

I. SUPPLEMENTARY APPENDIX FOR HOW GRAPH NEURAL NETWORK LEARNS CELLULAR COVERAGE FROM REAL NETWORK CONFIGURATIONS

A. Dataset

We are using two dataset, crawled from real network in 2 different regions. **CPH** is a dense urban deployment, while **A+A** includes more rural areas. Their statistical feature are given as in Table. I.

Table I: Selection of Datasets Statistical features

Dataset	CPH	A+A
Feature Distribution		
# of Nodes	1643	4359
# of Relations	7894	27294
Average Degree	8.456	7.612
Mean clustering coefficient	0.2947	0.3658
Average Antenna Height(m)	24.4756	32.1485
Average Inter-site distance	0.8205	2.0711
Optional Sectors #	[1,4]	[1,3]
Optional Electrical Tilt	[1, 7]	[3, 8]
Optional Tx Scheme	$2 \times 2, 4 \times 4$	$2 \times 2, 4 \times 4$
Tx Power (Watt)	460,490,505,520	460,490,505,520
Ground Truth distribution (Averaged)		
SINR: [Perfect%, Good%, Fair%, Bad%]	[58.0, 38.3, 3.56, 0.088]	[78.8, 20.4, 0.751, 0.0244]
CQI: [Perfect%, Good%, Fair%, Bad%]	[79.8, 15.2, 4.68, 0.318]	[56.1, 16.6, 18.0, 9.37]

B. Simulation Environment

Our ground truth are obtained using Info-Vista Planet 7.6, a list of simulation parameter we use are given in Table II. Note we simulate the scenario without any fading (i.e, in Open space).

Table II: Selection of Simulation Parameter

Parameter	Value
Propagation Model	Info-Vista Planet Generic
eNB type	Outdoors
UE Height	1.6 m
Environment	Open space
Horizontal Beam Width	[59,88]
Frequency band	1,3,7,20
Penetration loss	0dB