I. Supplementary Appendix for How Graph Neural Network Learns Cellular Coverage from Real Network Configurations

A. Dataset

We are using two datasets, crawled from two real networks in 2 different regions. **CPH** is a dense urban deployment, while **A+A** includes more rural areas. Their statistical feature is given 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	2×2, 4×4	2×2, 4×4
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	$0dB$

C. Training Parameter

We have implemented all models with `PyTorch` as well as `Torch-geometric`, while the training is conducted using the following training parameters as presented in Table III, using a `NVIDIA-1080` GPU.

Table III: Training parameters in **Phase** PT and FT

Parameter	**Phase** PT ($\mathcal{HP}_{PT}$)	**Phase** FT ($\mathcal{HP}_{FT}$)
Epoch Length N_{PT},N_{FT}	10000	40000
Learning rate	10^{-3}	10^{-3}
Learning decaying factor	0.5	0.5
Learning decaying step size	1000	1000
Early Stopping Patience	8	8
Early Stopping step size	50	50
Weight decay	5×10^{-4}	5×10^{-4}