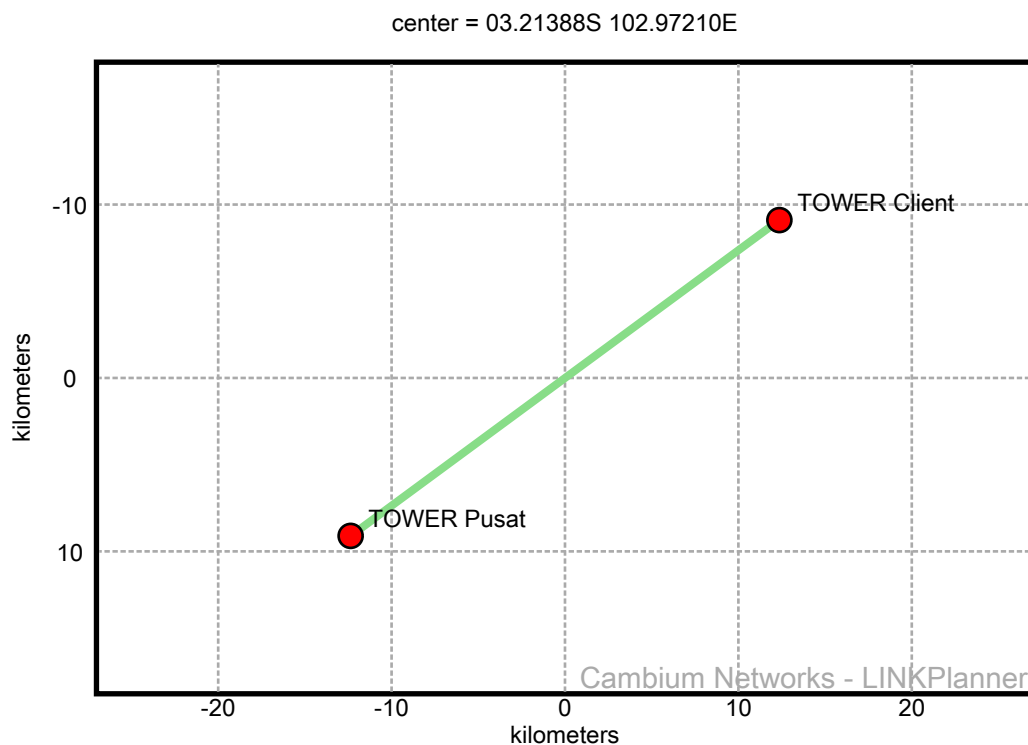
Project TOWER Pusat - TOWER Client

TOWER Pusat to TOWER Client

LINKPlanner PTP Proposal Report

24 January 2019

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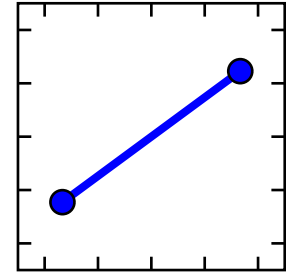
Project Summary

Project: TOWER Pusat - TOWER Client

General Information	
Customer Name	
Company Name	Ujicoba 30,7 Km
Address	
Phone	
Cell Phone	
Email	



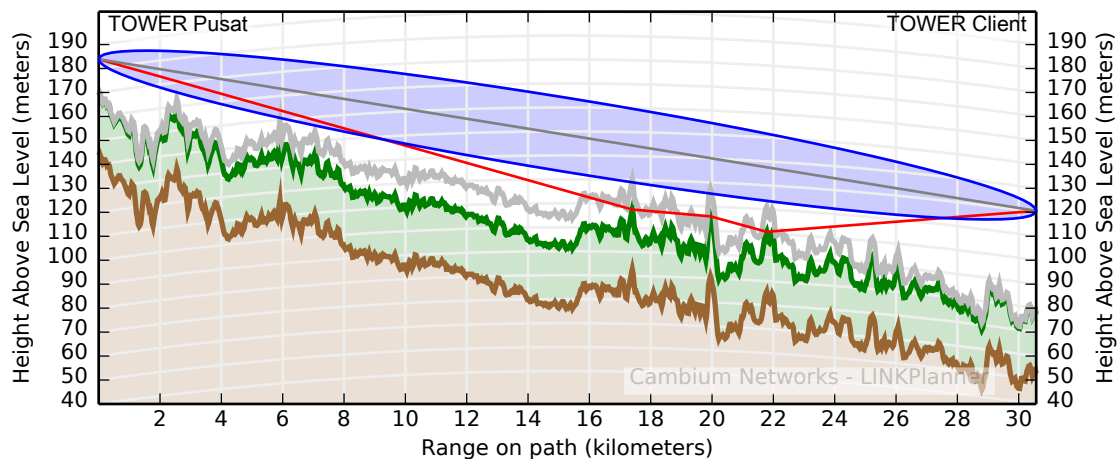
TOWER Pusat to TOWER Client



Equipment: Cambium Networks PTP650 (retired) Full Connectorized

Radio Waves 2ft High Performance Dual-Polar
Parabolic HPD2-5.2NS @ 40 m

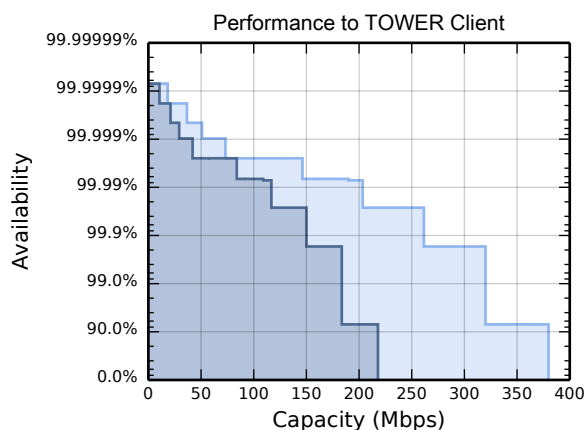
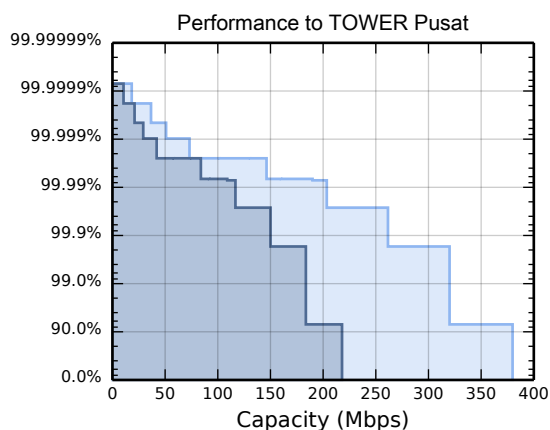
Radio Waves 2ft High Performance Dual-Polar
Parabolic HPD2-5.2NS @ 68 m



	Performance to TOWER Pusat	Performance to TOWER Client
Mean IP	215.4 Mbps	215.4 Mbps
IP Availability	99.9999 % for 1.0 Mbps	99.9999 % for 1.0 Mbps

Link Summary			
Link Length	30.569 km	System Gain	171.72 dB
Band	5.8 GHz	System Gain Margin	33.93 dB
Regulation	Other	Mean Aggregate Data Rate	430.8 Mbps
Modulation	Adaptive	Annual Link Availability	99.9999 %
Bandwidth	45 MHz	Annual Link Unavailability	22 secs/year
Total Path Loss	137.78 dB	Prediction Model	ITU-R

Performance Charts



	High Capacity, assumes there is no load in the other direction
	Symmetrical Capacity, assumes a saturated load in the other direction

Climatic Factors, Losses and Standards			
dN/dH not exceeded for 1% of time	-133.91 N units/km	Gaseous Absorption Loss	0.36 dB
Area roughness 110x110km	357.23 metre	Link Type	Line-of-Sight
Geoclimatic factor	2.69e-05	Excess Path Loss	0.00 dB
Fade Occurrence Factor (P0)	6.21e-03	Atmospheric Gasses	ITU-R P.676-7, ITU-R P.835-4
Path inclination	2.07 mr	Diffraction Loss	ITU-R P.526-10
Value of K Exceeded for 99.99% (ke)	0.69	Propagation	ITU-R P.530-12
Excess Path Loss at ke	2.41 dB	Rain Rate	ITU-R P.837-5
0.01% Rain rate	88.20 mm/hr	Refractivity Index	ITU-R P.453-9
Free Space Path Loss	137.42 dB		

Bill of Materials		
Part Number	Qty	Description
(no part number)	2	Radio Waves 2ft High Performance Dual-Polar Parabolic HPD2-5.2NS
01010419001	11	Coaxial Cable Grounding Kits for 1/4" and 3/8" Cable
C000065K022	2	PTP 650 Lite (Up to 125Mbps) to Full (Up to 450Mbps) Link Capacity upgrade license per ODU
C000065L007	2	LPU and Grounding Kit (1 kit per ODU)
C050065H012	2	PTP 650 Connectorized END with AC+DC Enhanced Supply (RoW - EU Line Cord). This item is no longer available to order. Kit includes ODU, power supply, mounting bracket and US line cord

Bill of Materials (continued)		
Part Number	Qty	Description
WB3176	2	328 ft (100 m) Reel Outdoor Copper Clad CAT5E (Recommended for PTP)

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