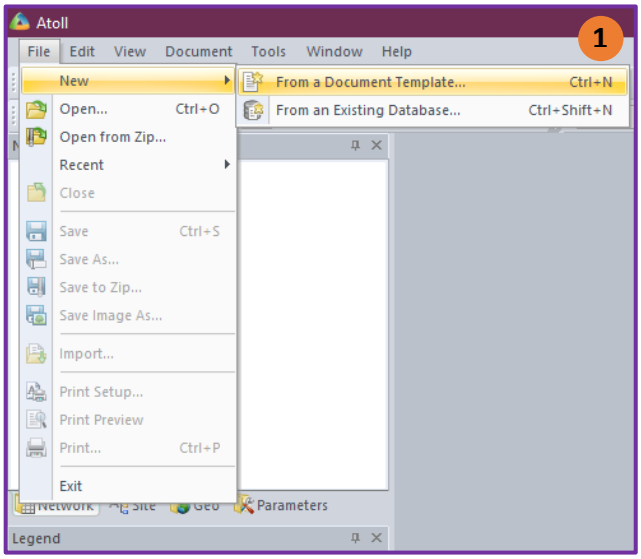
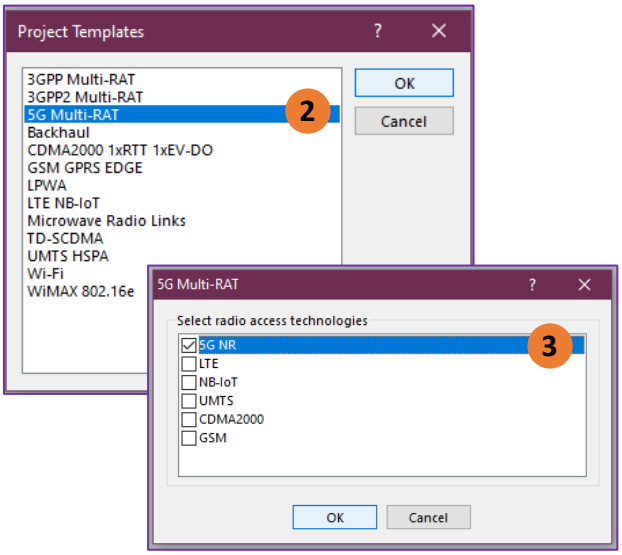
PRAKTIKUM MODUL 5G RADIO PLANNING

MENGGUNAKAN *SOFTWARE* ATOLL 3.4

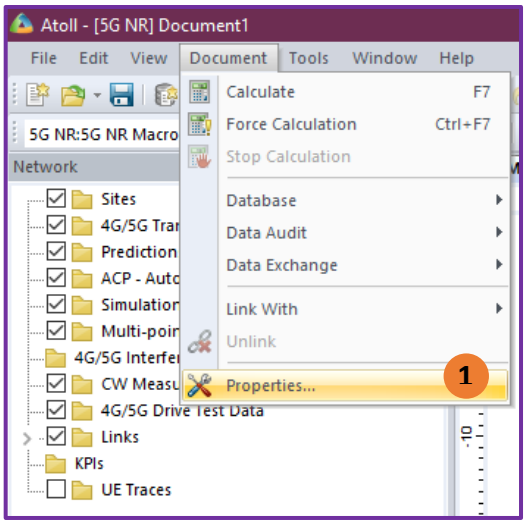
1. Buka *software* Atoll 3.4.
2. *Create New Project*

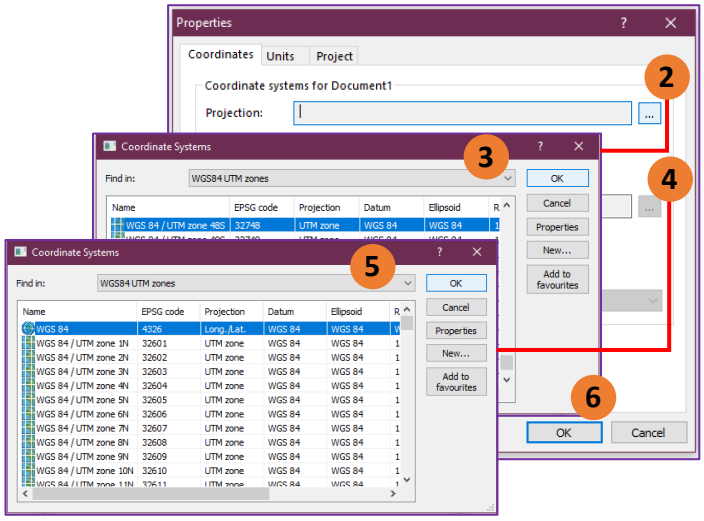




1) *File* > *New* > *From a Document Template*
2) Pilih *Project Templates* "5G Multi-RAT" > OK
3) Pilih *Radio Access Technologies* "5G NR" > OK

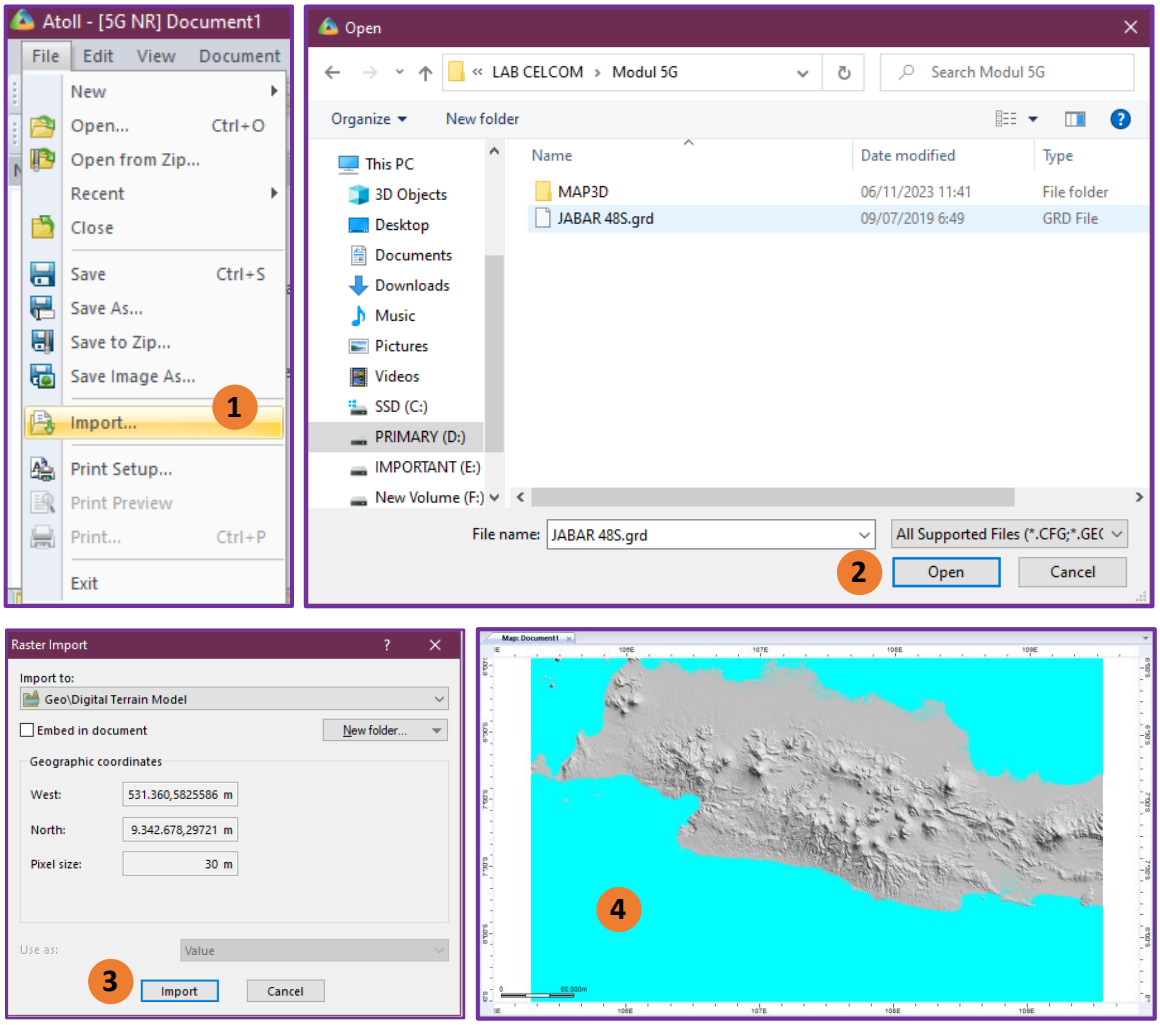
3. *Setting Project Area*





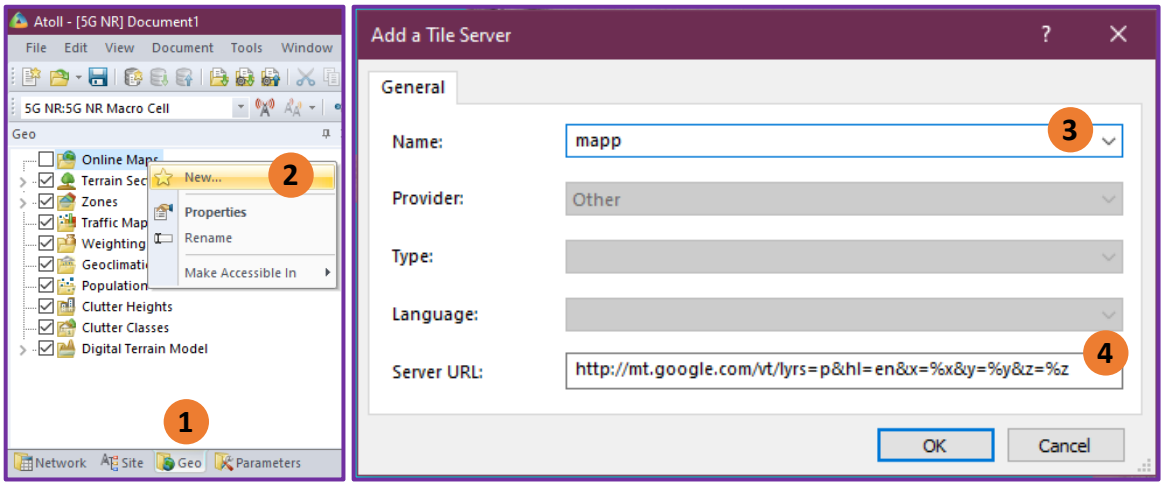
1) *Document* > *Properties*
2) Telusuri proyeksi peta Anda
3) Pilih proyeksi peta Anda > OK
4) Telusuri tampilan peta Anda
5) Pilih tampilan peta Anda > OK
6) Klik OK

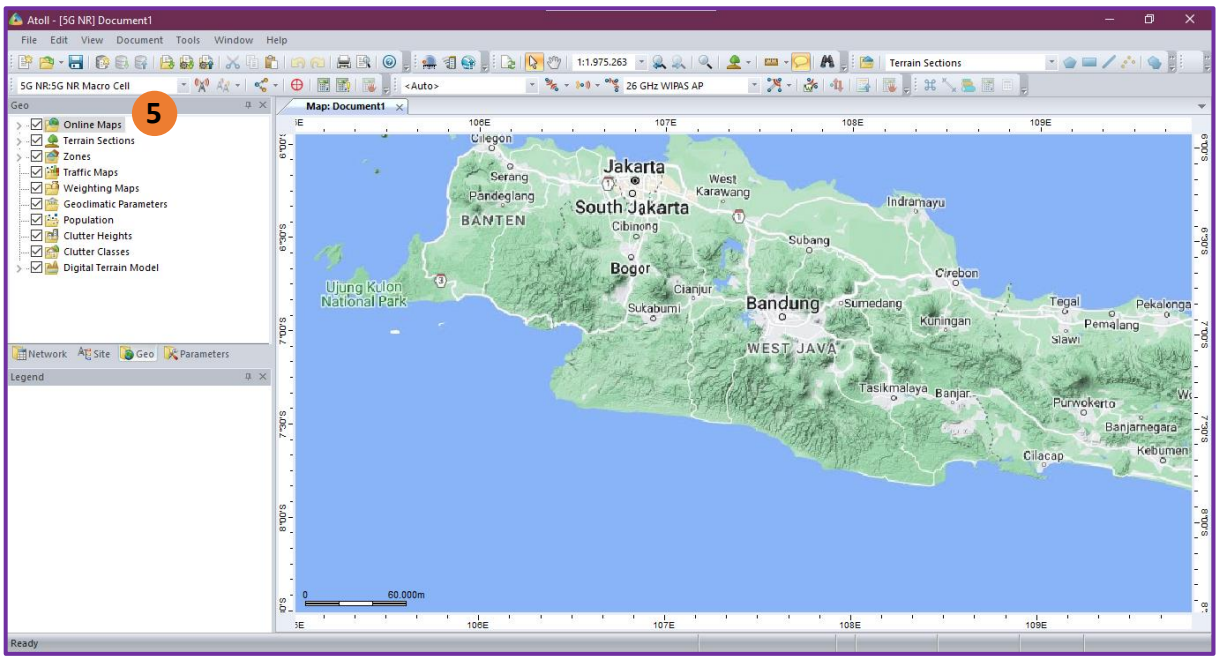
4. *Import Map*



1) *File* > *Import*
2) Pilih *file* peta yang ingin Anda impor > *Open*
3) Di *Raster Import* > Klik *import*
4) Hasil

5. *Online Maps*

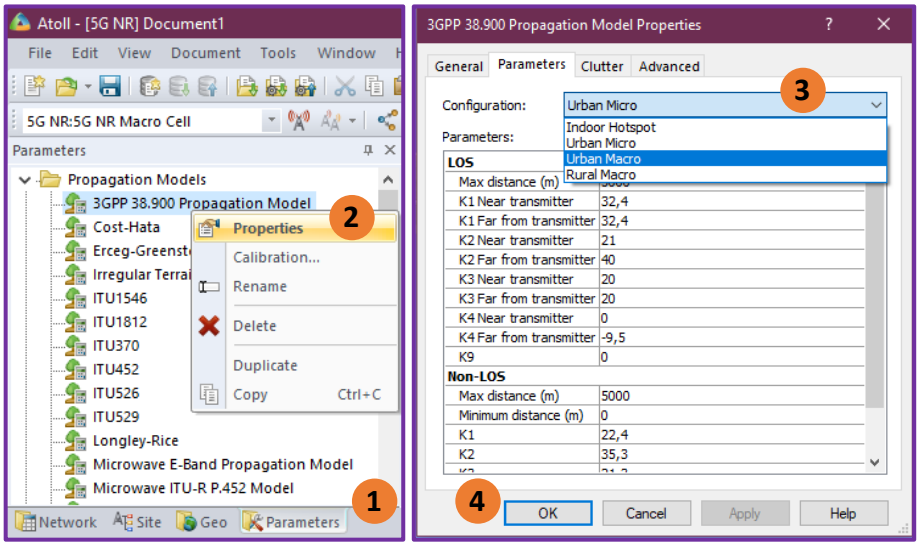




1) Pilih tab Geo
2) Klik kanan *Online Maps* > *New*
3) Isi bagian *Name*
4) Masukkan Server URL:

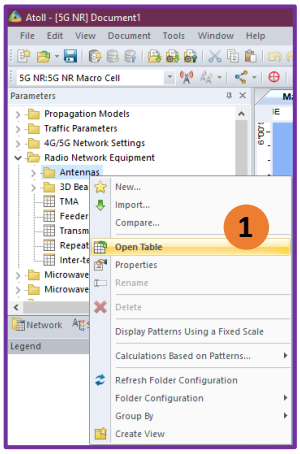
   http://mt.google.com/vt/lyrs=p&hl=en&x=%x&y=%y&z=%z > OK
5) Centang *Online Maps* dan muncul hasil *Online Maps*

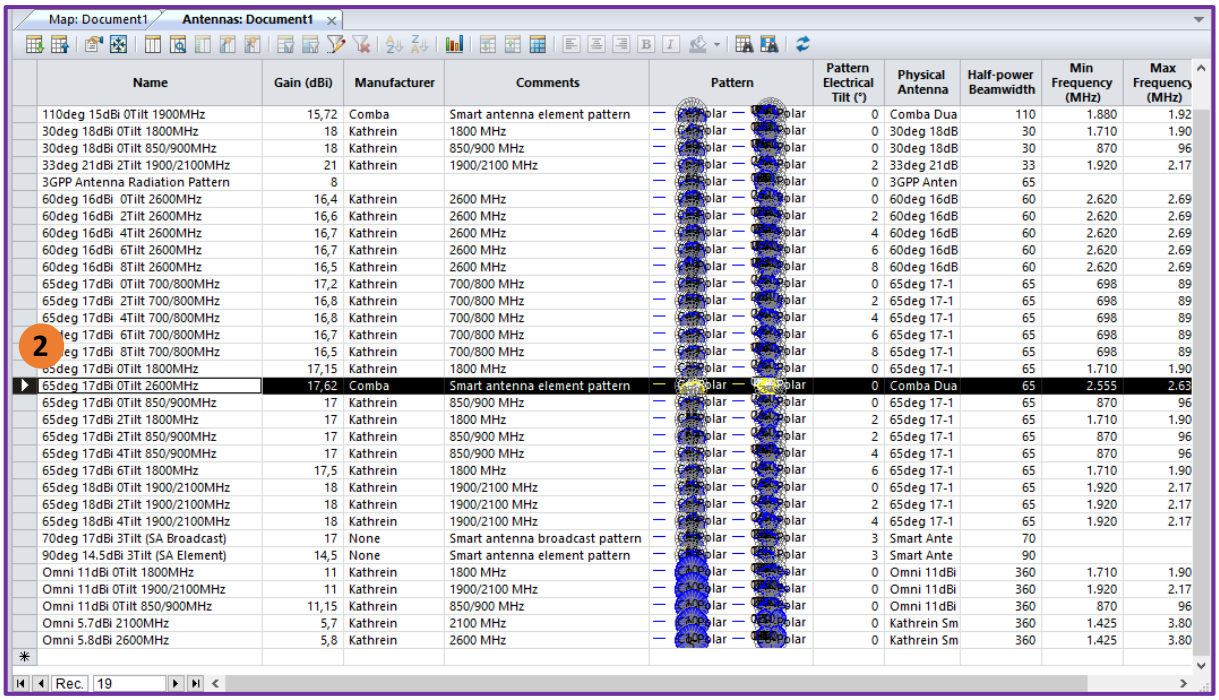
6. *Propagation Model*



1) Pilih tab *Parameters*
2) Klik kanan pada salah satu model propagasi > *Properties*
3) Pilih kategori pada tab *Configuration*
4) Klik *Apply* > OK

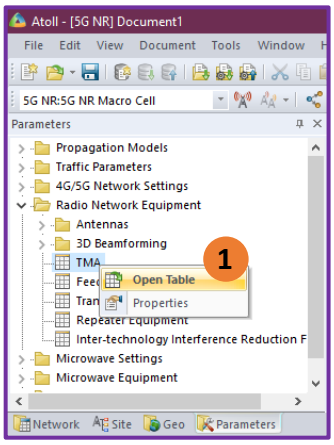
7. *Setting equipment* (1)

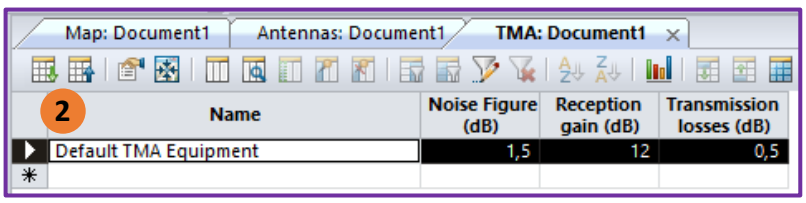




1) Pilih tab *Parameters* > Klik kanan pada *Antennas* > *Open Table*
2) Tetapkan nilai parameter pada Antena

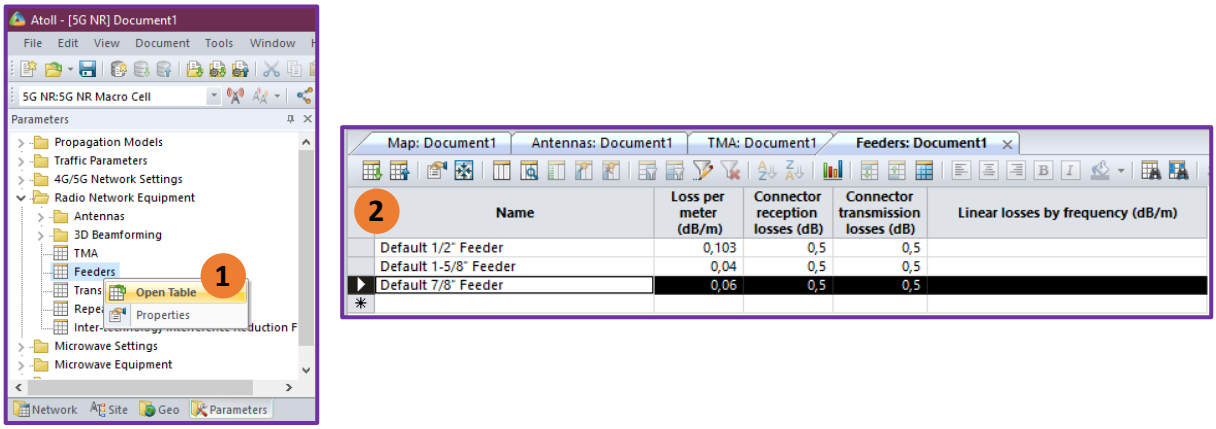
8. *Setting equipment* (2)





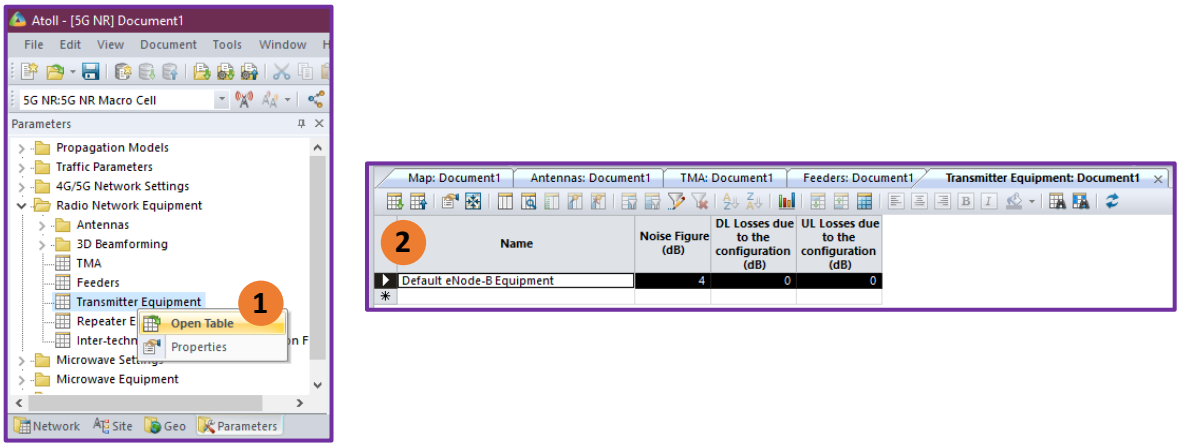
1) Klik kanan pada TMA > *Open Table*
2) Tetapkan nilai parameter pada TMA *Equipment*

9. *Setting equipment* (3)



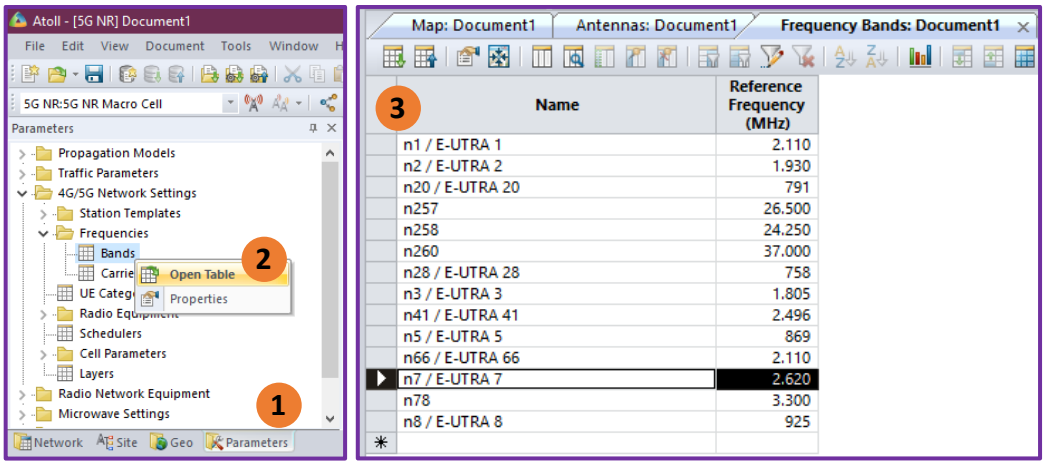
1) Klik kanan pada *Feeders* > *Open Table*
2) Tetapkan nilai parameter pada *Feeders Equipment*

10. *Setting equipment* (4)



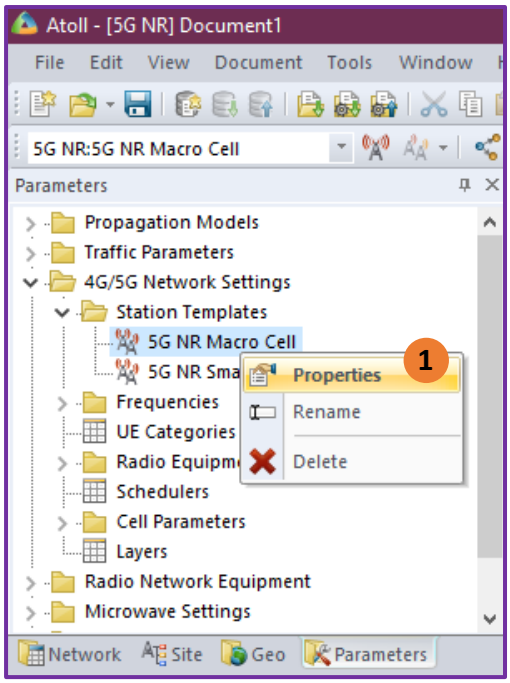
1) Klik kanan pada *Transmitter Equipment* > *Open Table*
2) Tetapkan nilai parameter pada *Transmitter Equipment*

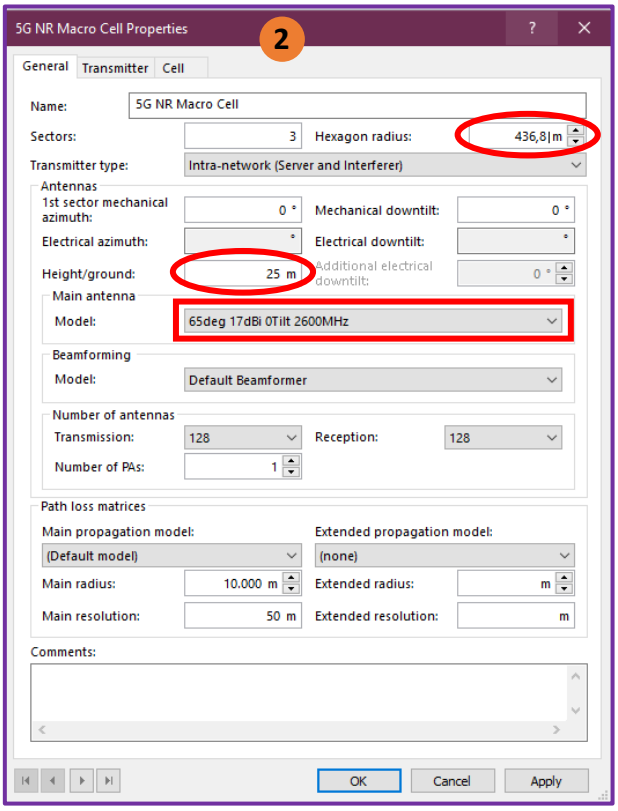
11. *Frequency Band*

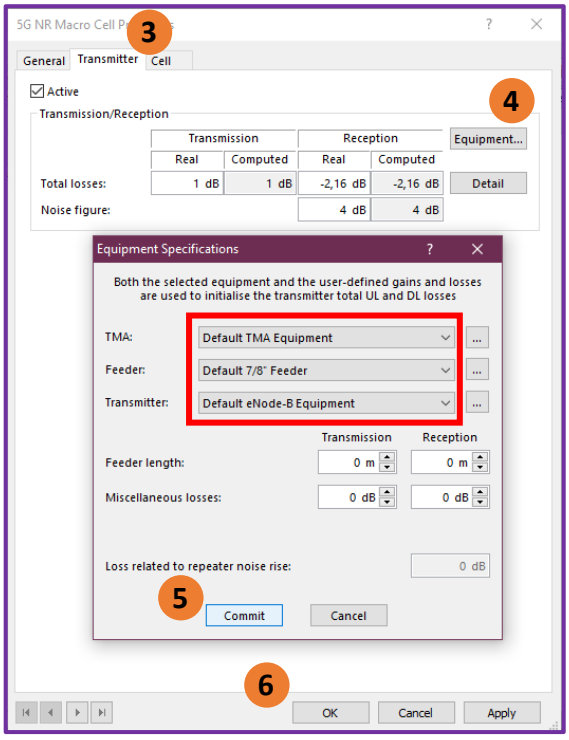


1) Pilih tab *Parameters*
2) Klik kanan pada *Bands* > *Open Table*
3) Tetapkan nilai parameter pada *Frequency Bands*

12. *Setting Station Template*



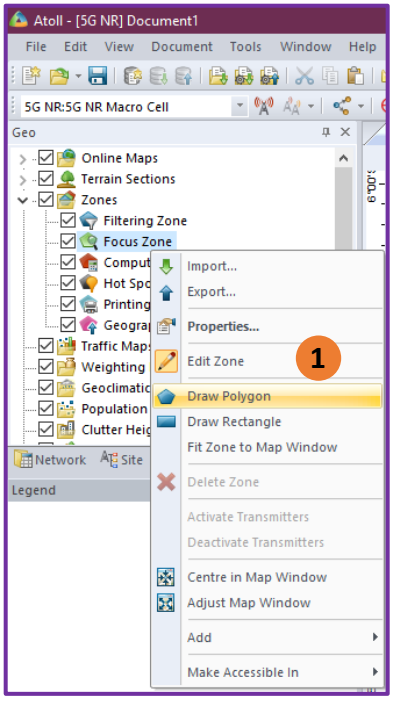




1) Pilih tab *Parameters* > Klik kanan 5G NR *Macro Cell* > *Properties*
2) Isi data pada Tab *General*
3) Klik Tab *Transmitter* > *Equipment*
4) Isi spesifikasi pada *Equipment*
5) Klik *Commit*
6) Klik *Apply* > OK

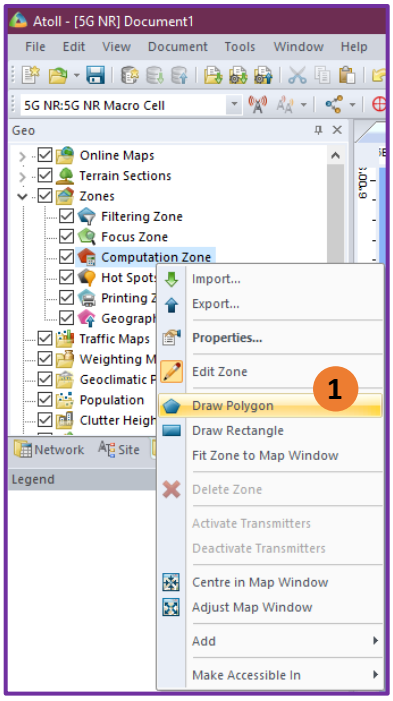
13. *Drawing Polygon Zone*

1) *Focus Zone*



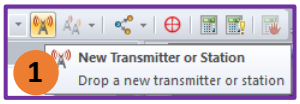
Pilih Tab Geo > Klik kanan pada *Focus Zone* > Pilih *Draw Polygon* > Gambar *Focus Zone* di map.

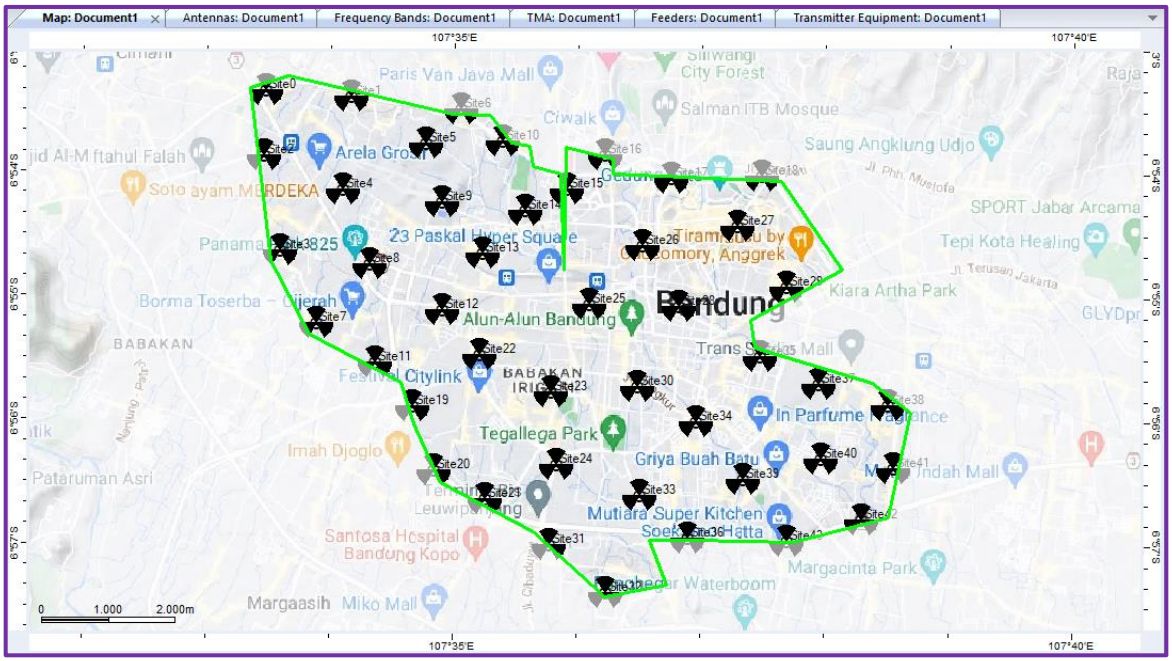
2) *Computation Zone*

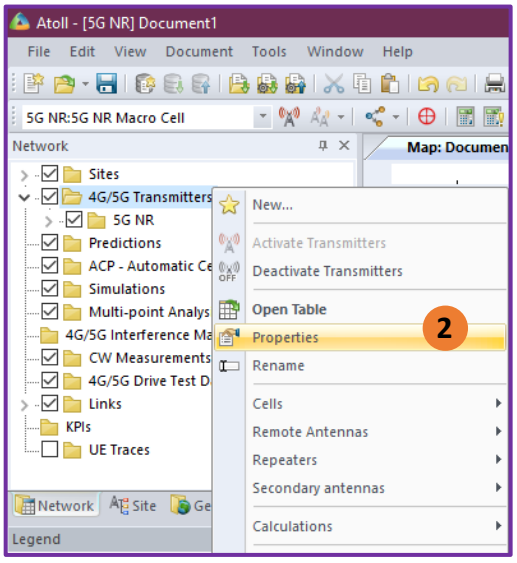


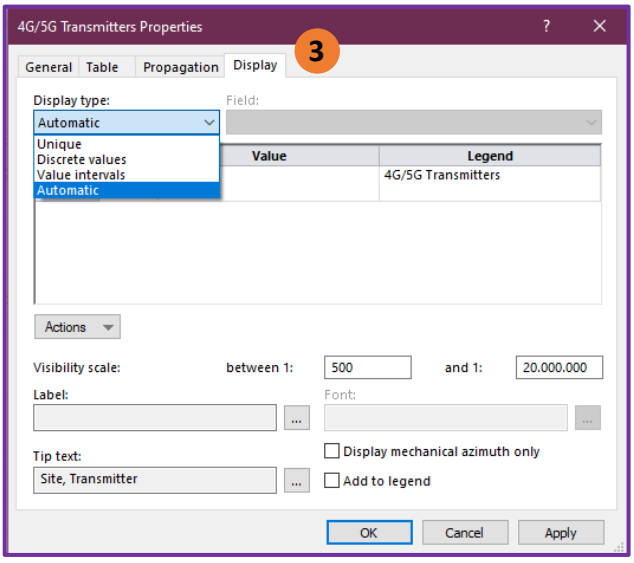
Pilih Tab Geo > Klik kanan pada *Computation Zone* > Pilih *Draw Polygon* > Gambar *Computation Zone* di map.

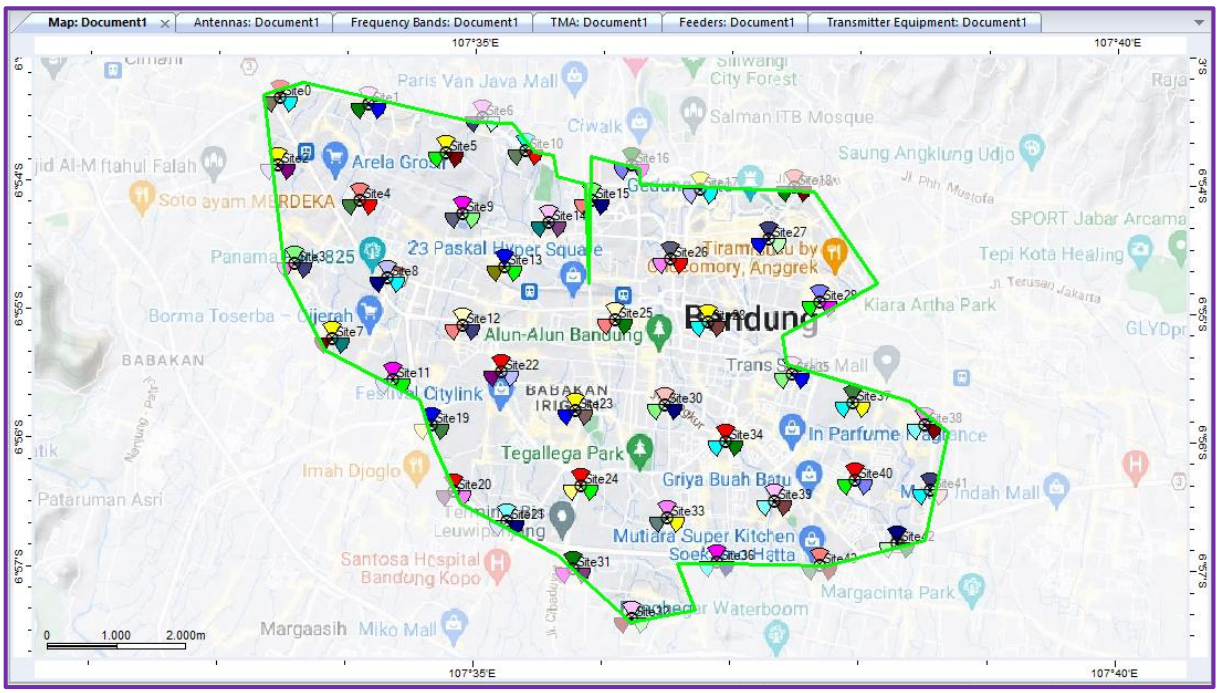
14. *Plotting Site*





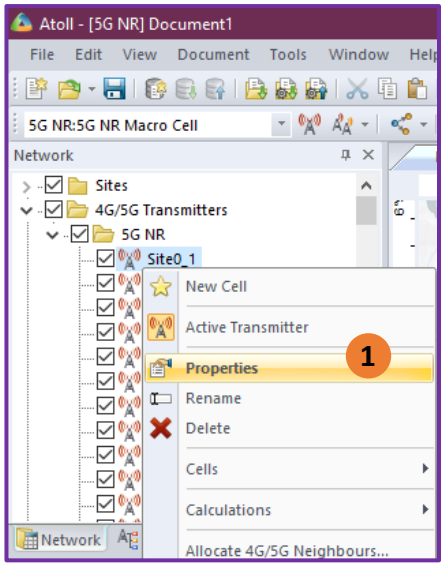


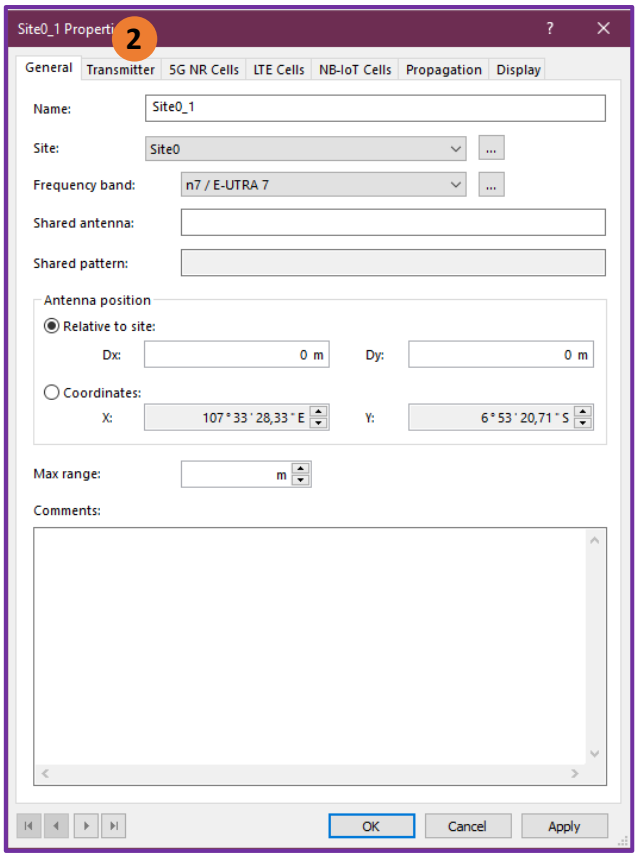


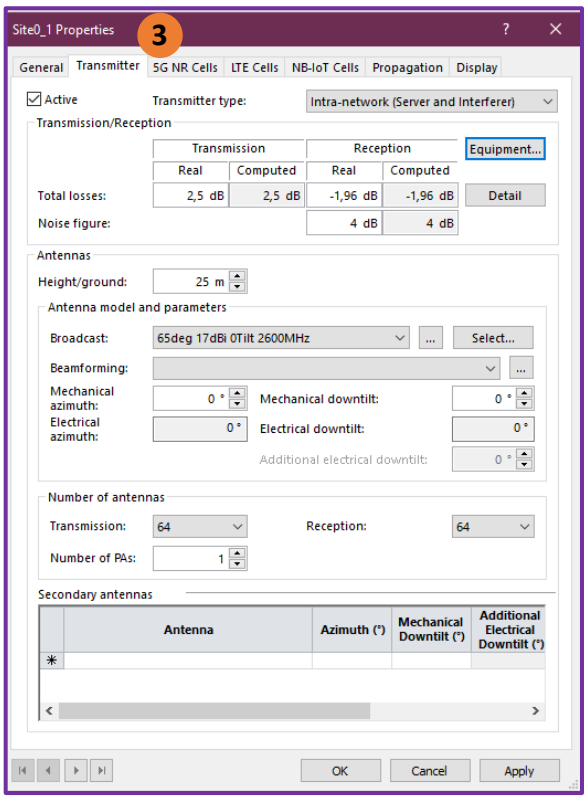


1) Klik *New Transmitter or Station* > Plot di peta wilayah yang akan direncanakan
2) Berikan beberapa warna > Klik kanan pada 4G/5G *Transmitters* > *Properties* > *Display* > *Display type*
3) Klik OK

15. *Transmitter*

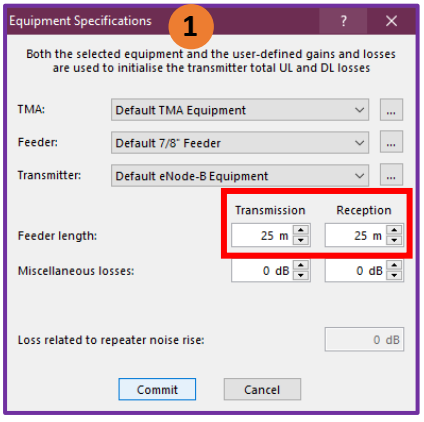


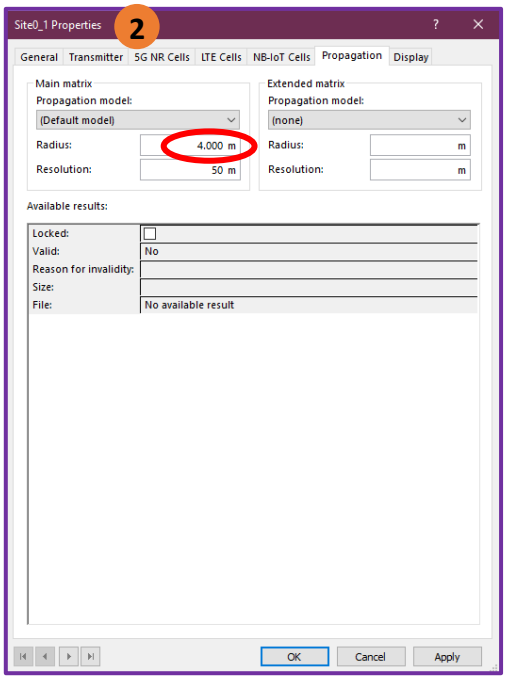


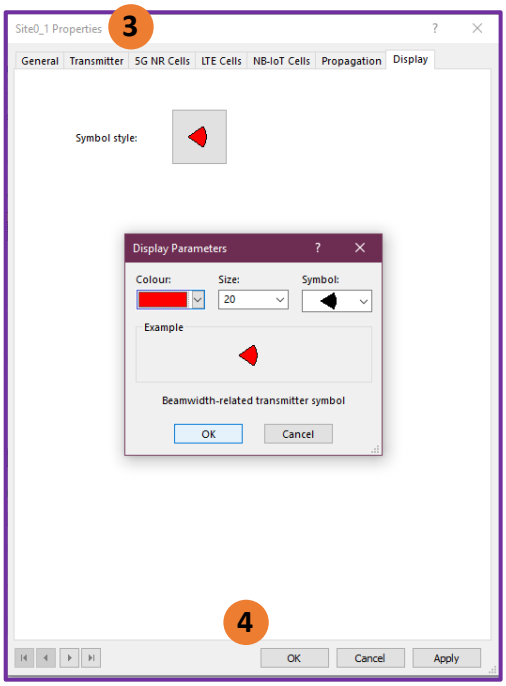


1) Klik kanan pada jenis *site* > *Properties*
2) Klik Tab *General*
3) Klik Tab *Transmitter*

16. *Transmitter*

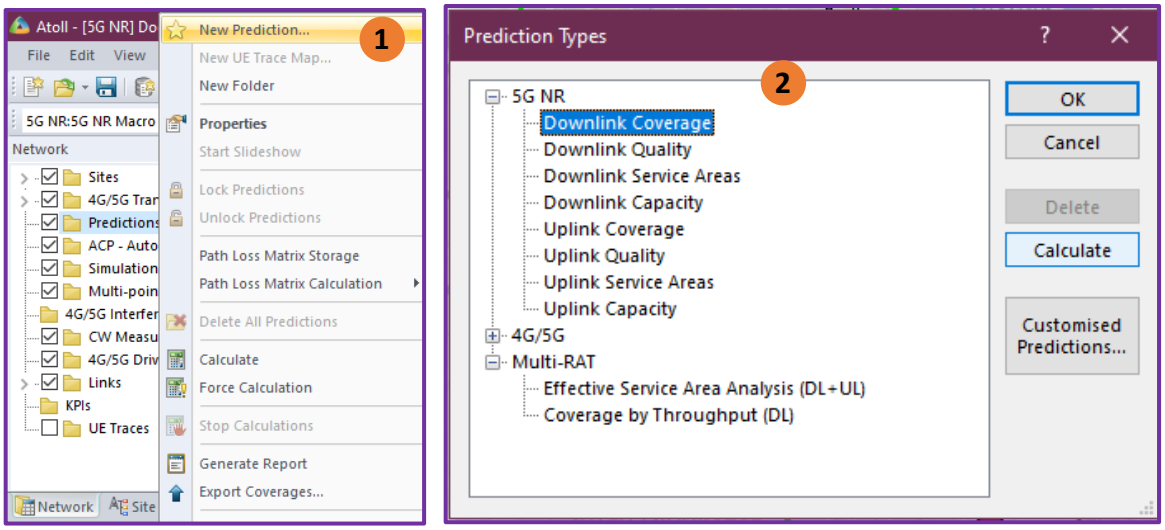


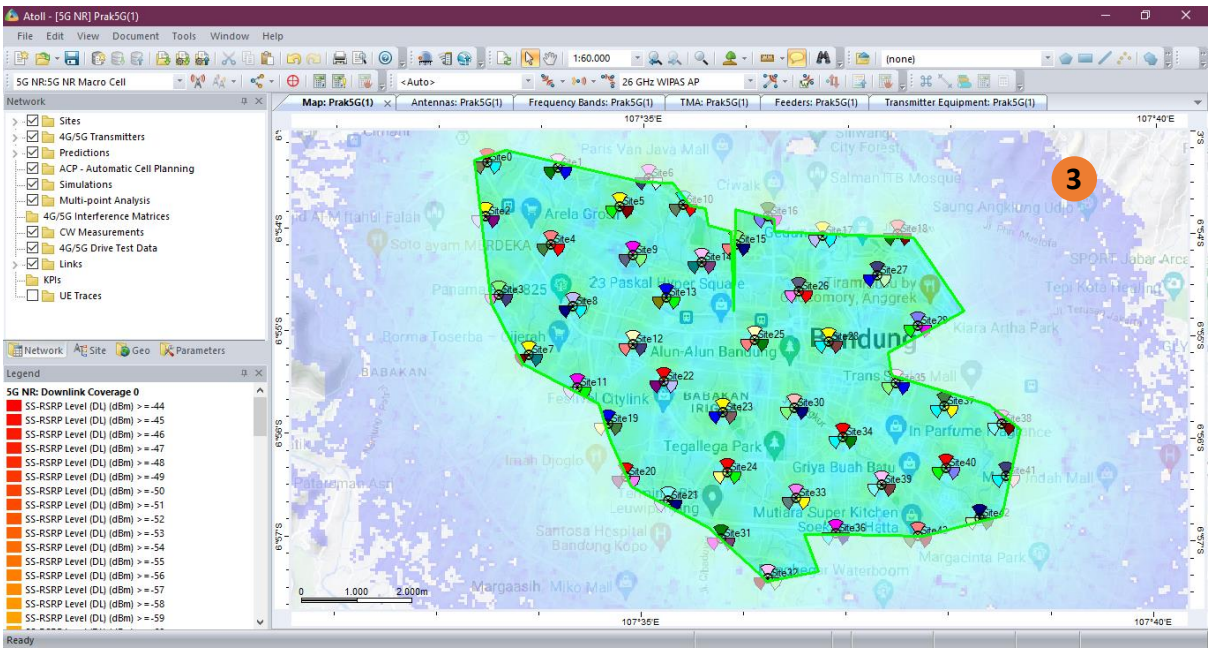




1) Klik *Equipment* pada Tab *Transmitter* > Isi spesifikasi pada *Equipment* > *Commit*
2) Klik Tab *Propagation* > Pilih *Propagation Model*
3) Klik Tab *Display* > Simbol > OK
4) *Apply* > OK

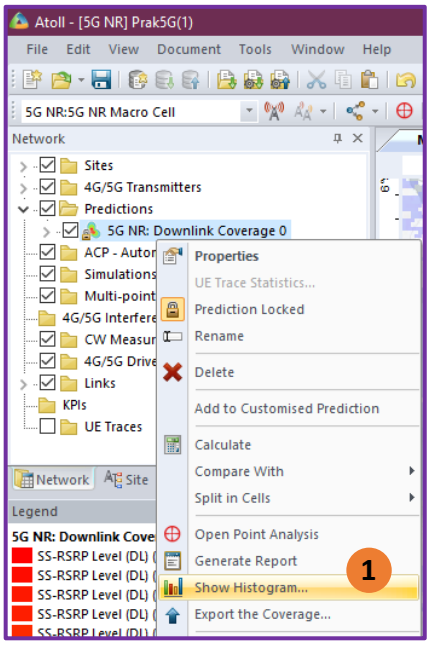
17. *Make a Prediction* (SS-RSRP)

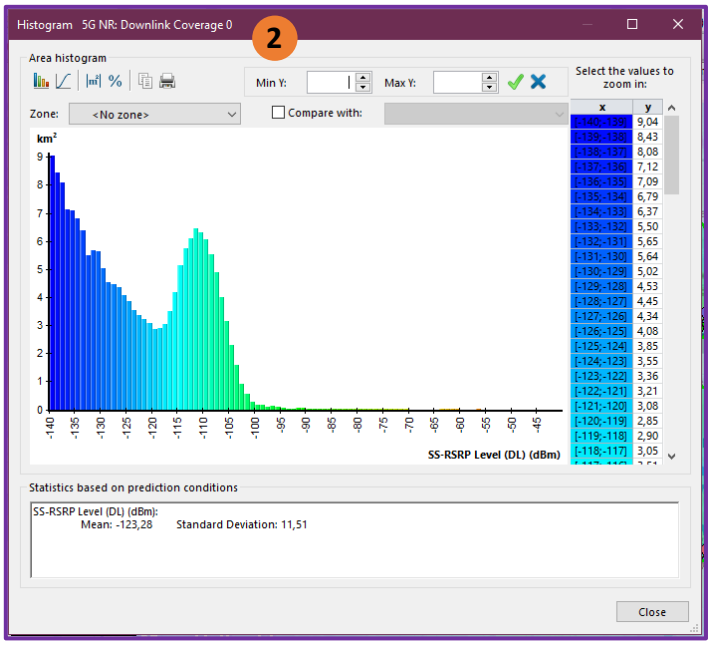




1) Klik kanan *Prediction* > *New Prediction*
2) *Choose Prediction* > *Calculate* > OK
3) Hasil

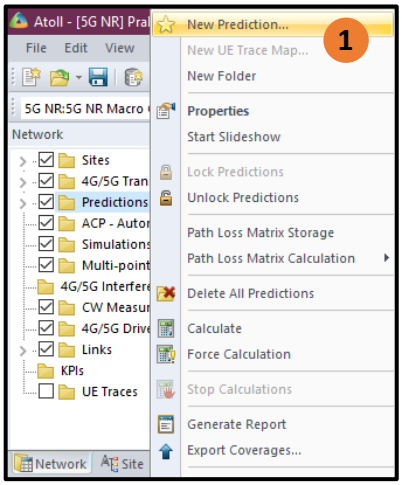
18. *Make a Prediction* (SS-RSRP)

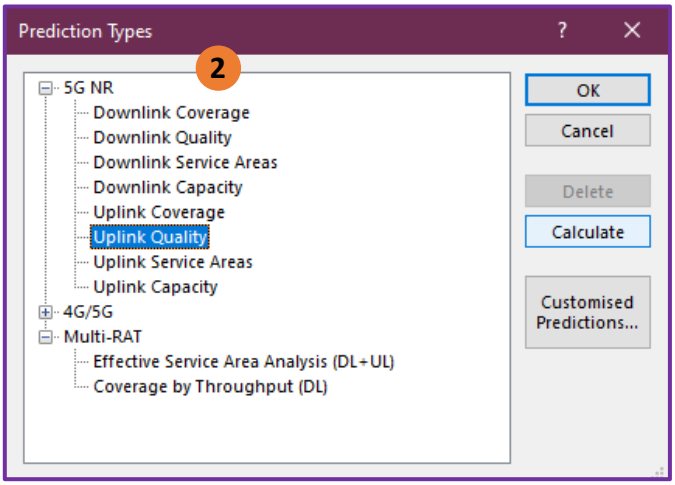


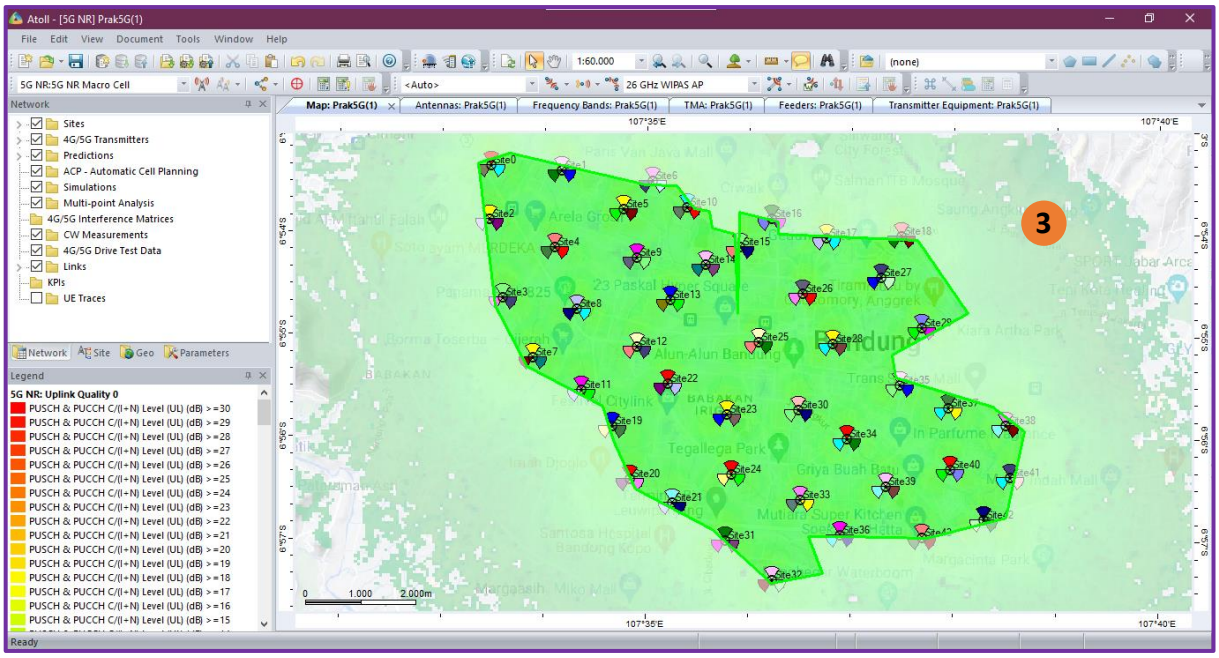


1) Klik kanan *Downlink Coverage* > *Show Histogram*
2) Hasil

19. *Make a Prediction* (SS-SINR)

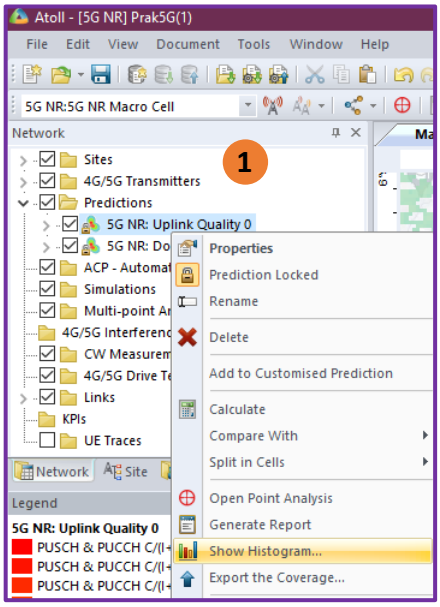


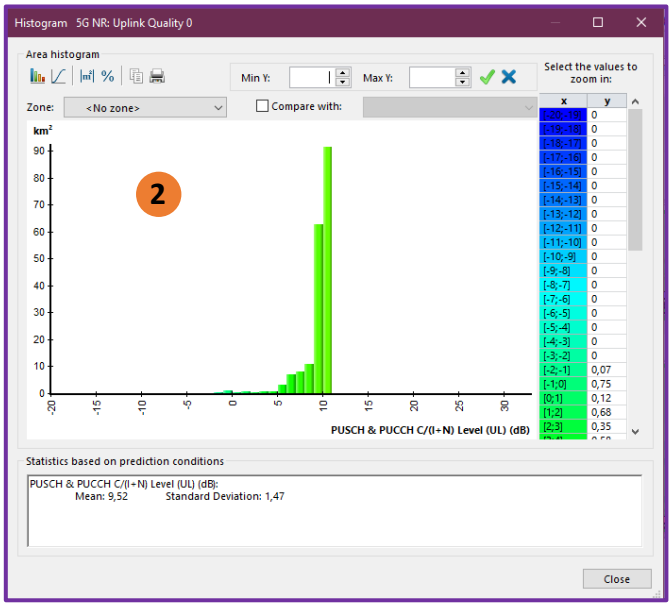




1) Klik kanan *Prediction* > *New Prediction*
2) *Choose Prediction* > *Calculate* > OK
3) Hasil

20. *Make a Prediction* (SS-SINR)





1) Klik kanan *Uplink Quality* > *Show Histogram*

2) Hasil

21. KPI

SS-RSRP	Grade
x < -115 dBm	*Unusable*
-100 > x ≥ -115 dBm	*Fair to Poor*
-80 > x ≥ -100 dBm	*Good*
x ≥ -80 dBm	*Excellent*

SS-SINR	Grade
x < 0 dB	*Unusable*
0 < x ≤ 13 dB	*Fair to Poor*
13 < x ≤ 20 dB	*Good*
x > 20 dB	*Excellent*