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Methodology used for RSSI Simulation

The coverage Report has been generated using Google earth and RF simulation software which works on Terrain data and consider the earth curvature and natural obstruction while calculating the coverage and path loss. Report is generated between repeater site and Radio terminals. Fade Margin of 8 dB and city, forest and earth curvature losses has been considered during simulation of RSSI survey between Loco and railway stations.

This software is a tool used to predict the performance of a radio system. It uses digital terrain elevation data for automatic extraction of path profile between an emitter and a receiver. This data is added to system, environmental and statistical parameters to feed the [Irregular Terrain Model](#) radio propagation model. [Elevation data](#) for most of the world is available. The software also provides 3D views, stereoscopic views, and animation. Elevation data is also used to produce virtual maps in background. Software tool used is a Radio Propagation simulation program which operates over the frequency range of 20MHz to 20GHz. It is based on the ITS (Longley-Rice) propagation model. The program enables elevation maps to be drawn of specified areas using downloaded SRTM data from the Space Shuttle Radar Terrain Mapping Mission, elevation contours and road maps to be added, and Radio Units (stations) specified for performance and placed where required. Individual Radio Unit performance is specified as a Radio Operating 'System' for power, sensitivity, antenna parameters etc. and all 'Radio Links' between Units can be examined for path profile and signal parameters. Signal coverage patterns can be produced for each separate Radio Unit if required. The 'Best Sites' to provide radio coverage to a number of specified Radio Unit locations can also be found by using the 'Find Best Sites' feature. The performance of a Radio Unit which is traversing a defined Route on the map can also be generated by the 'Route Radio Coverage' feature. It is also possible to use the 'Route' waypoint data with the 'Best Sites' feature, to find the best locations to provide full Route radio coverage.

Followings are the parameters which has been considered while generating the RSSI survey Report.

RF Parameter considered at Stations.

1. RF Parameter considered at Loco.

- a. Cable length:10 meter
- b. RSSI threshold as per RDSO: -100dBm
- c. Fade margin considered :30dB
- d. Antenna gain:3dBi
- e. Cable Loss:2.52dB
- f. Height of Antenna :4.2 meter
- g. Antenna type : locomotive
- h. Frequency Band :416-467 Mhz.

2. RF Parameter considered at 17 antenna meters

- a. Cable length: 07 meters
- b. RSSI threshold as per RDSO: -100dBm
- c. Fade margin considered :30dB
- d. Antenna gain:5dBi

- e. Cable Loss: 2.39 dB
- f. Frequency Band :416-467 Mhz

3. RF Parameter considered at antenna 27 meter

- a. Cable length: 17 meters
- b. RSSI threshold as per RDSO: -100dBm
- c. Fade margin considered :30dB
- d. Antenna gain:5dBi
- e. Cable Loss: 2.952 dB
- f. Frequency Band :416-467 Mhz

4. RF Parameter considered at antenna 32 meter

- a. Cable length: 22 meters
- b. RSSI threshold as per RDSO: -100dBm
- c. Fade margin considered :30dB
- d. Antenna gain:5dBi
- e. Cable Loss: 3.23 dB
- f. Frequency Band :416-467 Mhz

5. RF Parameter considered at antenna 33 meter

- a. Cable length: 23 meters
- b. RSSI threshold as per RDSO: -100dBm
- c. Fade margin considered :30dB
- d. Antenna gain:5dBi
- e. Cable Loss: 3.28 dB
- f. Frequency Band :416-467 Mhz

6. RF Parameter considered at antenna 37 meter

- a. Cable length: 27 meters
- b. RSSI threshold as per RDSO: -100dBm
- c. Fade margin considered :30dB
- d. Antenna gain:5dBi
- e. Cable Loss: 3.51 dB
- f. Frequency Band :416-467 Mhz

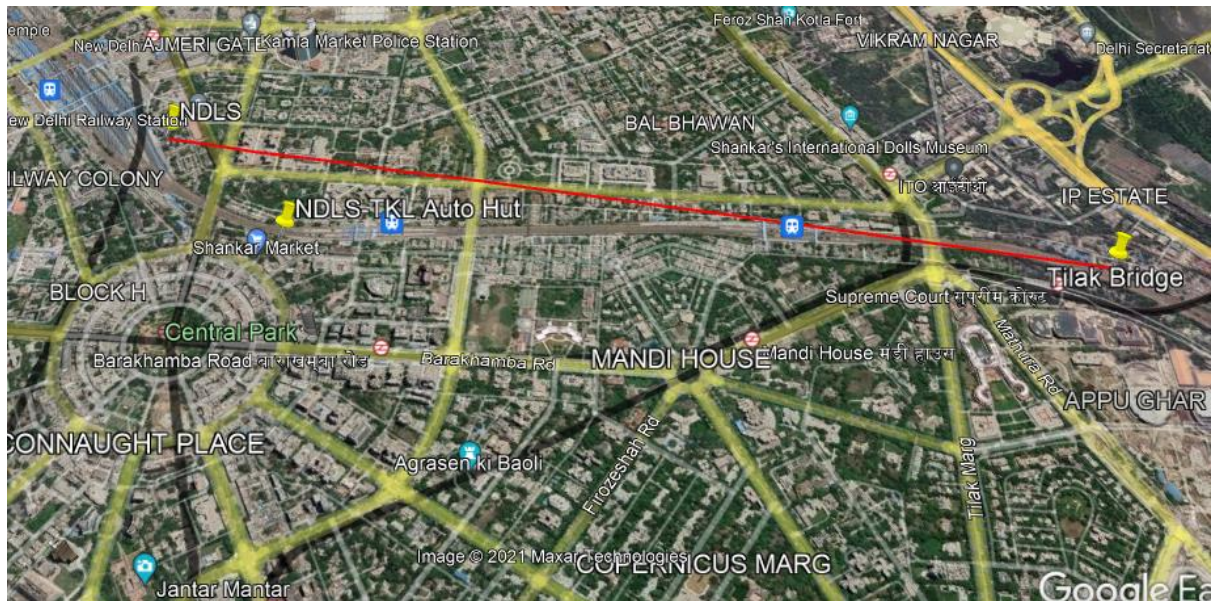
7. RF Parameter considered at antenna 47 meter

- a. Cable length: 37 meters
- b. RSSI threshold as per RDSO: -100dBm

- c. Fade margin considered :30dB
- d. Antenna gain:5dBi
- e. Cable Loss: 4.07 dB
- f. Frequency Band :416-467 Mhz

New Delhi to Tilak Bridge

City 40 %



Radio Link

Edit View Swap

Azimuth=129.44°	Elev. angle=-0.495°	Clearance at 2.03km	Worst Fresnel=0.4F1	Distance=2.89km
Free Space=94.5 dB	Obstruction=4.3 dB TR	Urban=10.3 dB	Forest=0.0 dB	Statistics=4.1 dB
PathLoss=113.3dB	E field=58.9dBμV/m	Rx level=-70.8dBm	Rx level=64.81μV	Rx Relative=-0.8dB

28°37'22.8"N 077°14'42.0"E

Transmitter 28°38'22.3"N 077°13'19.7"E

Receiver 28°37'22.8"N 077°14'42.0"E

Transmitter Settings:

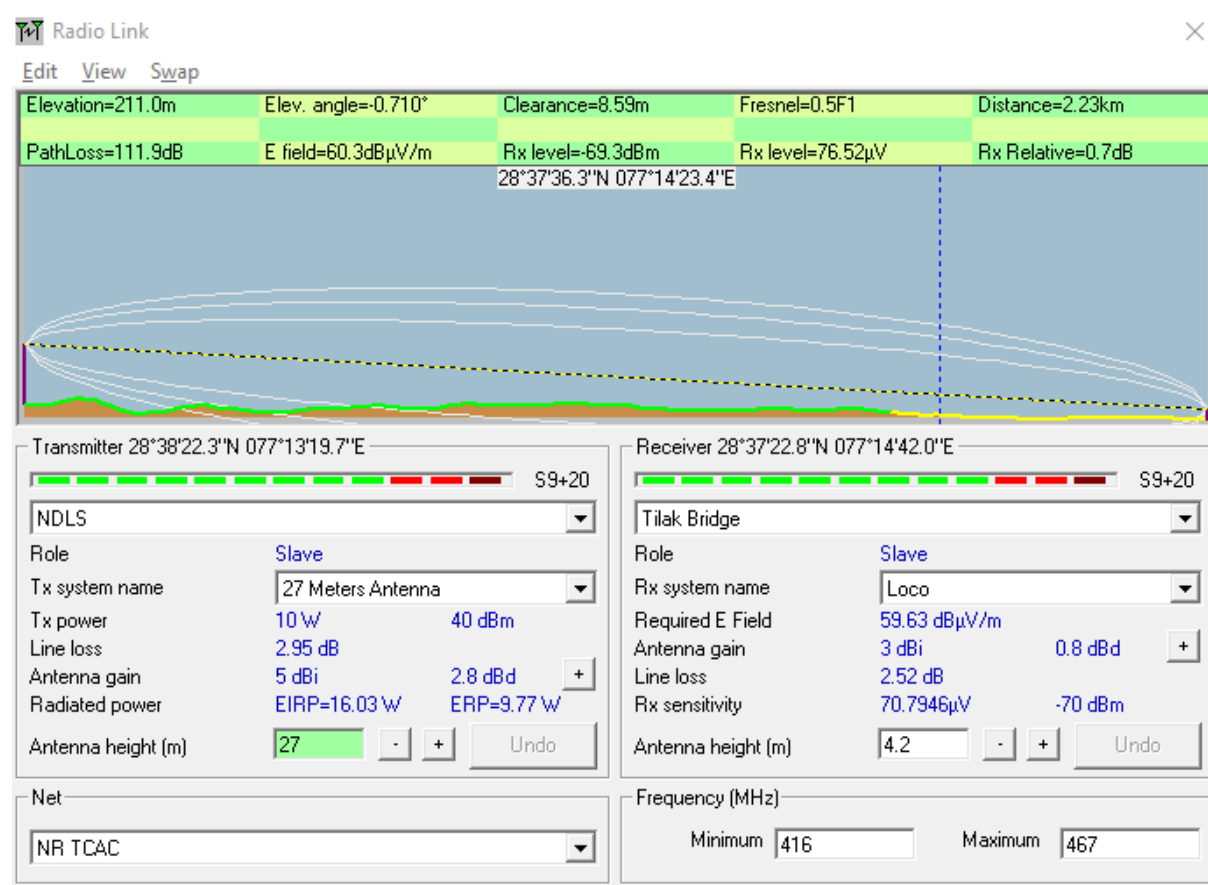
- Role: Slave
- Tx system name: 27 Meters Antenna
- Tx power: 10 W / 40 dBm
- Line loss: 2.95 dB
- Antenna gain: 5 dBi / 2.8 dBd
- Radiated power: EIRP=16.03 W / ERP=9.77 W
- Antenna height (m): 27

Receiver Settings:

- Role: Slave
- Rx system name: Loco
- Required E Field: 59.63 dBμV/m
- Antenna gain: 3 dBi / 0.8 dBd
- Line loss: 2.52 dB
- Rx sensitivity: 70.7946μV / -70 dBm
- Antenna height (m): 4.2

Net: NR TCAC

Frequency (MHz): Minimum 416, Maximum 467



Antenna at 33 Meters

Radio Link

Edit View Swap

Azimuth=129.44°	Elev. angle=-0.614°	Clearance at 2.65km	Worst Fresnel=0.5F1	Distance=2.89km
Free Space=94.5 dB	Obstruction=2.7 dB TR	Urban=10.3 dB	Forest=0.0 dB	Statistics=4.1 dB
PathLoss=111.7dB	E field=60.1dBμV/m	Rx level=-69.5dBm	Rx level=75.08μV	Rx Relative=0.5dB

28°37'22.8"N 077°14'42.0"E

Transmitter 28°38'22.3"N 077°13'19.7"E

S9+20

NDLS

Role Slave

Tx system name 33 Meters Antenna

Tx power 10 W 40 dBm

Line loss 3.29 dB

Antenna gain 5 dBi 2.8 dBd

Radiated power EIRP=14.83 W ERP=9.04 W

Antenna height (m) 33

Receiver 28°37'22.8"N 077°14'42.0"E

S9+20

Tilak Bridge

Role Slave

Rx system name Loco

Required E Field 59.63 dBμV/m

Antenna gain 3 dBi 0.8 dBd

Line loss 2.52 dB

Rx sensitivity 70.7946μV -70 dBm

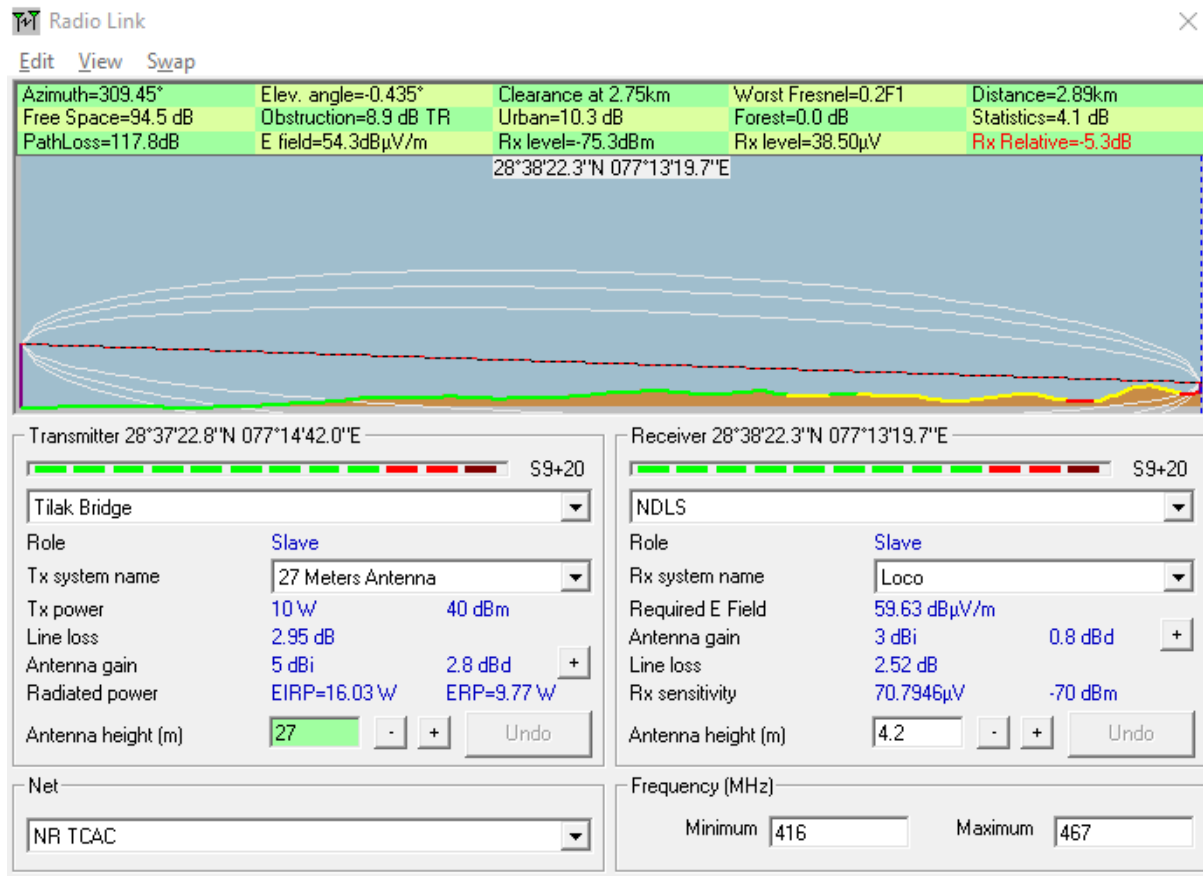
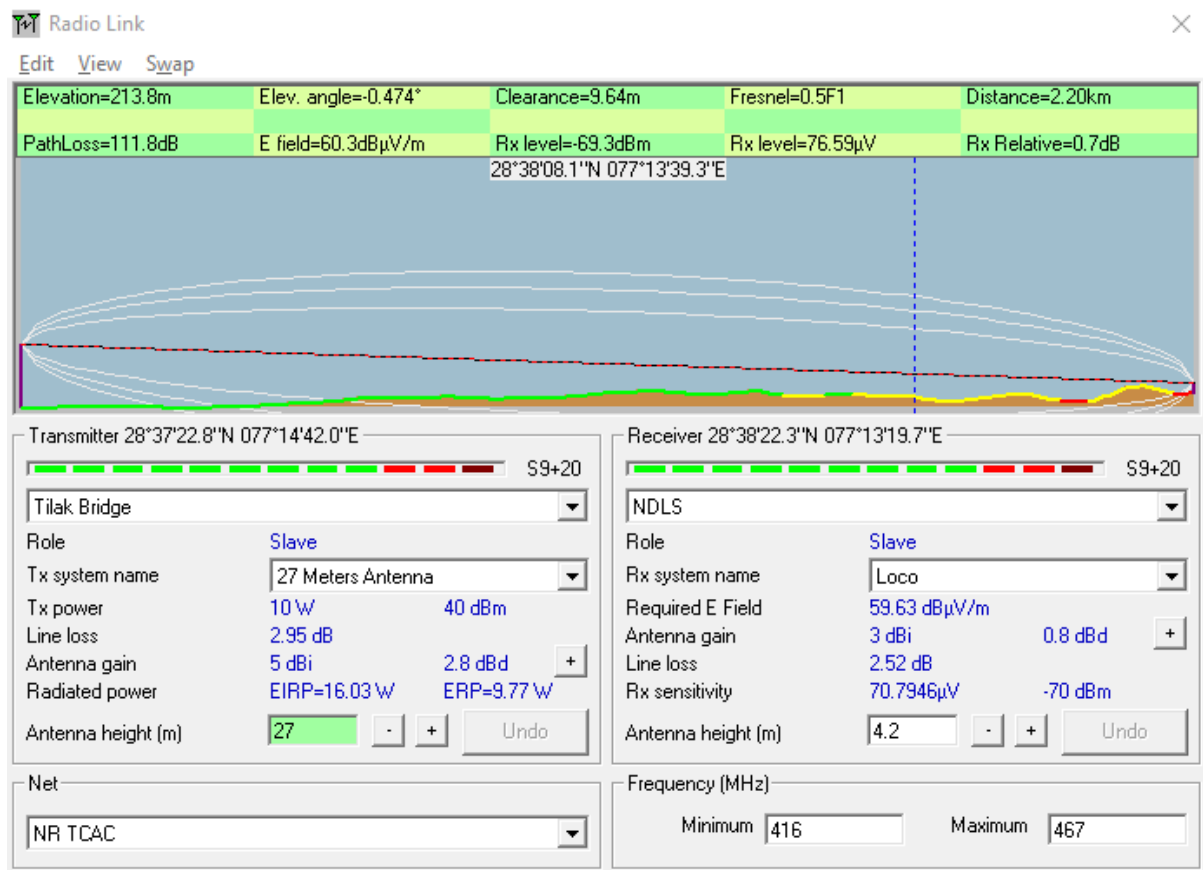
Antenna height (m) 4.2

Net NR TCAC

Frequency (MHz) Minimum 416 Maximum 467

Tilak Bridge to New Delhi

Antenna at 27 meters



Antenna at 37 meters

Radio Link

[Edit](#)
[View](#)
[Swap](#)

Azimuth=309.45°	Elev. angle=-0.633°	Clearance at 2.75km	Worst Fresnel=0.2F1	Distance=2.89km
Free Space=94.5 dB	Obstruction=7.8 dB TR	Urban=10.3 dB	Forest=0.0 dB	Statistics=4.1 dB
PathLoss=116.7dB	E field=54.9dBμV/m	Rx level=-74.8dBm	Rx level=40.95μV	Rx Relative=-4.8dB

28°38'22.3"N 077°13'19.7"E

Transmitter 28°37'22.8"N 077°14'42.0"E

S9+20

Tilak Bridge

Role Slave

Tx system name 37 Meters Antenna

Tx power 10 W 40 dBm

Line loss 3.51 dB

Antenna gain 5 dBi 2.8 dBd +

Radiated power EIRP=14.09 W ERP=8.59 W

Antenna height (m) 37 - + Undo

Receiver 28°38'22.3"N 077°13'19.7"E

S9+20

NDLS

Role Slave

Rx system name Loco

Required E Field 59.63 dBμV/m

Antenna gain 3 dBi 0.8 dBd +

Line loss 2.52 dB

Rx sensitivity 70.7946μV -70 dBm

Antenna height (m) 4.2 - + Undo

Net

NR TCAC

Frequency (MHz)

Minimum 416 Maximum 467

Radio Link

[Edit](#)
[View](#)
[Swap](#)

Elevation=214.3m	Elev. angle=-0.635°	Clearance=8.76m	Fresnel=0.6F1	Distance=2.51km
PathLoss=109.7dB	E field=61.9dBμV/m	Rx level=-67.7dBm	Rx level=91.73μV	Rx Relative=2.3dB

28°38'14.5"N 077°13'30.5"E

Transmitter 28°37'22.8"N 077°14'42.0"E

S9+30

Tilak Bridge

Role Slave

Tx system name 37 Meters Antenna

Tx power 10 W 40 dBm

Line loss 3.51 dB

Antenna gain 5 dBi 2.8 dBd +

Radiated power EIRP=14.09 W ERP=8.59 W

Antenna height (m) 37 - + Undo

Receiver 28°38'22.3"N 077°13'19.7"E

S9+30

NDLS

Role Slave

Rx system name Loco

Required E Field 59.63 dBμV/m

Antenna gain 3 dBi 0.8 dBd +

Line loss 2.52 dB

Rx sensitivity 70.7946μV -70 dBm

Antenna height (m) 4.2 - + Undo

Net

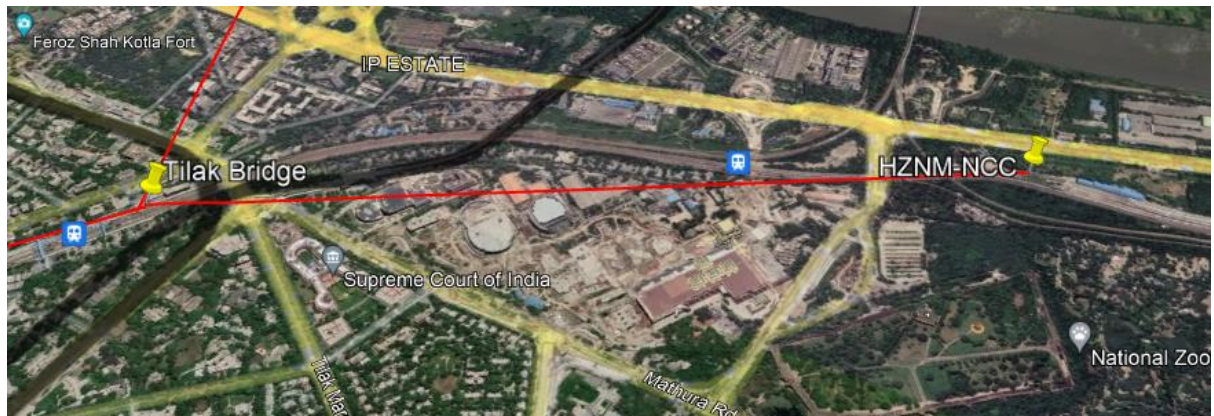
NR TCAC

Frequency (MHz)

Minimum 416 Maximum 467

Tilak Bridge to Nizamuddin NCC

City 30 %



Radio Link [X]

Edit View Swap

Azimuth=159.19°	Elev. angle=-0.682°	Clearance at 1.41km	Worst Fresnel=0.4F1	Distance=1.65km
Free Space=89.6 dB	Obstruction=3.2 dB TR	Urban=7.8 dB	Forest=0.0 dB	Statistics=4.1 dB
PathLoss=104.8dB	E field=67.4dBμV/m	Rx level=-62.2dBm	Rx level=173.24μV	Rx Relative=7.8dB

28°36'32.9"N 077°15'03.6"E

Transmitter 28°37'22.8"N 077°14'42.0"E

S9+30

Tilak Bridge

Role: Slave

Tx system name: 27 Meters Antenna

Tx power: 10 W 40 dBm

Line loss: 2.95 dB

Antenna gain: 5 dBi 2.8 dBd

Radiated power: EIRP=16.03 W ERP=9.77 W

Antenna height (m): 27 - + Undo

Receiver 28°36'32.9"N 077°15'03.6"E

S9+30

HZNM-NCC

Role: Slave

Rx system name: Loco

Required E Field: 59.63 dBμV/m

Antenna gain: 3 dBi 0.8 dBd

Line loss: 2.52 dB

Rx sensitivity: 70.7946μV -70 dBm

Antenna height (m): 4.2 - + Undo

Net

NR TCAC

Frequency (MHz)

Minimum: 416 Maximum: 467

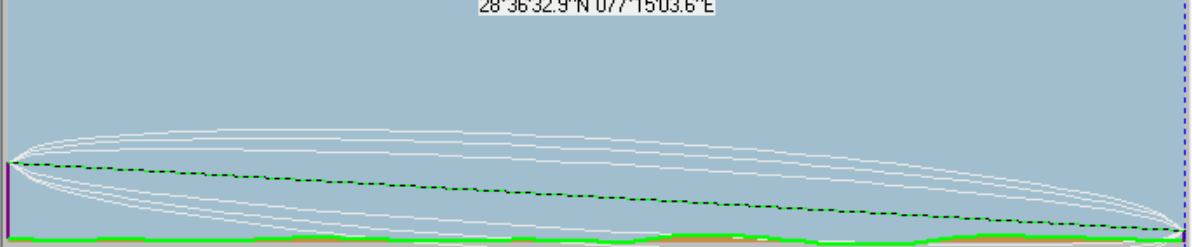
Antenna at 37 Meters

Radio Link

Edit View Swap

Azimuth=159.19°	Elev. angle=-1.029°	Clearance at 1.41km	Worst Fresnel=0.6F1	Distance=1.65km
Free Space=89.6 dB	Obstruction=0.9 dB TR	Urban=7.8 dB	Forest=0.0 dB	Statistics=4.1 dB
PathLoss=102.5dB	E field=69.1dBμV/m	Rx level=-60.6dBm	Rx level=210.11μV	Rx Relative=9.4dB

28°36'32.9"N 077°15'03.6"E



Transmitter 28°37'22.8"N 077°14'42.0"E

S9+30

Tilak Bridge

Role Slave

Tx system name 37 Meters Antenna

Tx power 10 W 40 dBm

Line loss 3.51 dB

Antenna gain 5 dBi 2.8 dBd +

Radiated power EIRP=14.09 W ERP=8.59 W

Antenna height (m) 37 - + Undo

Receiver 28°36'32.9"N 077°15'03.6"E

S9+30

HZNM-NCC

Role Slave

Rx system name Loco

Required E Field 59.63 dBμV/m

Antenna gain 3 dBi 0.8 dBd +

Line loss 2.52 dB

Rx sensitivity 70.7946μV -70 dBm

Antenna height (m) 4.2 - + Undo

Net

NR TCAC

Frequency (MHz)

Minimum 416 Maximum 467

Nizamuddin-NCC to Tilak Bridge

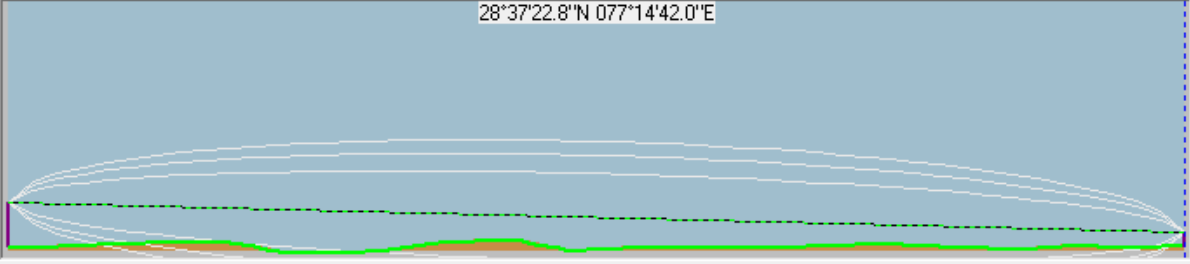
Antenna at 17 Meters

Radio Link

Edit View Swap

Azimuth=339.20°	Elev. angle=-0.568°	Clearance at 1.20km	Worst Fresnel=0.4F1	Distance=1.65km
Free Space=89.6 dB	Obstruction=3.2 dB TR	Urban=7.8 dB	Forest=0.0 dB	Statistics=4.1 dB
PathLoss=104.7dB	E field=68.0dBμV/m	Rx level=-61.6dBm	Rx level=185.23μV	Rx Relative=8.4dB

28°37'22.8"N 077°14'42.0"E



Transmitter 28°36'32.9"N 077°15'03.6"E

S9+30

HZNM-NCC

Role Slave

Tx system name 17 Meters Antenna

Tx power 10 W 40 dBm

Line loss 2.39 dB

Antenna gain 5 dBi 2.8 dBd +

Radiated power EIRP=18.23 W ERP=11.12 W

Antenna height (m) 17 - + Undo

Receiver 28°37'22.8"N 077°14'42.0"E

S9+30

Tilak Bridge

Role Slave

Rx system name Loco

Required E Field 59.63 dBμV/m

Antenna gain 3 dBi 0.8 dBd +

Line loss 2.52 dB

Rx sensitivity 70.7946μV -70 dBm

Antenna height (m) 4.2 - + Undo

Net NR TCAC

Frequency (MHz) Minimum 416 Maximum 467

Nizamuddin-NCC to Nizamuddin

City 10 %



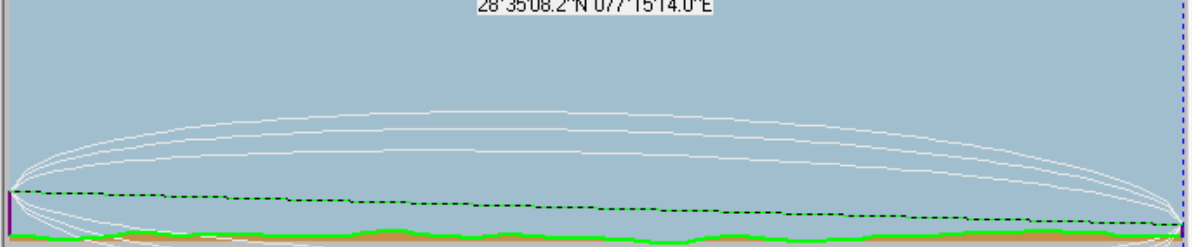
Antenna at 17 Meters

Radio Link

Edit View Swap

Azimuth=173.84°	Elev. angle=-0.129°	Clearance at 2.29km	Worst Fresnel=0.3F1	Distance=2.63km
Free Space=93.7 dB	Obstruction=6.9 dB TR	Urban=2.6 dB	Forest=0.0 dB	Statistics=4.1 dB
PathLoss=107.3dB	E field=65.4dBμV/m	Rx level=-64.2dBm	Rx level=137.29μV	Rx Relative=5.8dB

28°35'08.2"N 077°15'14.0"E



Transmitter 28°36'32.9"N 077°15'03.6"E

S9+30

HZNM-NCC

Role Slave

Tx system name 17 Meters Antenna

Tx power 10 W 40 dBm

Line loss 2.39 dB

Antenna gain 5 dBi 2.8 dBd +

Radiated power EIRP=18.23 W ERP=11.12 W

Antenna height (m) 17 - + Undo

Receiver 28°35'08.2"N 077°15'14.0"E

S9+30

HNZM

Role Master

Rx system name Loco

Required E Field 59.63 dBμV/m

Antenna gain 3 dBi 0.8 dBd +

Line loss 2.52 dB

Rx sensitivity 70.7946μV -70 dBm

Antenna height (m) 4.2 - + Undo

Net

NR TCAC

Frequency (MHz)

Minimum 416 Maximum 467

Nizamuddin to Nizamuddin- NCC

Antenna at 27 Meters

Radio Link

Edit View Swap

Azimuth=353.84°	Elev. angle=-0.669°	Clearance at 2.32km	Worst Fresnel=0.4F1	Distance=2.63km
Free Space=93.7 dB	Obstruction=4.4 dB TR	Urban=2.6 dB	Forest=0.0 dB	Statistics=4.1 dB
PathLoss=104.8dB	E field=67.4dBμV/m	Rx level=-62.2dBm	Rx level=172.99μV	Rx Relative=7.8dB

28°36'32.9"N 077°15'03.6"E

Transmitter 28°35'08.2"N 077°15'14.0"E

S9+30

HNZM

Role Master

Tx system name 27 Meters Antenna

Tx power 10 W 40 dBm

Line loss 2.95 dB

Antenna gain 5 dBi 2.8 dBd

Radiated power EIRP=16.03 W ERP=9.77 W

Antenna height (m) 27

Receiver 28°36'32.9"N 077°15'03.6"E

S9+30

HZNM-NCC

Role Slave

Rx system name Loco

Required E Field 59.63 dBμV/m

Antenna gain 3 dBi 0.8 dBd

Line loss 2.52 dB

Rx sensitivity 70.7946μV -70 dBm

Antenna height (m) 4.2

Net NR TCAC

Frequency (MHz) Minimum 416 Maximum 467

Antenna at 37 Meters

Radio Link

Edit View Swap

Azimuth=353.84°

Elev. angle=-0.887°

Clearance at 2.32km

Worst Fresnel=0.5F1

Distance=2.63km

Free Space=93.7 dB

Obstruction=2.7 dB TR

Urban=2.6 dB

Forest=0.0 dB

Statistics=4.1 dB

PathLoss=103.1dB

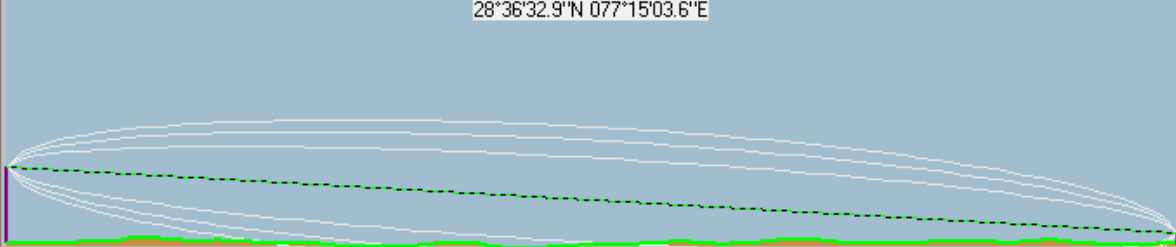
E field=68.5dBμV/m

Rx level=-61.1dBm

Rx level=197.50μV

Rx Relative=8.9dB

28°36'32.9"N 077°15'03.6"E



Transmitter 28°35'08.2"N 077°15'14.0"E

S9+30

HNZM

Role Master

Tx system name37 Meters Antenna

Tx power10 W40 dBm

Line loss3.51 dB

Antenna gain5 dBi2.8 dBd

Radiated powerEIRP=14.09 WERP=8.59 W

Antenna height (m)37

Net

NR TCAC

Receiver 28°36'32.9"N 077°15'03.6"E

S9+30

HZNM-NCC

Role Slave

Rx system nameLoco

Required E Field59.63 dBμV/m

Antenna gain3 dBi0.8 dBd

Line loss2.52 dB

Rx sensitivity70.7946μV-70 dBm

Antenna height (m)4.2

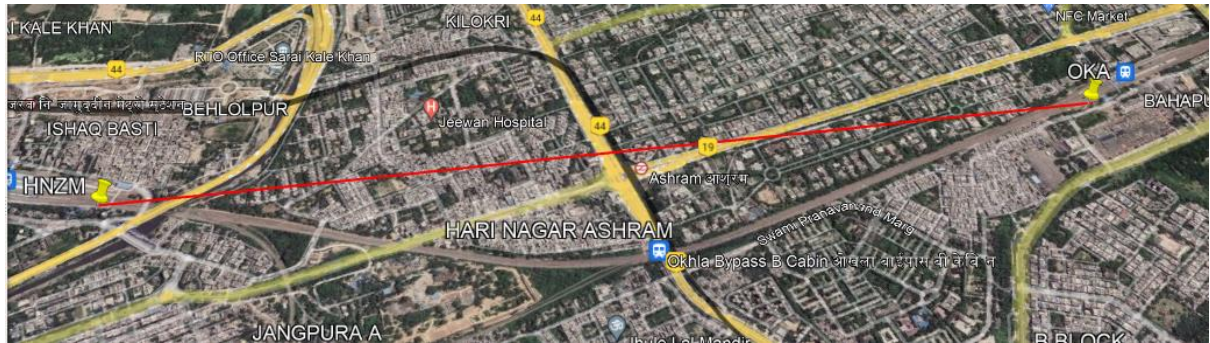
Frequency (MHz)

Minimum416

Maximum467

Nizamuddin to Okhla

City: 40%



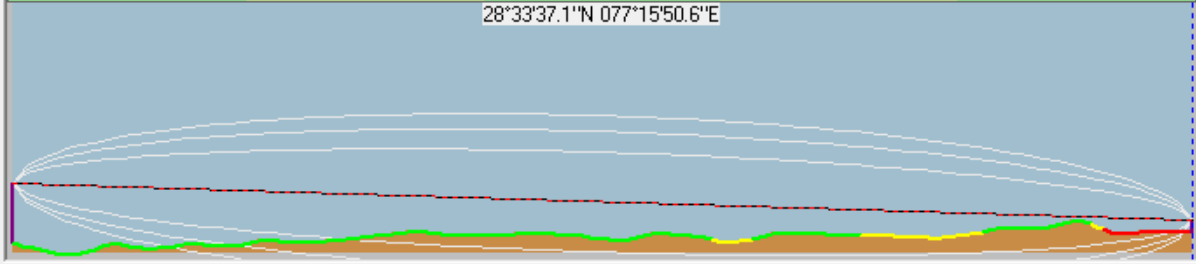
Antenna at 27 meters

 Radio Link ✕

Edit View Swap

Azimuth=160.57°	Elev. angle=-0.181°	Clearance at 2.71km	Worst Fresnel=0.1F1	Distance=2.98km
Free Space=94.8 dB	Obstruction=10.8 dB TR	Urban=10.3 dB	Forest=0.0 dB	Statistics=4.1 dB
PathLoss=120.0dB	E field=52.2dBμV/m	Rx level=-77.4dBm	Rx level=30.04μV	Rx Relative=-7.4dB

28°33'37.1"N 077°15'50.6"E



Transmitter 28°35'08.2"N 077°15'14.0"E

S9+20

HNZM

Role Master

Tx system name 27 Meters Antenna

Tx power 10 W 40 dBm

Line loss 2.95 dB

Antenna gain 5 dBi 2.8 dBd +

Radiated power EIRP=16.03 W ERP=9.77 W

Antenna height (m) 27 - + Undo

Receiver 28°33'37.1"N 077°15'50.6"E

S9+20

OKA

Role Slave

Rx system name Loco

Required E Field 59.63 dBμV/m

Antenna gain 3 dBi 0.8 dBd +

Line loss 2.52 dB

Rx sensitivity 70.7946μV -70 dBm

Antenna height (m) 4.2 - + Undo

Net

NR TCAC

Frequency (MHz)

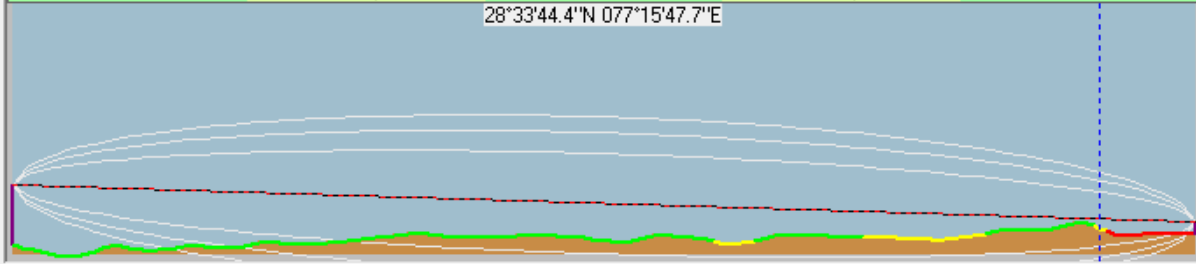
Minimum 416 Maximum 467

 Radio Link ✕

Edit View Swap

Elevation=216.6m	Elev. angle=-0.309°	Clearance=3.00m	Fresnel=0.2F1	Distance=2.74km
PathLoss=111.8dB	E field=60.3dBμV/m	Rx level=-69.3dBm	Rx level=76.86μV	Rx Relative=0.7dB

28°33'44.4"N 077°15'47.7"E



Transmitter 28°35'08.2"N 077°15'14.0"E

S9+20

HNZM

Role Master

Tx system name 27 Meters Antenna

Tx power 10 W 40 dBm

Line loss 2.95 dB

Antenna gain 5 dBi 2.8 dBd +

Radiated power EIRP=16.03 W ERP=9.77 W

Antenna height (m) 27 - + Undo

Receiver 28°33'37.1"N 077°15'50.6"E

S9+20

OKA

Role Slave

Rx system name Loco

Required E Field 59.63 dBμV/m

Antenna gain 3 dBi 0.8 dBd +

Line loss 2.52 dB

Rx sensitivity 70.7946μV -70 dBm

Antenna height (m) 4.2 - + Undo

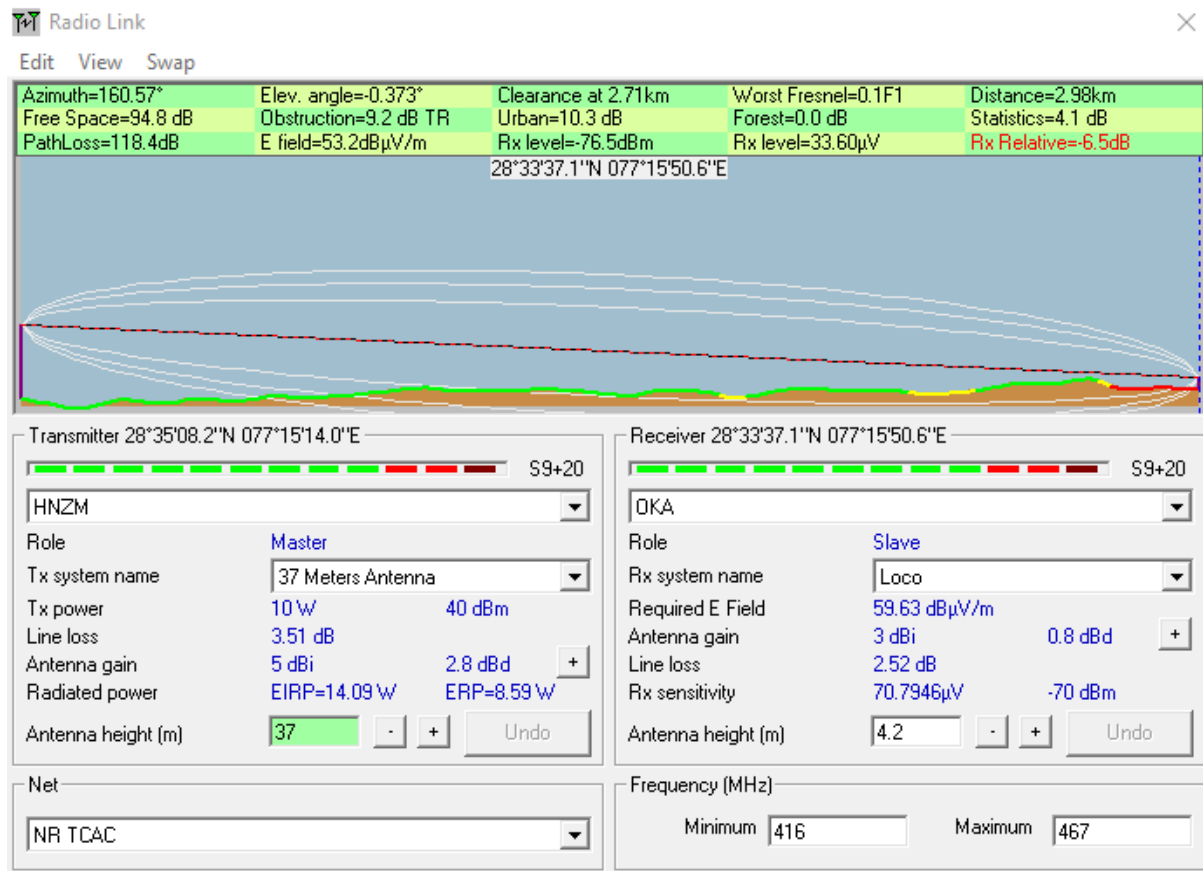
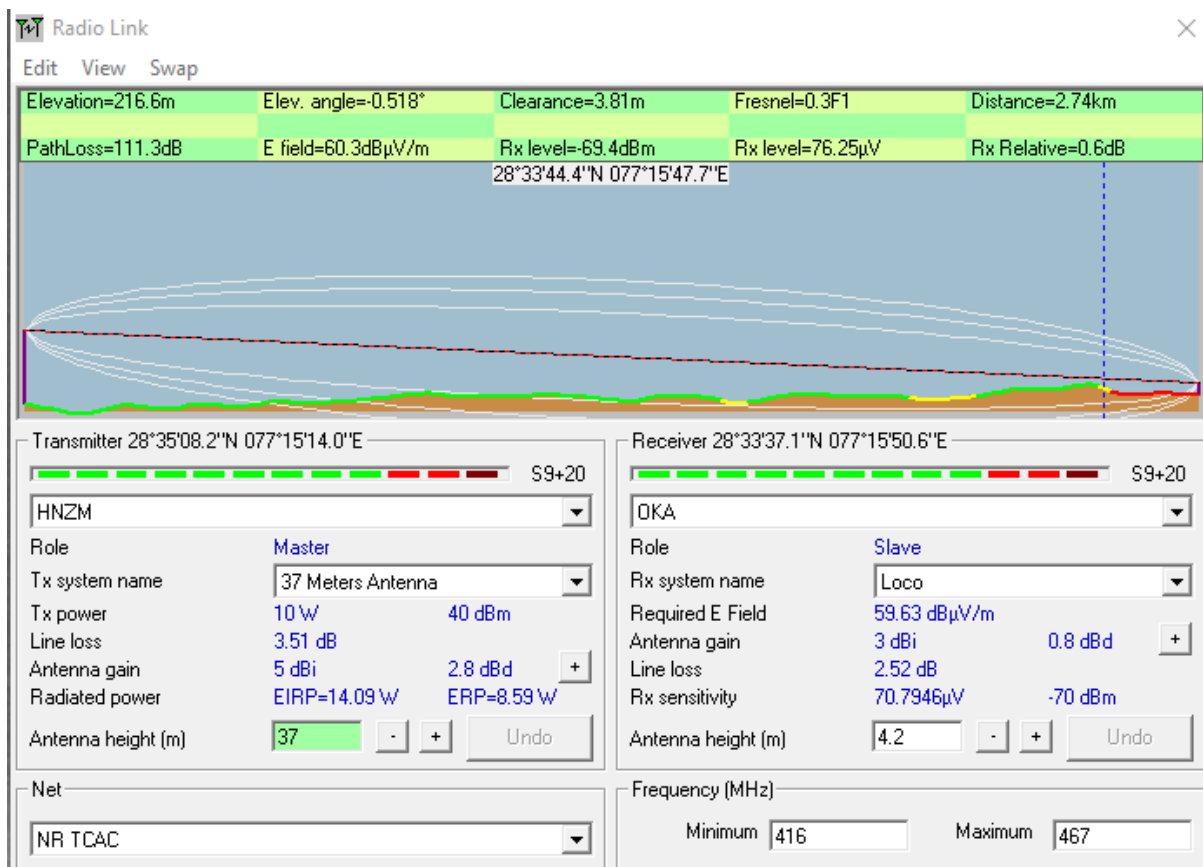
Net

NR TCAC

Frequency (MHz)

Minimum 416 Maximum 467

Antenna at 37 meters



Antenna at 27 Meters

The screenshot displays the 'Radio Link' software interface. At the top, a status bar shows the link status as 'OKA' with a signal strength indicator. Below this, a table of link parameters is visible:

Parameter	Value
Azimuth	340.58°
Elev. angle	-0.721°
Clearance at 1.95km	Worst Fresnel=0.4F1
Distance	2.98km
Free Space	94.8 dB
Obstruction	4.7 dB TR
Urban	10.3 dB
Forest	0.0 dB
Statistics	4.1 dB
PathLoss	113.9dB
E field	58.3dBμV/m
Rx level	-71.4dBm
Rx level	60.50μV
Rx Relative	-1.4dB

Below the table, a map shows the terrain profile between the transmitter and receiver. The transmitter is located at 28°33'37.1"N 077°15'50.6"E, and the receiver is at 28°35'08.2"N 077°15'14.0"E. The map displays the ground profile, the line of sight, and the Fresnel zone clearance.

The interface is divided into two main sections: Transmitter and Receiver. The Transmitter section shows the role as 'Slave' and the system name as '27 Meters Antenna'. The Receiver section shows the role as 'Master' and the system name as 'Loco'. Both sections include fields for Tx power, Line loss, Antenna gain, Radiated power, and Antenna height.

The Transmitter section also includes a 'Net' dropdown menu set to 'NR TCAC'. The Receiver section includes a 'Frequency (MHz)' dropdown menu set to 'Minimum 416' and 'Maximum 467'.

Radio Link [X]

Edit View Swap

Elevation=211.7m	Elev. angle=-0.700°	Clearance=9.03m	Fresnel=0.4F1	Distance=2.09km
PathLoss=110.8dB	E field=61.4dB μ V/m	Rx level=-68.2dBm	Rx level=86.60 μ V	Rx Relative=1.8dB

28°34'41.0"N 077°15'24.9"E

Transmitter 28°33'37.1"N 077°15'50.6"E

S9+20

OKA

Role: **Slave**

Tx system name: 27 Meters Antenna

Tx power: 10 W 40 dBm

Line loss: 2.95 dB

Antenna gain: 5 dBi 2.8 dBd

Radiated power: EIRP=16.03 W ERP=9.77 W

Antenna height (m): 27

Net: NR TCAC

Receiver 28°35'08.2"N 077°15'14.0"E

S9+20

HNZM

Role: **Master**

Rx system name: Loco

Required E Field: 59.63 dB μ V/m

Antenna gain: 3 dBi 0.8 dBd

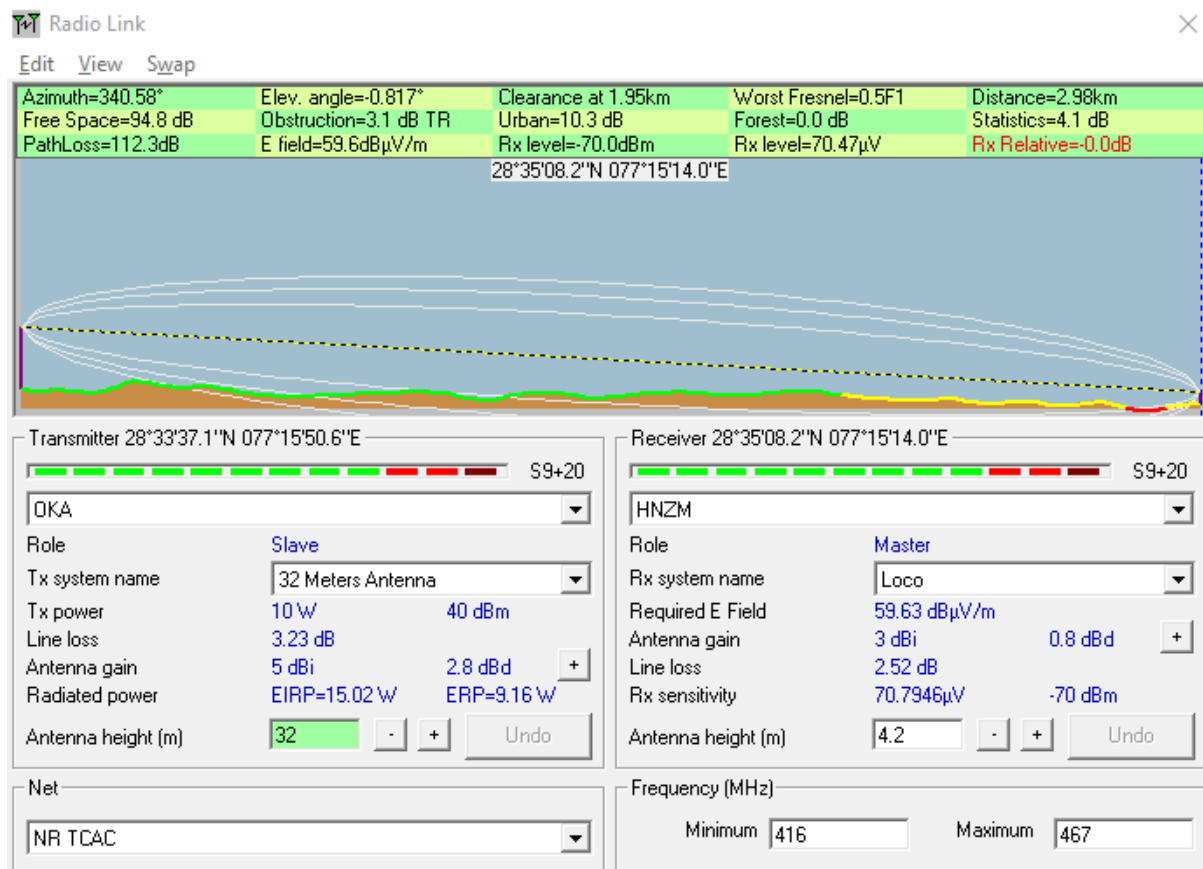
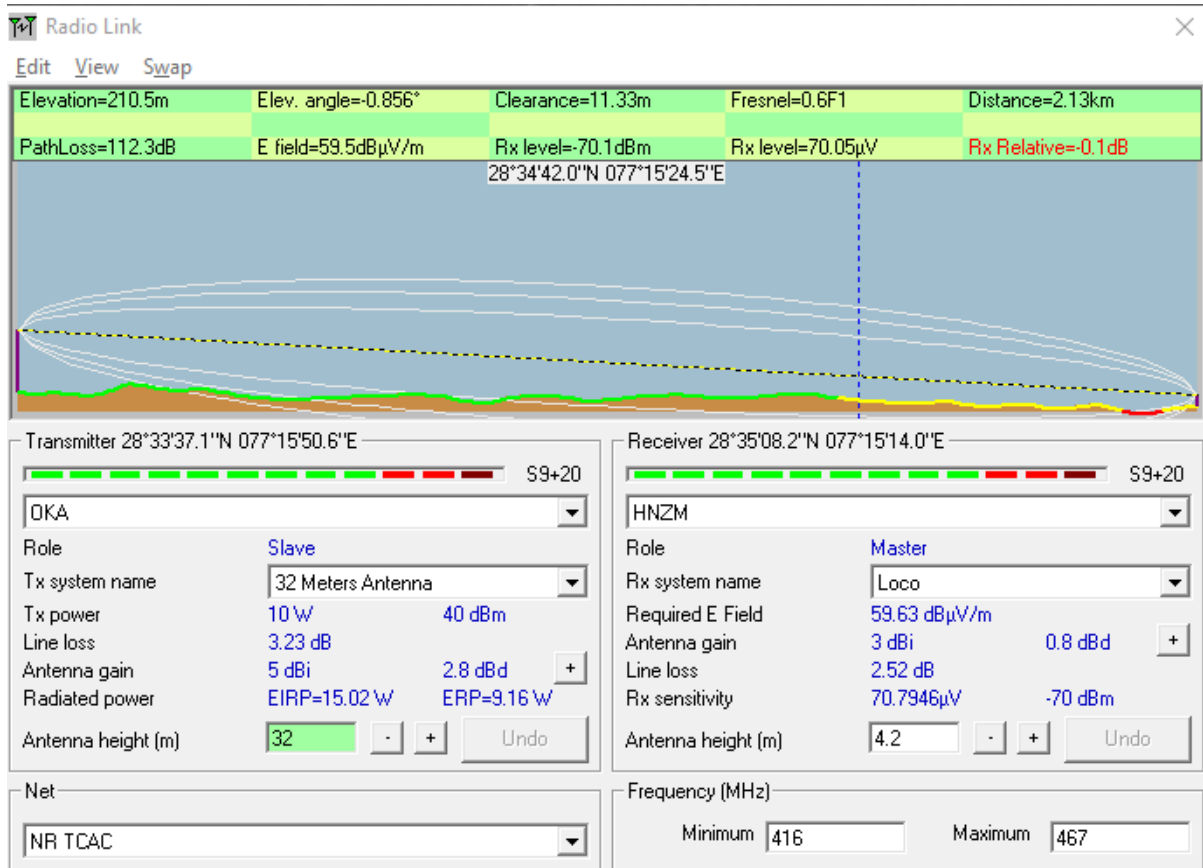
Line loss: 2.52 dB

Rx sensitivity: 70.7946 μ V -70 dBm

Antenna height (m): 4.2

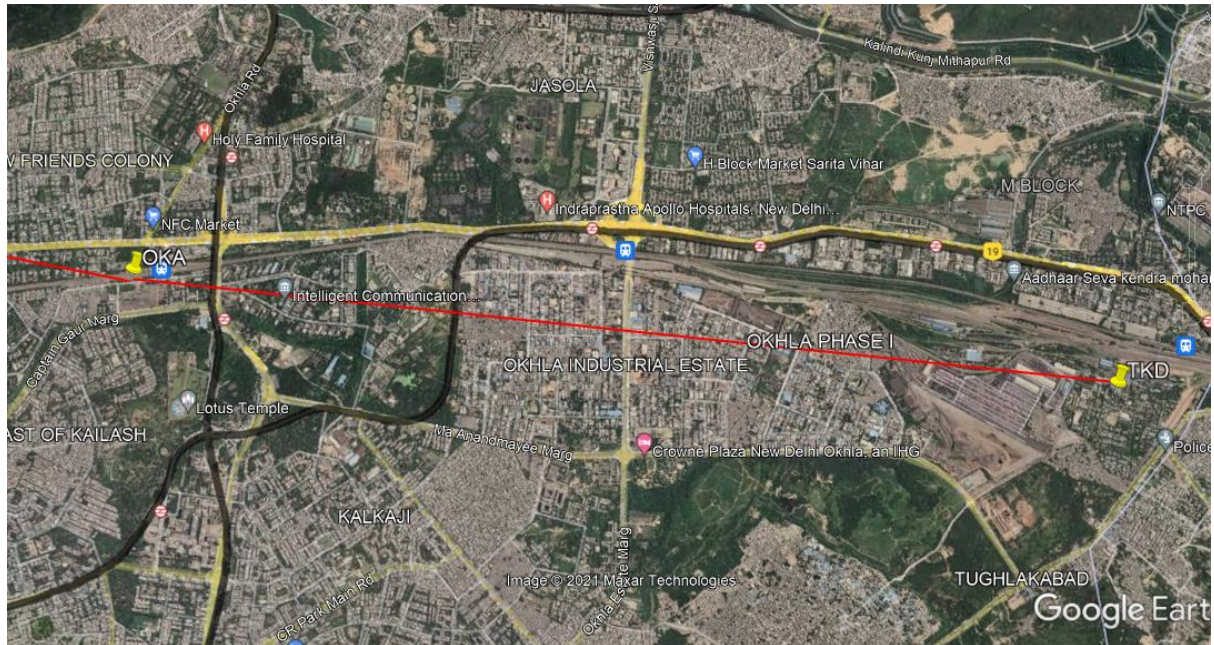
Frequency (MHz): Minimum 416 Maximum 467

Antenna at 32 Meters

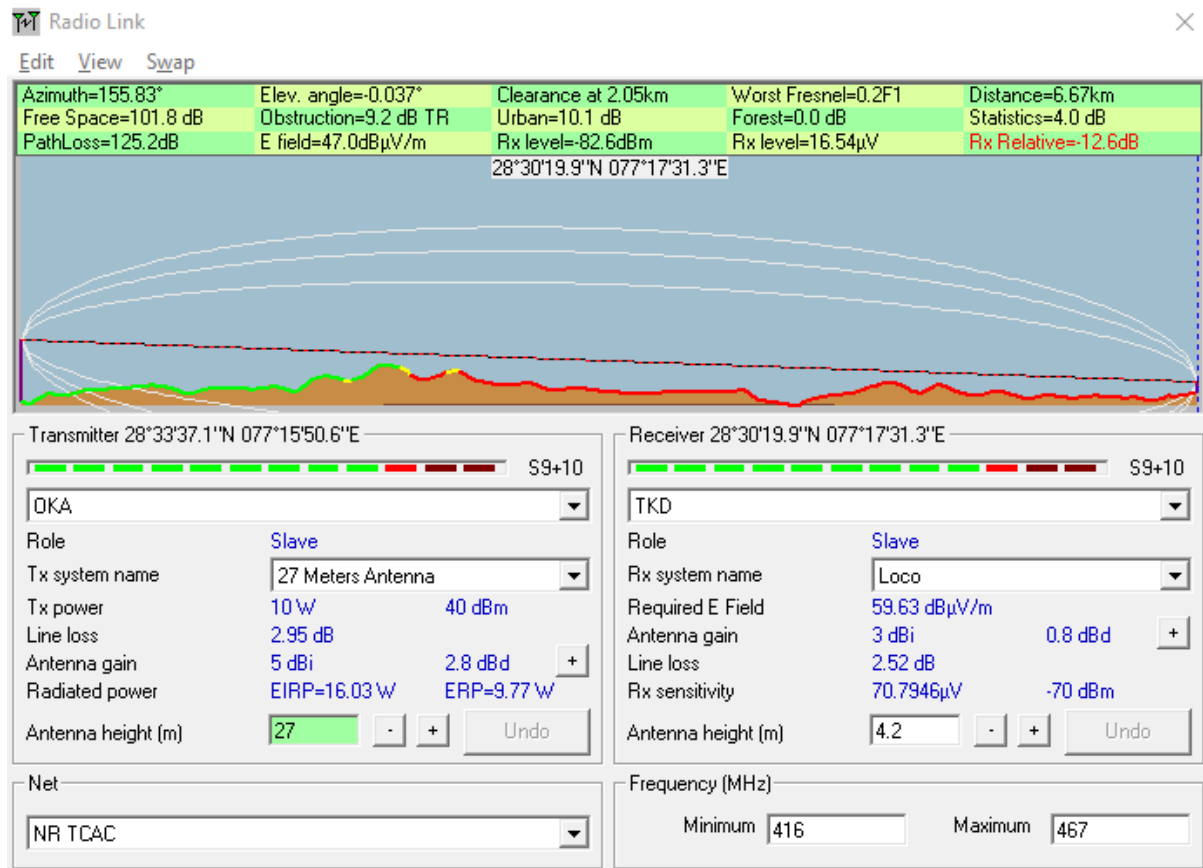
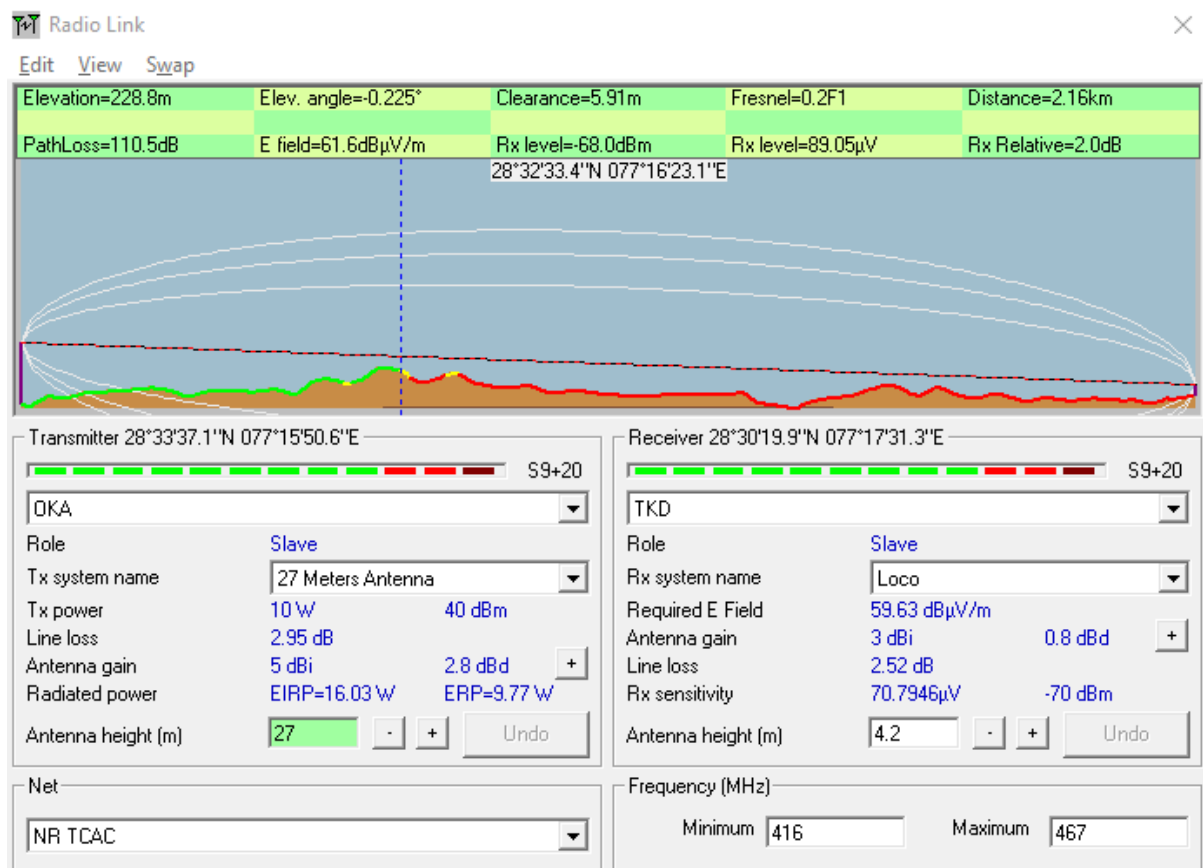


Okha to Tughlkabad

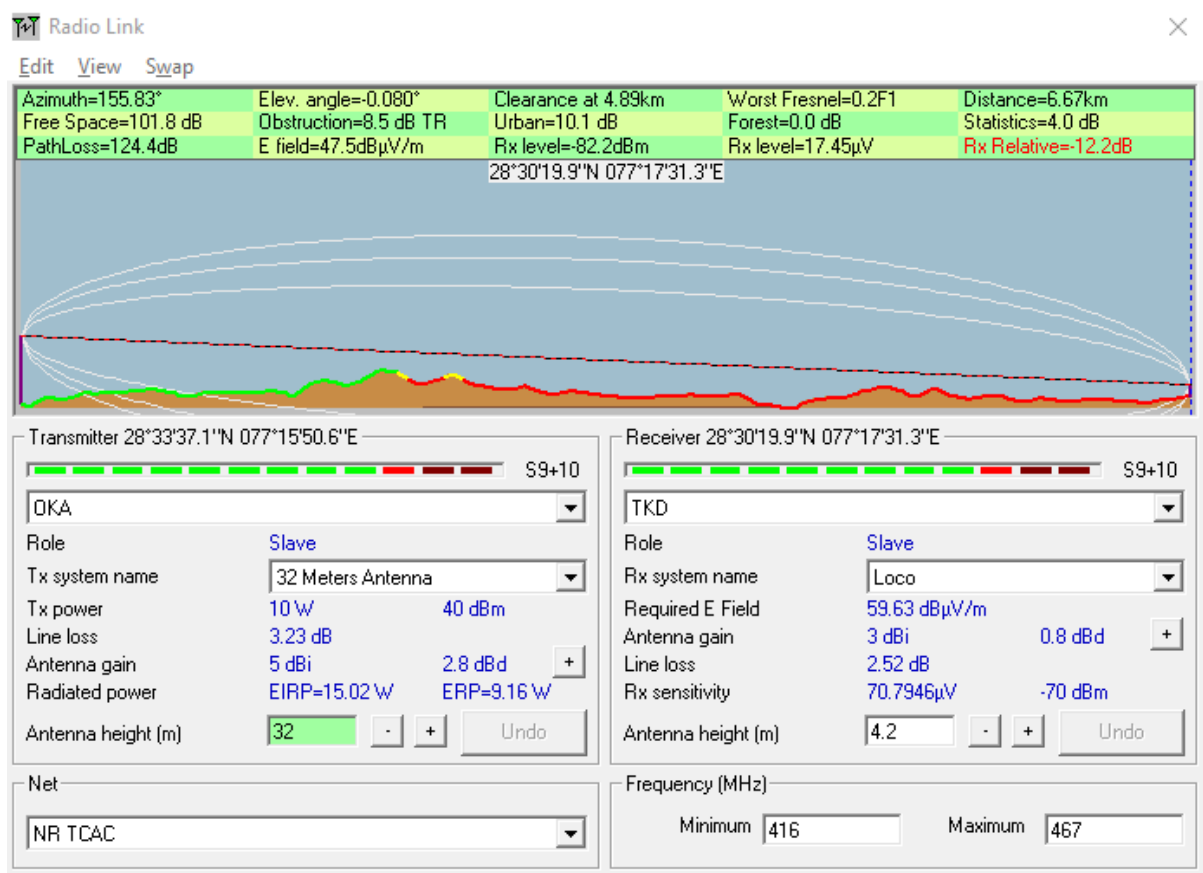
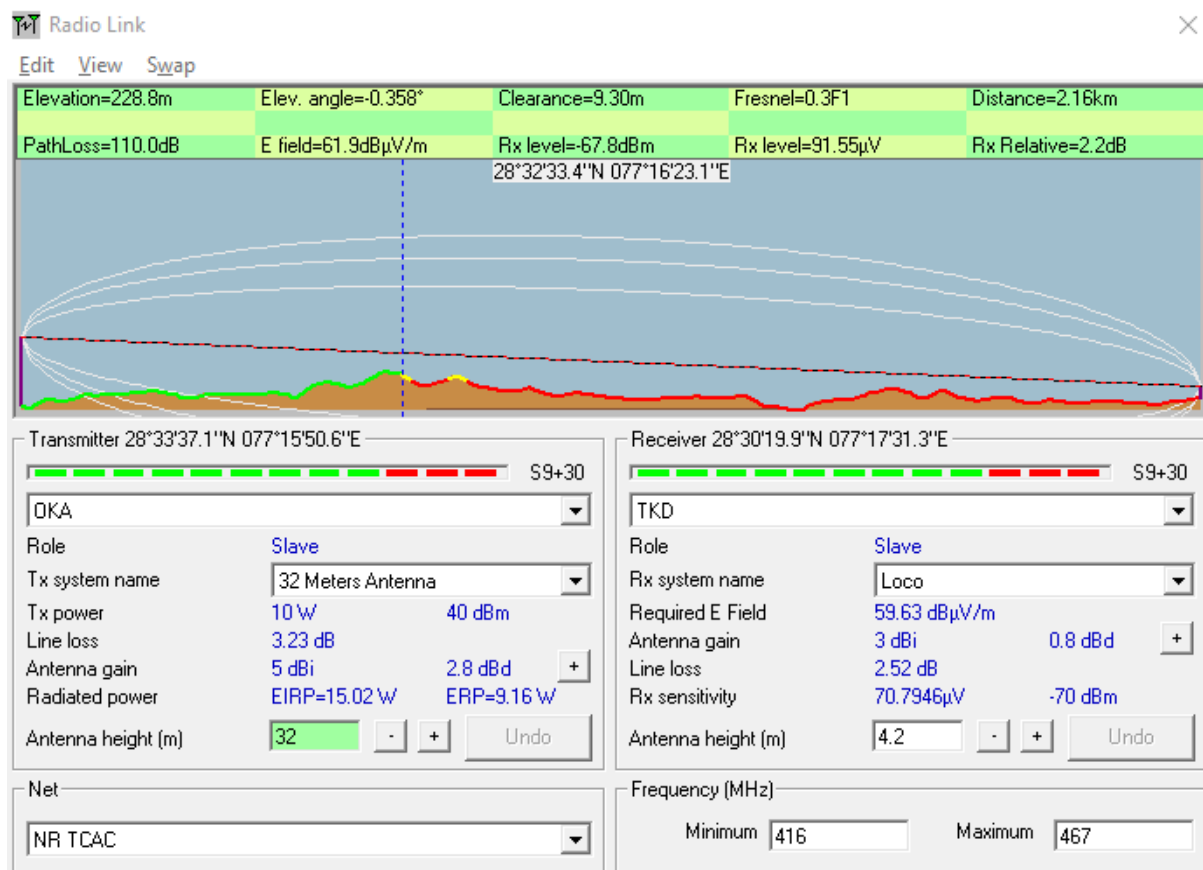
City 40 %



Antenna at 27 Meters

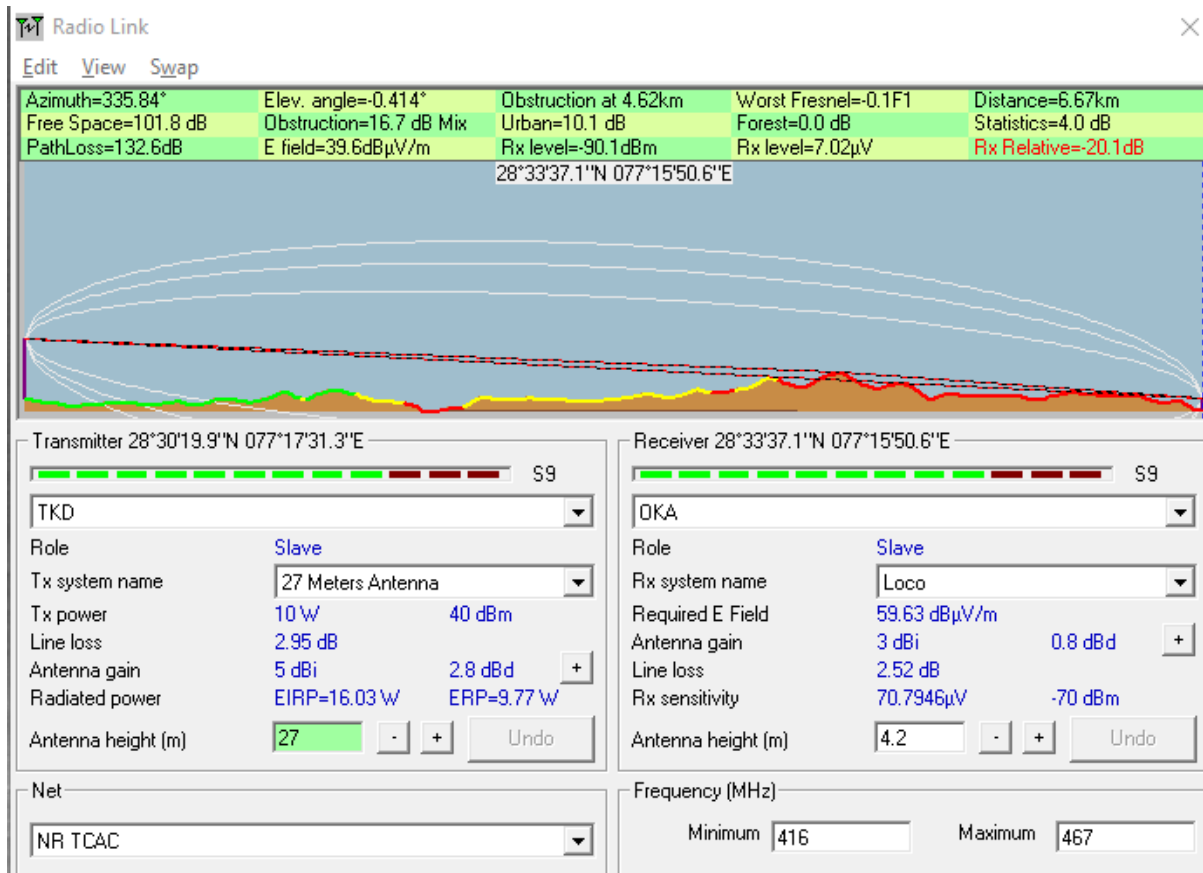
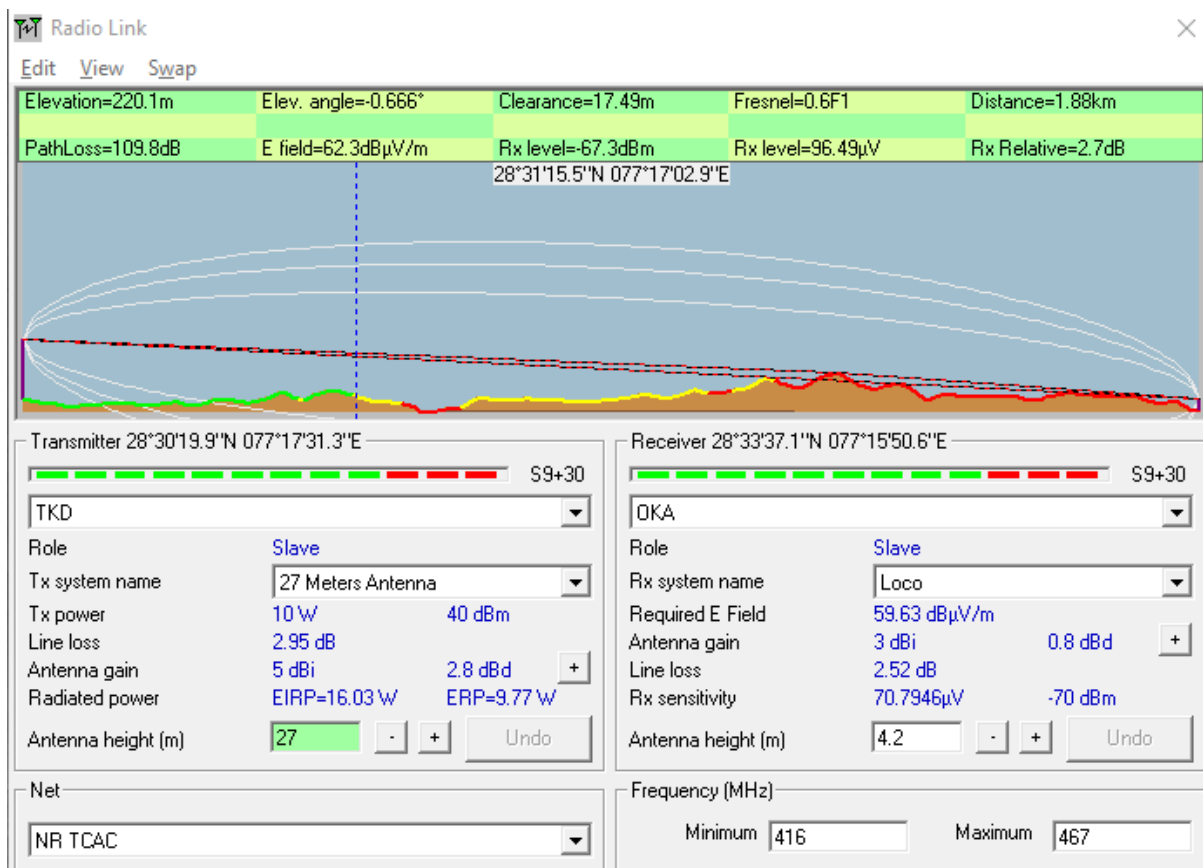


Antenna at 32 Meters



Tughlakabad to Okhla

Antenna at 27 Meters



Antenna at 37 meters

Radio Link ✕

Edit View Swap

Azimuth=335.84°	Elev. angle=-0.500°	Obstruction at 4.62km	Worst Fresnel=0.0F1	Distance=6.67km
Free Space=101.8 dB	Obstruction=13.7 dB Mix	Urban=10.1 dB	Forest=0.0 dB	Statistics=4.0 dB
PathLoss=129.6dB	E field=42.0dBμV/m	Rx level=-87.6dBm	Rx level=9.30μV	Rx Relative=-17.6dB

28°33'37.1"N 077°15'50.6"E

Transmitter 28°30'19.9"N 077°17'31.3"E

S9+10

TKD

Role Slave

Tx system name 37 Meters Antenna

Tx power 10 W 40 dBm

Line loss 3.51 dB

Antenna gain 5 dBi 2.8 dBd +

Radiated power EIRP=14.09 W ERP=8.59 W

Antenna height (m) 37 - + Undo

Receiver 28°33'37.1"N 077°15'50.6"E

S9+10

OKA

Role Slave

Rx system name Loco

Required E Field 59.63 dBμV/m

Antenna gain 3 dBi 0.8 dBd +

Line loss 2.52 dB

Rx sensitivity 70.7946μV -70 dBm

Antenna height (m) 4.2 - + Undo

Net

NR TCAC

Frequency (MHz)

Minimum 416 Maximum 467

Radio Link ✕

Edit View Swap

Elevation=218.8m	Elev. angle=-0.992°	Clearance=25.77m	Fresnel=0.8F1	Distance=1.92km
PathLoss=111.2dB	E field=60.4dBμV/m	Rx level=-69.2dBm	Rx level=77.45μV	Rx Relative=0.8dB

28°31'16.5"N 077°17'02.4"E

Transmitter 28°30'19.9"N 077°17'31.3"E

S9+20

TKD

Role Slave

Tx system name 37 Meters Antenna

Tx power 10 W 40 dBm

Line loss 3.51 dB

Antenna gain 5 dBi 2.8 dBd +

Radiated power EIRP=14.09 W ERP=8.59 W

Antenna height (m) 37 - + Undo

Receiver 28°33'37.1"N 077°15'50.6"E

S9+20

OKA

Role Slave

Rx system name Loco

Required E Field 59.63 dBμV/m

Antenna gain 3 dBi 0.8 dBd +

Line loss 2.52 dB

Rx sensitivity 70.7946μV -70 dBm

Antenna height (m) 4.2 - + Undo

Net

NR TCAC

Frequency (MHz)

Minimum 416 Maximum 467

Okhla to Tughlkabad East Cabin

City 20 %



Radio Link [X]

Edit View Swap

Azimuth=143.39°	Elev. angle=-0.341°	Obstruction at 1.78km	Worst Fresnel=0.1F1	Distance=2.64km
Free Space=93.7 dB	Obstruction=11.6 dB Mix	Urban=5.2 dB	Forest=0.0 dB	Statistics=4.1 dB
PathLoss=114.6dB (3)	E field=57.6dBμV/m	Rx level=-72.1dBm	Rx level=55.81μV	Rx Relative=-2.1dB

28°32'28.4"N 077°16'48.7"E

Transmitter 28°33'37.1"N 077°15'50.6"E

S9+20

OKA

Role: **Slave**

Tx system name: 27 Meters Antenna

Tx power: 10 W 40 dBm

Line loss: 2.95 dB

Antenna gain: 5 dBi 2.8 dBd +

Radiated power: EIRP=16.03 W ERP=9.77 W

Antenna height (m): 27 - + Undo

Net: NR TCAC

Receiver 28°32'28.4"N 077°16'48.7"E

S9+20

Tuglakabad East Cabi

Role: **Slave**

Rx system name: Loco

Required E Field: 59.63 dBμV/m

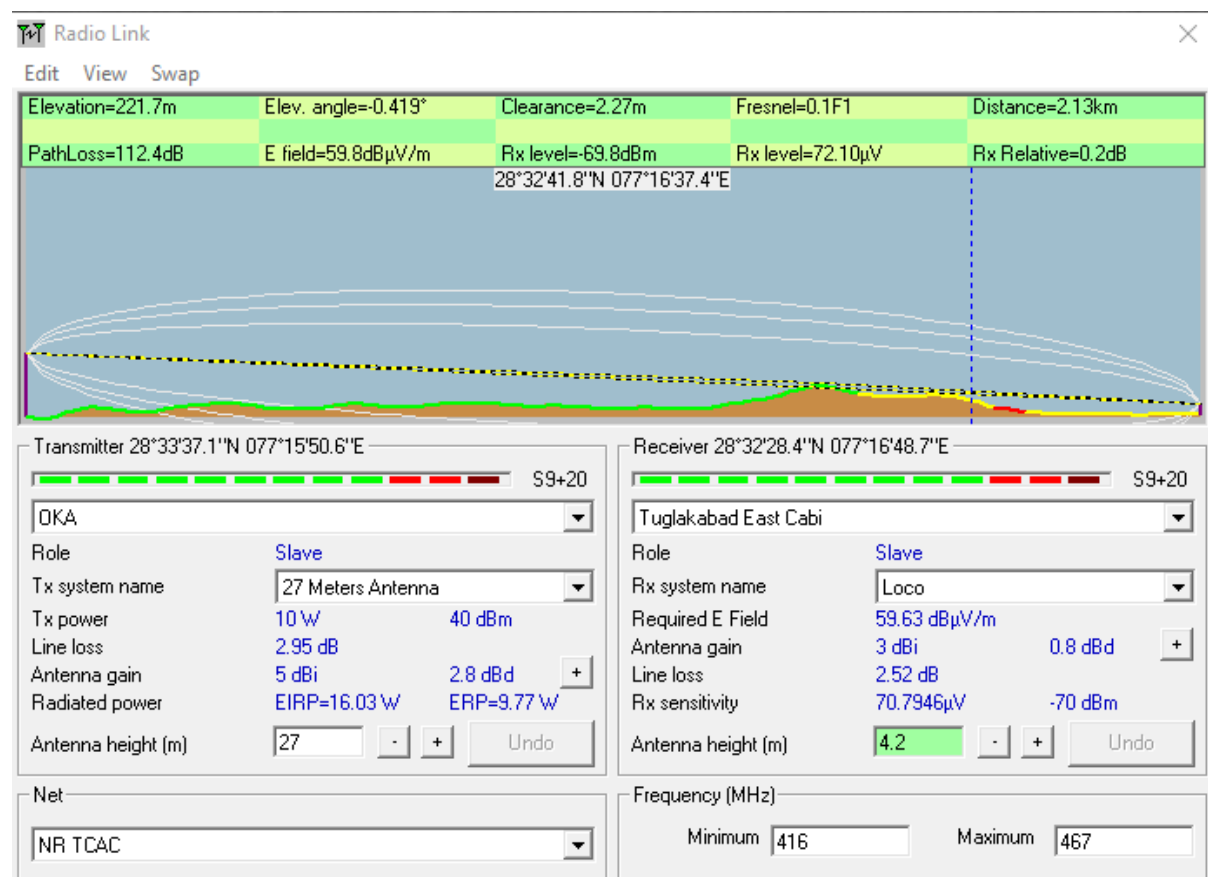
Antenna gain: 3 dBi 0.8 dBd +

Line loss: 2.52 dB

Rx sensitivity: 70.7946μV -70 dBm

Antenna height (m): 4.2 - + Undo

Frequency (MHz): Minimum 416 Maximum 467



Antenna at 32 Meters

Radio Link

Edit

View

Swap

Azimuth=143.39°

Elev. angle=-0.449°

Obstruction at 1.78km

Worst Fresnel=-0.0F1

Distance=2.64km

Free Space=93.7 dB

Obstruction=11.1 dB Mix

Urban=5.2 dB

Forest=0.0 dB

Statistics=4.1 dB

PathLoss=114.2dB (3)

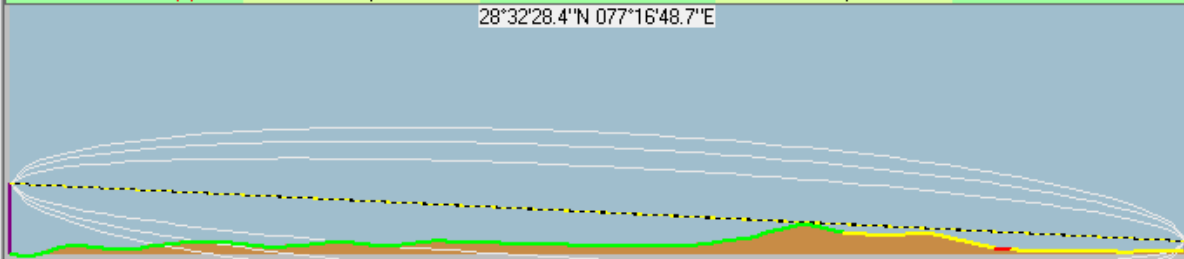
E field=57.7dBμV/m

Rx level=-71.9dBm

Rx level=56.74μV

Rx Relative=-1.9dB

28°32'28.4"N 077°16'48.7"E



Transmitter 28°33'37.1"N 077°15'50.6"E

S9+20

OKA

Role

Slave

Tx system name

32 Meters Antenna

Tx power

10 W

40 dBm

Line loss

3.23 dB

Antenna gain

5 dBi

2.8 dBd

+

Radiated power

EIRP=15.02 W

ERP=9.16 W

Antenna height (m)

32

-

+

Undo

Net

NR TCAC

Receiver 28°32'28.4"N 077°16'48.7"E

S9+20

Tuglakabad East Cabi

Role

Slave

Rx system name

Loco

Required E Field

59.63 dBμV/m

Antenna gain

3 dBi

0.8 dBd

+

Line loss

2.52 dB

Rx sensitivity

70.7946μV

-70 dBm

Antenna height (m)

4.2

-

+

Undo

Frequency (MHz)

Minimum

416

Maximum

467

Radio Link

Edit

View

Swap

Elevation=221.7m

Elev. angle=-0.553°

Clearance=3.24m

Fresnel=0.2F1

Distance=2.13km

PathLoss=112.1dB

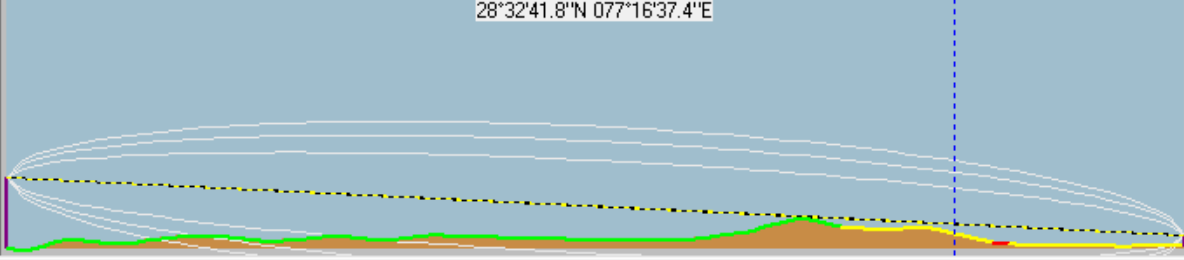
E field=59.8dBμV/m

Rx level=-69.9dBm

Rx level=71.85μV

Rx Relative=0.1dB

28°32'41.8"N 077°16'37.4"E



Transmitter 28°33'37.1"N 077°15'50.6"E

S9+20

OKA

Role

Slave

Tx system name

32 Meters Antenna

Tx power

10 W

40 dBm

Line loss

3.23 dB

Antenna gain

5 dBi

2.8 dBd

+

Radiated power

EIRP=15.02 W

ERP=9.16 W

Antenna height (m)

32

-

+

Undo

Net

NR TCAC

Receiver 28°32'28.4"N 077°16'48.7"E

S9+20

Tuglakabad East Cabi

Role

Slave

Rx system name

Loco

Required E Field

59.63 dBμV/m

Antenna gain

3 dBi

0.8 dBd

+

Line loss

2.52 dB

Rx sensitivity

70.7946μV

-70 dBm

Antenna height (m)

4.2

-

+

Undo

Frequency (MHz)

Minimum

416

Maximum

467

Tuglakabad East Cabin to Okhla

Antenna at 27 Meters

Radio Link

Edit View Swap

Azimuth=323.40°

Elev. angle=-0.670°

Clearance at 2.51km

Worst Fresnel=0.1F1

Distance=2.64km

Free Space=93.7 dB

Obstruction=11.3 dB TR

Urban=5.2 dB

Forest=0.0 dB

Statistics=4.1 dB

PathLoss=114.3dB

E field=57.8dBμV/m

Rx level=-71.8dBm

Rx level=57.45μV

Rx Relative=-1.8dB

28°33'37.1"N 077°15'50.6"E

Transmitter 28°32'28.4"N 077°16'48.7"E

S9+20

Tuglakabad East Cabi

Role Slave

Tx system name 27 Meters Antenna

Tx power 10 W 40 dBm

Line loss 2.95 dB

Antenna gain 5 dBi 2.8 dBd +

Radiated power EIRP=16.03 W ERP=9.77 W

Antenna height (m) 27 - + Undo

Receiver 28°33'37.1"N 077°15'50.6"E

S9+20

OKA

Role Slave

Rx system name Loco

Required E Field 59.63 dBμV/m

Antenna gain 3 dBi 0.8 dBd +

Line loss 2.52 dB

Rx sensitivity 70.7946μV -70 dBm

Antenna height (m) 4.2 - + Undo

Net NR TCAC

Frequency (MHz) Minimum 416 Maximum 467

Radio Link

Edit View Swap

Elevation=215.3m

Elev. angle=-0.528°

Clearance=3.62m

Fresnel=0.5F1

Distance=2.57km

PathLoss=111.9dB

E field=60.3dBμV/m

Rx level=-69.4dBm

Rx level=76.14μV

Rx Relative=0.6dB

28°33'35.3"N 077°15'52.1"E

Transmitter 28°32'28.4"N 077°16'48.7"E

S9+20

Tuglakabad East Cabi

Role Slave

Tx system name 27 Meters Antenna

Tx power 10 W 40 dBm

Line loss 2.95 dB

Antenna gain 5 dBi 2.8 dBd +

Radiated power EIRP=16.03 W ERP=9.77 W

Antenna height (m) 27 - + Undo

Receiver 28°33'37.1"N 077°15'50.6"E

S9+20

OKA

Role Slave

Rx system name Loco

Required E Field 59.63 dBμV/m

Antenna gain 3 dBi 0.8 dBd +

Line loss 2.52 dB

Rx sensitivity 70.7946μV -70 dBm

Antenna height (m) 4.2 - + Undo

Net NR TCAC

Frequency (MHz) Minimum 416 Maximum 467

Antenna at 37 meters

Radio Link

Edit View Swap

Azimuth=323.40°	Elev. angle=-0.887°	Clearance at 2.51km	Worst Fresnel=0.1F1	Distance=2.64km
Free Space=93.7 dB	Obstruction=10.0 dB TR	Urban=5.2 dB	Forest=0.0 dB	Statistics=4.1 dB
PathLoss=113.0dB	E field=58.6dBμV/m	Rx level=-71.1dBm	Rx level=62.69μV	Rx Relative=-1.1dB

28°33'37.1"N 077°15'50.6"E

Transmitter 28°32'28.4"N 077°16'48.7"E

S9+20

Tuglakabad East Cabi

Role Slave

Tx system name 37 Meters Antenna

Tx power 10 W 40 dBm

Line loss 3.51 dB

Antenna gain 5 dBi 2.8 dBd +

Radiated power EIRP=14.09 W ERP=8.59 W

Antenna height (m) 37 - + Undo

Receiver 28°33'37.1"N 077°15'50.6"E

S9+20

OKA

Role Slave

Rx system name Loco

Required E Field 59.63 dBμV/m

Antenna gain 3 dBi 0.8 dBd +

Line loss 2.52 dB

Rx sensitivity 70.7946μV -70 dBm

Antenna height (m) 4.2 - + Undo

Net NR TCAC

Frequency (MHz)

Minimum 416 Maximum 467

Radio Link

Edit View Swap

Elevation=215.3m	Elev. angle=-0.750°	Clearance=3.88m	Fresnel=0.6F1	Distance=2.57km
PathLoss=110.4dB	E field=61.2dBμV/m	Rx level=-68.5dBm	Rx level=84.40μV	Rx Relative=1.5dB

28°33'35.3"N 077°15'52.1"E

Transmitter 28°32'28.4"N 077°16'48.7"E

S9+20

Tuglakabad East Cabi

Role Slave

Tx system name 37 Meters Antenna

Tx power 10 W 40 dBm

Line loss 3.51 dB

Antenna gain 5 dBi 2.8 dBd +

Radiated power EIRP=14.09 W ERP=8.59 W

Antenna height (m) 37 - + Undo

Receiver 28°33'37.1"N 077°15'50.6"E

S9+20

OKA

Role Slave

Rx system name Loco

Required E Field 59.63 dBμV/m

Antenna gain 3 dBi 0.8 dBd +

Line loss 2.52 dB

Rx sensitivity 70.7946μV -70 dBm

Antenna height (m) 4.2 - + Undo

Net NR TCAC

Frequency (MHz)

Minimum 416 Maximum 467

Tuglakabad East Cabin to Tuglakabad

City 20 %



Antenna at 27 meters

Radio Link ✕

Edit View Swap

Azimuth=163.75°	Elev. angle=-0.135°	Clearance at 3.11km	Worst Fresnel=0.4F1	Distance=4.13km
Free Space=97.6 dB	Obstruction=4.3 dB TR	Urban=5.1 dB	Forest=0.0 dB	Statistics=4.1 dB
PathLoss=111.2dB	E field=61.0dBμV/m	Rx level=-68.6dBm	Rx level=82.76μV	Rx Relative=1.4dB

28°30'19.9"N 077°17'31.3"E

Transmitter 28°32'28.4"N 077°16'48.7"E

S9+20

Tuglakabad East Cabi

Role Slave

Tx system name 27 Meters Antenna

Tx power 10 W 40 dBm

Line loss 2.95 dB

Antenna gain 5 dBi 2.8 dBd +

Radiated power EIRP=16.03 W ERP=9.77 W

Antenna height (m) 27 - + Undo

Net

NR TCAC

Receiver 28°30'19.9"N 077°17'31.3"E

S9+20

TKD

Role Slave

Rx system name Loco

Required E Field 59.63 dBμV/m

Antenna gain 3 dBi 0.8 dBd +

Line loss 2.52 dB

Rx sensitivity 70.7946μV -70 dBm

Antenna height (m) 4.2 - + Undo

Frequency (MHz)

Minimum 416 Maximum 467

Radio Link ✕

Edit View Swap

Elevation=216.0m	Elev. angle=-0.416°	Clearance=11.30m	Fresnel=0.5F1	Distance=3.21km
PathLoss=111.8dB	E field=60.4dBμV/m	Rx level=-69.2dBm	Rx level=77.20μV	Rx Relative=0.8dB

28°30'48.6"N 077°17'21.8"E

Transmitter 28°32'28.4"N 077°16'48.7"E

S9+20

Tuglakabad East Cabi

Role Slave

Tx system name 27 Meters Antenna

Tx power 10 W 40 dBm

Line loss 2.95 dB

Antenna gain 5 dBi 2.8 dBd +

Radiated power EIRP=16.03 W ERP=9.77 W

Antenna height (m) 27 - + Undo

Net

NR TCAC

Receiver 28°30'19.9"N 077°17'31.3"E

S9+20

TKD

Role Slave

Rx system name Loco

Required E Field 59.63 dBμV/m

Antenna gain 3 dBi 0.8 dBd +

Line loss 2.52 dB

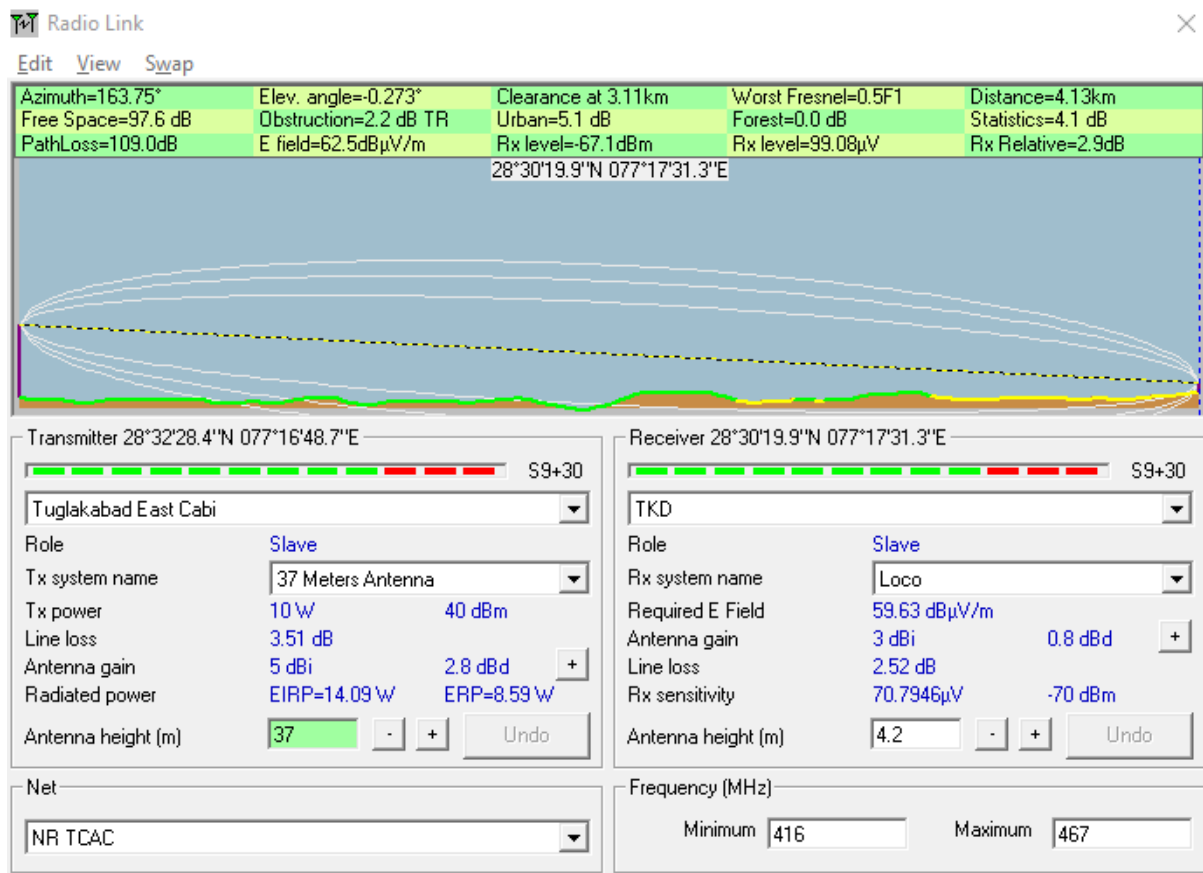
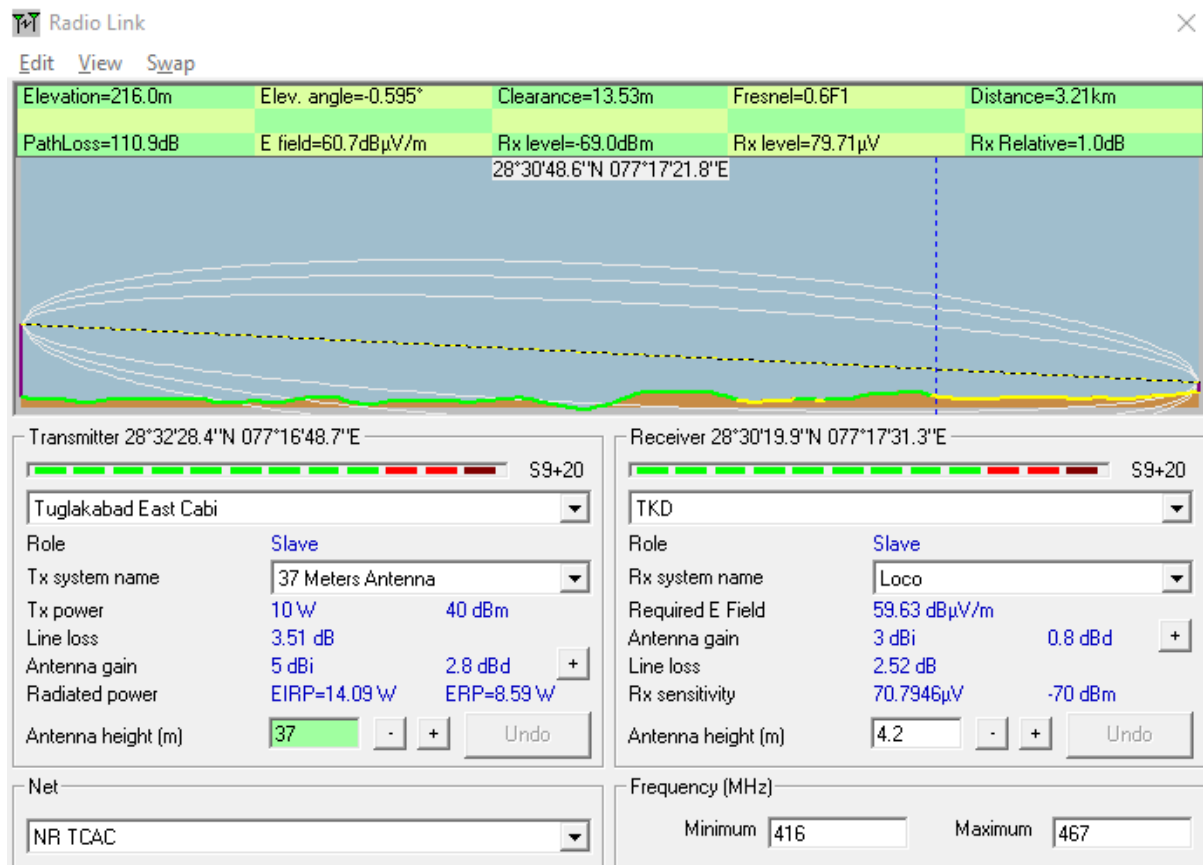
Rx sensitivity 70.7946μV -70 dBm

Antenna height (m) 4.2 - + Undo

Frequency (MHz)

Minimum 416 Maximum 467

Antenna at 37 meters



Tuglakabad to Tiglakabad East Cabin

Antenna at 27 Meters

Radio Link

×

Edit View Swap

Azimuth=343.76°	Elev. angle=-0.534°	Clearance at 3.55km	Worst Fresnel=0.5F1	Distance=4.13km
Free Space=97.6 dB	Obstruction=3.3 dB TR	Urban=5.1 dB	Forest=0.0 dB	Statistics=4.1 dB
PathLoss=110.1dB	E field=62.1dBμV/m	Rx level=-67.6dBm	Rx level=93.64μV	Rx Relative=2.4dB

28°32'28.4"N 077°16'48.7"E

Transmitter 28°30'19.9"N 077°17'31.3"E

S9+30

TKD

Role Slave

Tx system name 27 Meters Antenna

Tx power 10 W 40 dBm

Line loss 2.95 dB

Antenna gain 5 dBi 2.8 dBd +

Radiated power EIRP=16.03 W ERP=9.77 W

Antenna height (m) 27 - + Undo

Receiver 28°32'28.4"N 077°16'48.7"E

S9+30

Tuglakabad East Cabi

Role Slave

Rx system name Loco

Required E Field 59.63 dBμV/m

Antenna gain 3 dBi 0.8 dBd +

Line loss 2.52 dB

Rx sensitivity 70.7946μV -70 dBm

Antenna height (m) 4.2 - + Undo

Net

NR TCAC

Frequency (MHz)

Minimum 416 Maximum 467

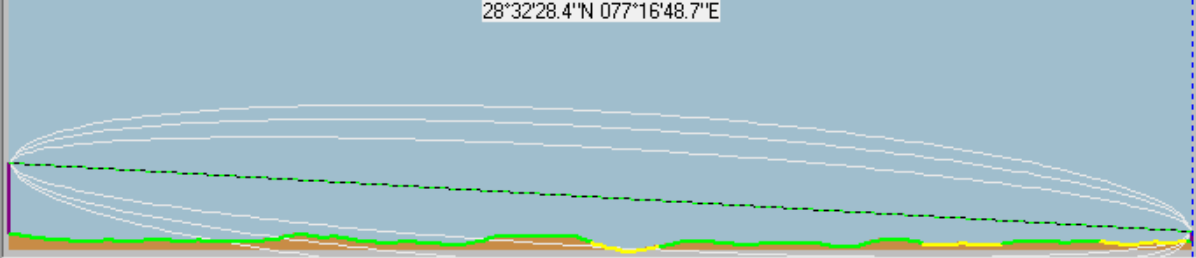
Antenna at 37 Meters

Radio Link

Edit View Swap

Azimuth=343.76°	Elev. angle=-0.673°	Clearance at 3.55km	Worst Fresnel=0.5F1	Distance=4.13km
Free Space=97.6 dB	Obstruction=1.7 dB TR	Urban=5.1 dB	Forest=0.0 dB	Statistics=4.1 dB
PathLoss=108.6dB	E field=63.0dBμV/m	Rx level=-66.6dBm	Rx level=104.48μV	Rx Relative=3.4dB

28°32'28.4"N 077°16'48.7"E



Transmitter 28°30'19.9"N 077°17'31.3"E

S9+30

TKD

Role Slave

Tx system name 37 Meters Antenna

Tx power 10 W 40 dBm

Line loss 3.51 dB

Antenna gain 5 dBi 2.8 dBd +

Radiated power EIRP=14.09 W ERP=8.59 W

Antenna height (m) 37 - + Undo

Receiver 28°32'28.4"N 077°16'48.7"E

S9+30

Tuglakabad East Cabi

Role Slave

Rx system name Loco

Required E Field 59.63 dBμV/m

Antenna gain 3 dBi 0.8 dBd +

Line loss 2.52 dB

Rx sensitivity 70.7946μV -70 dBm

Antenna height (m) 4.2 - + Undo

Net

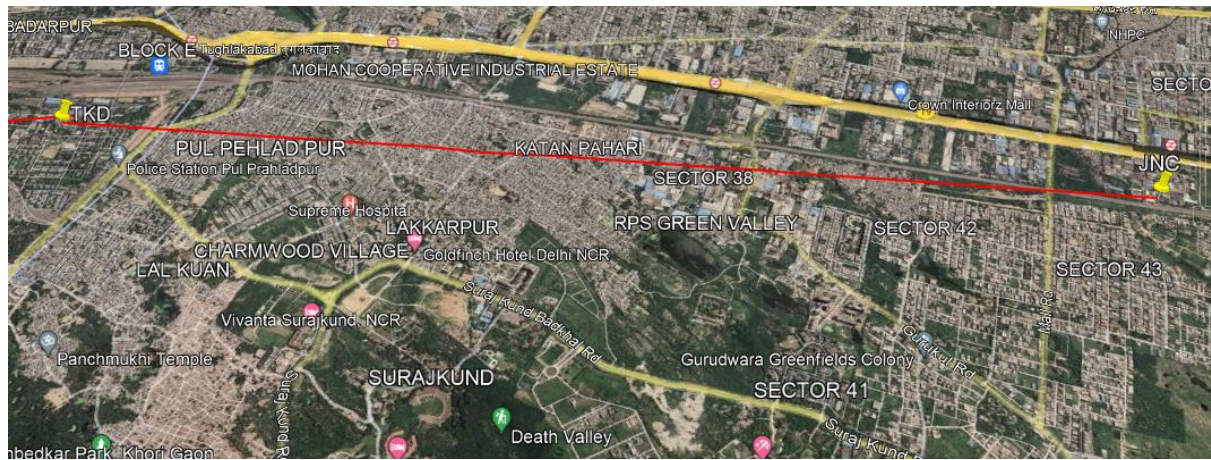
NR TCAC

Frequency (MHz)

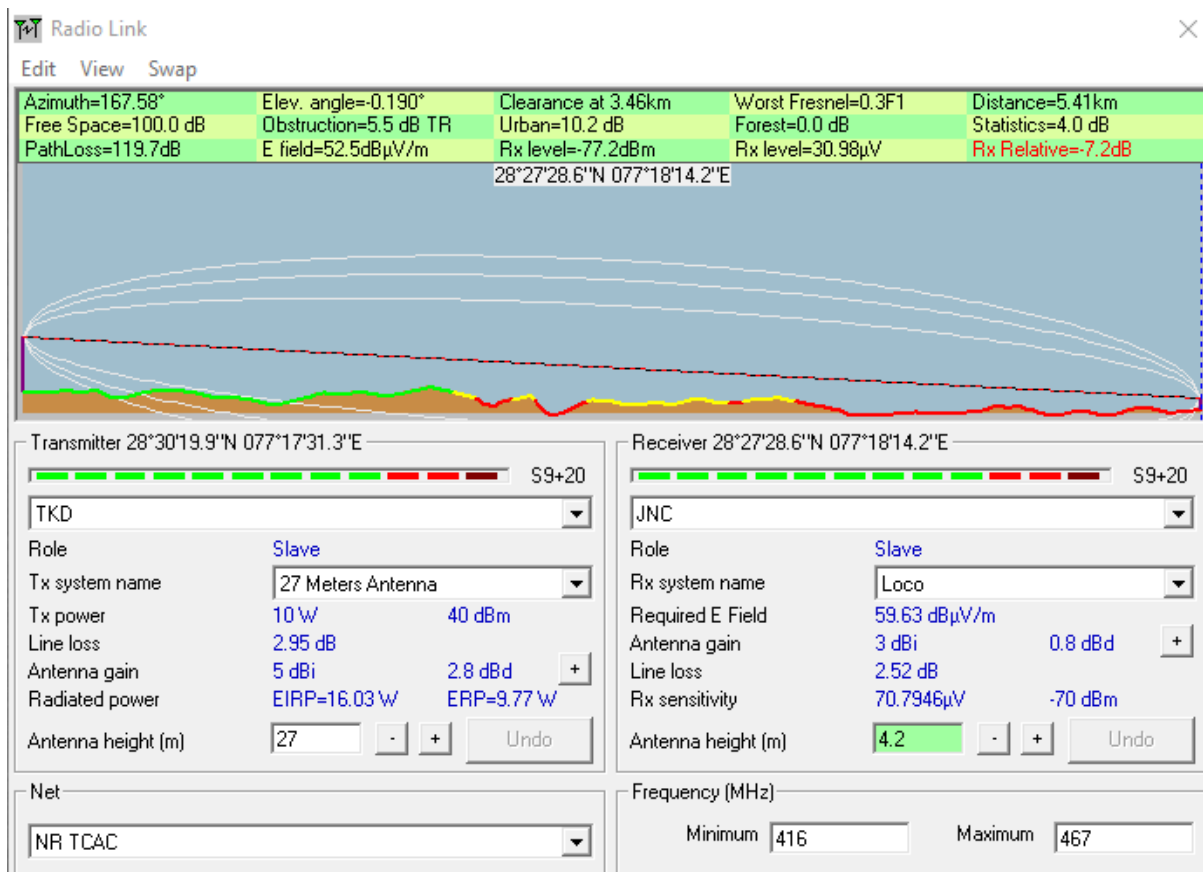
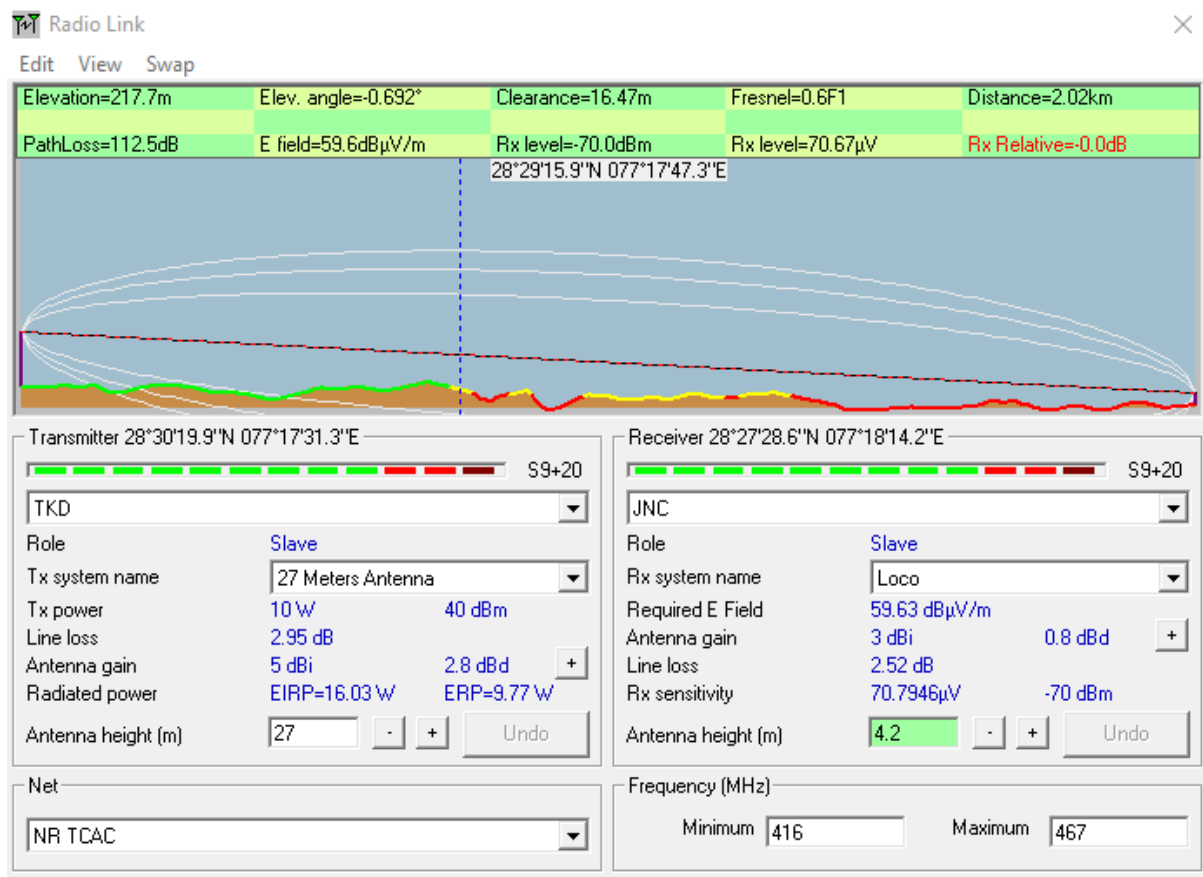
Minimum 416 Maximum 467

Tughlkabad to JNC

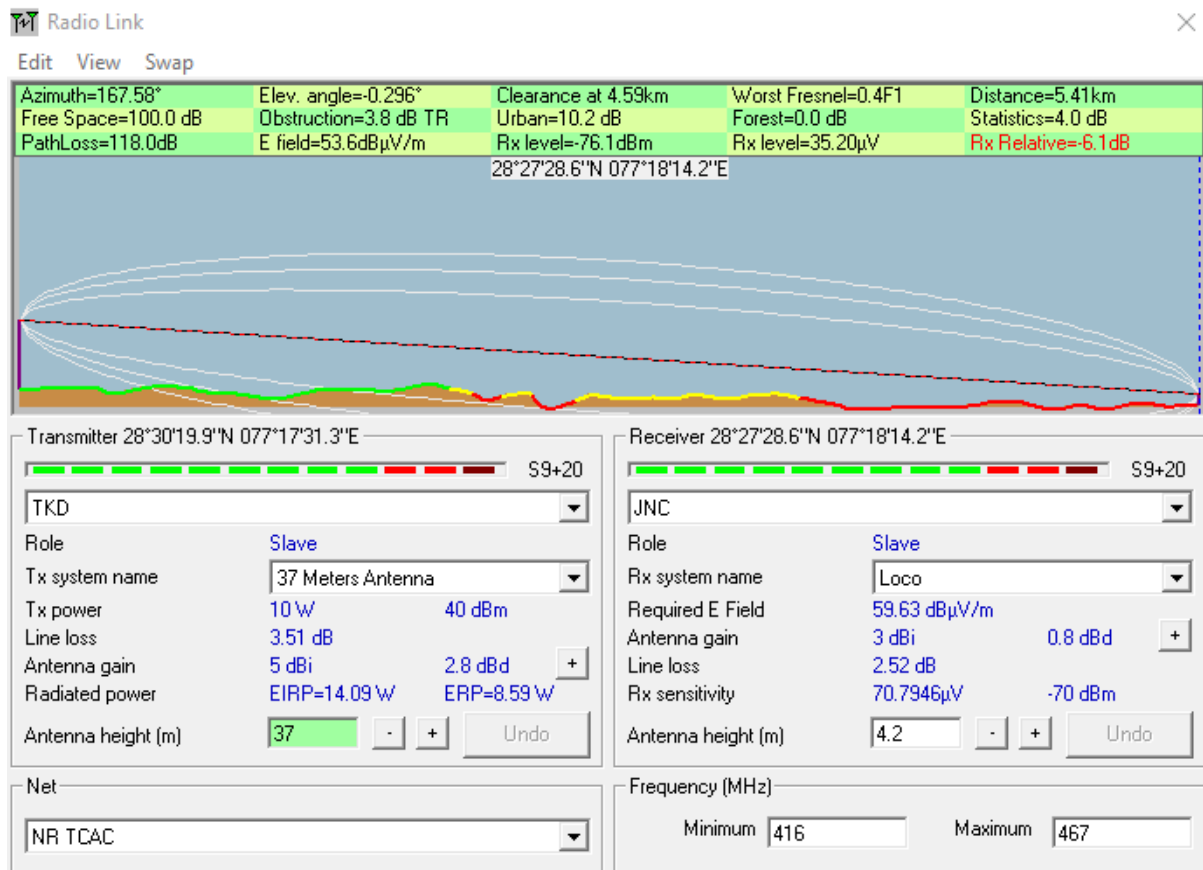
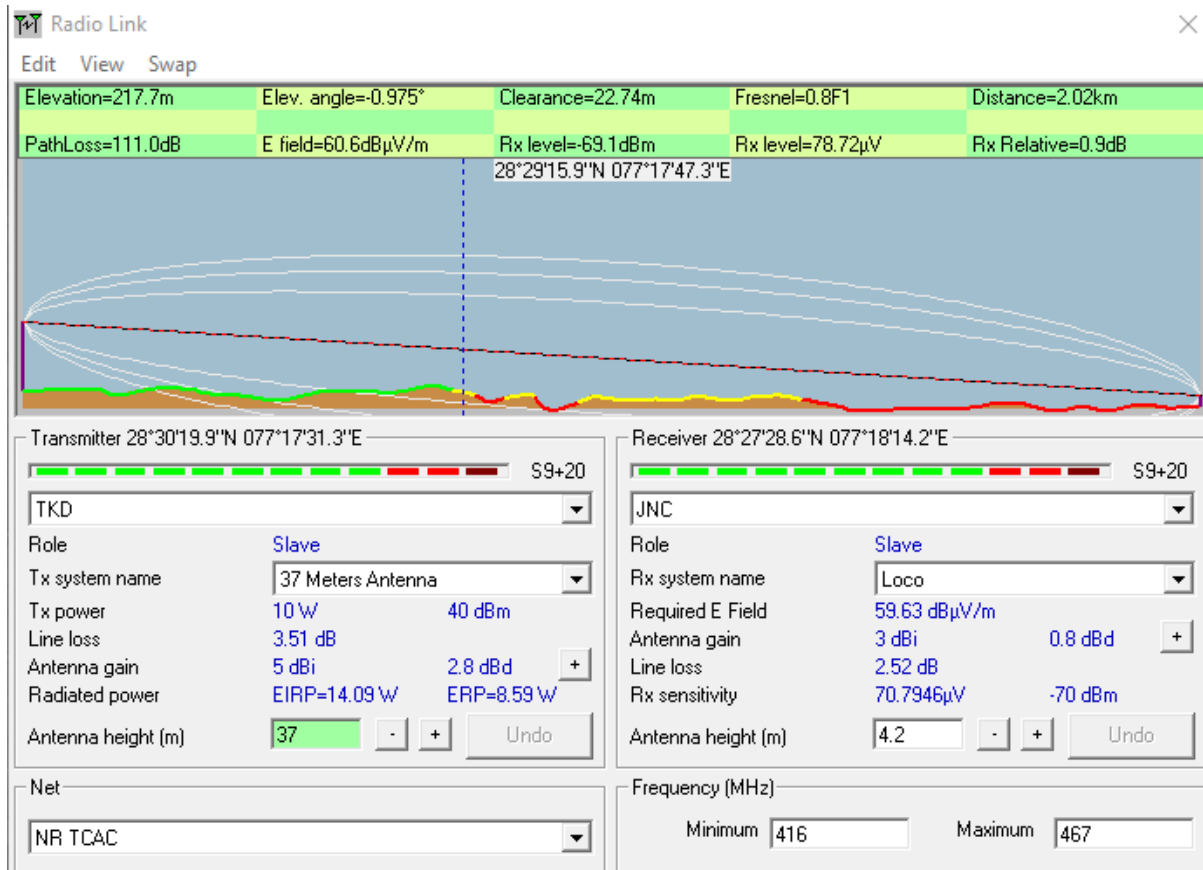
City 40 %



Antenna at 27 Meters

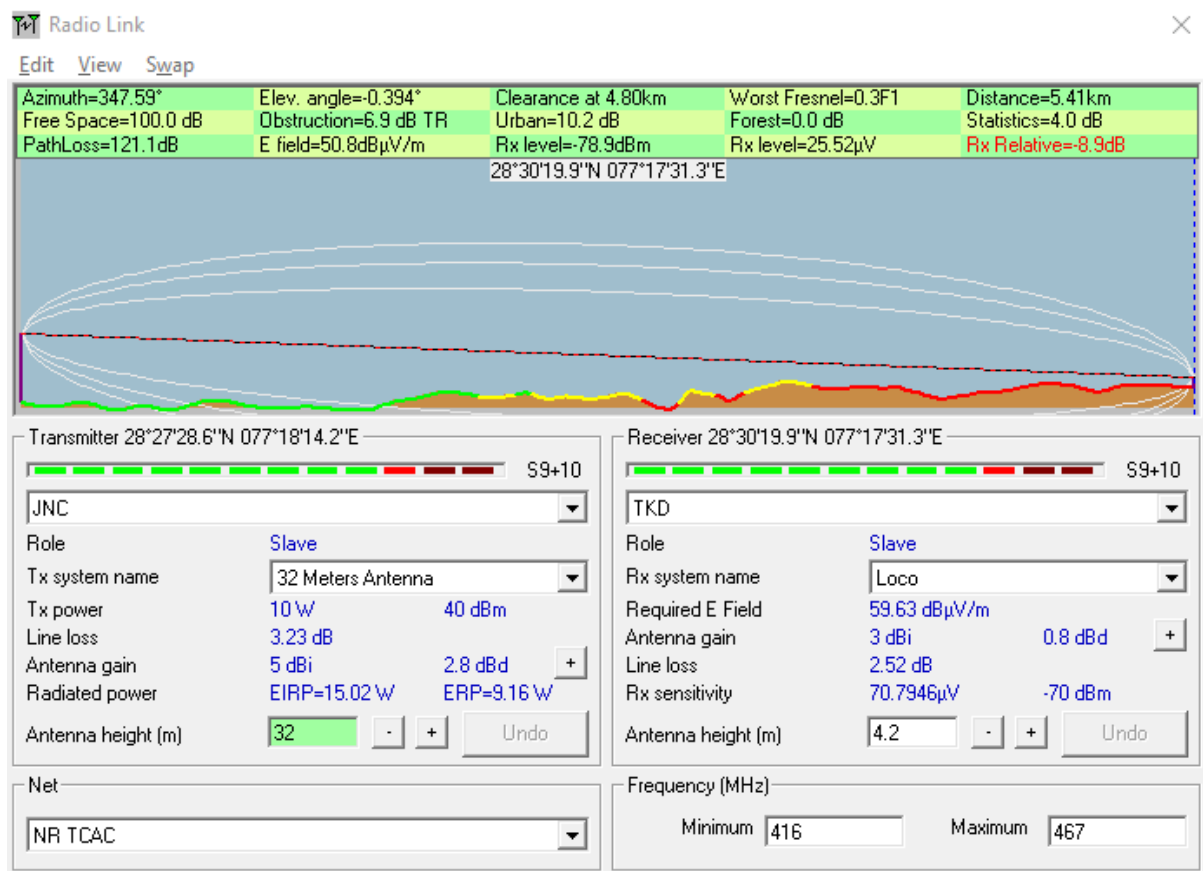
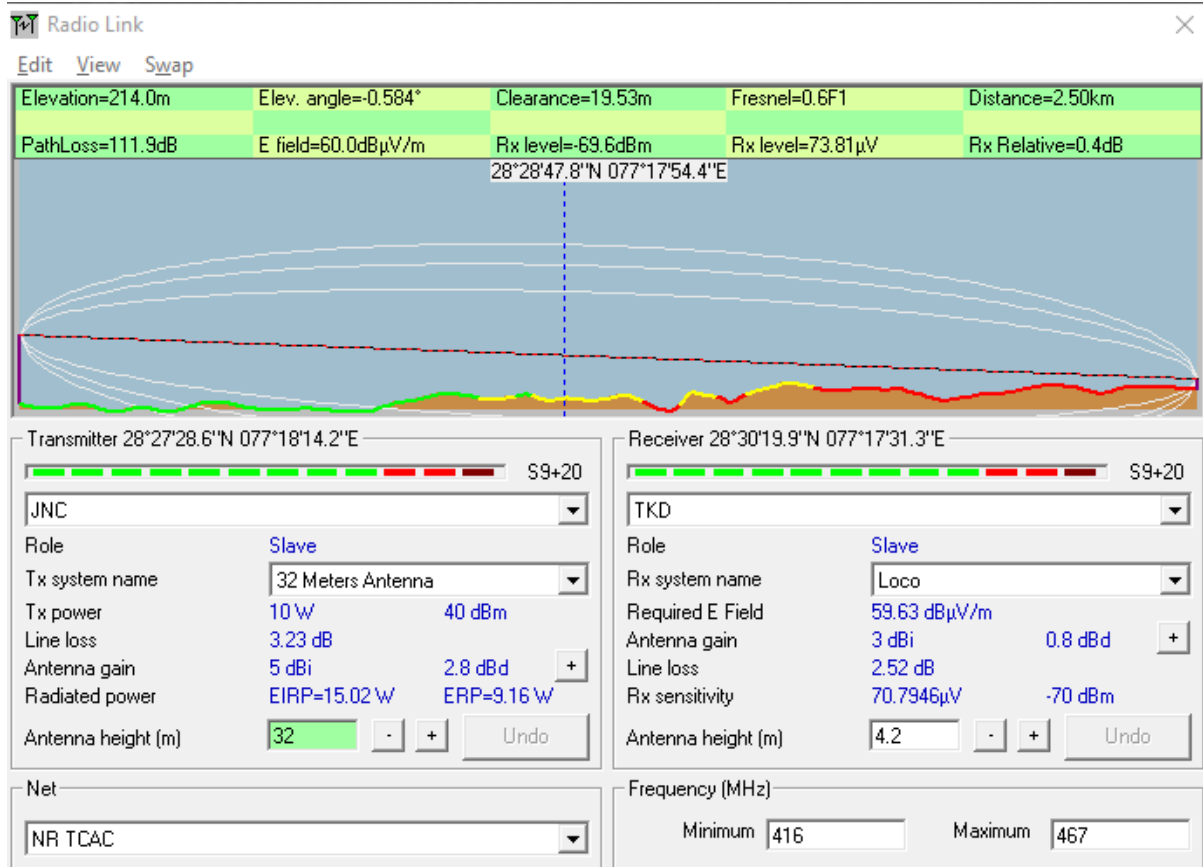


Antenna at 37 meters



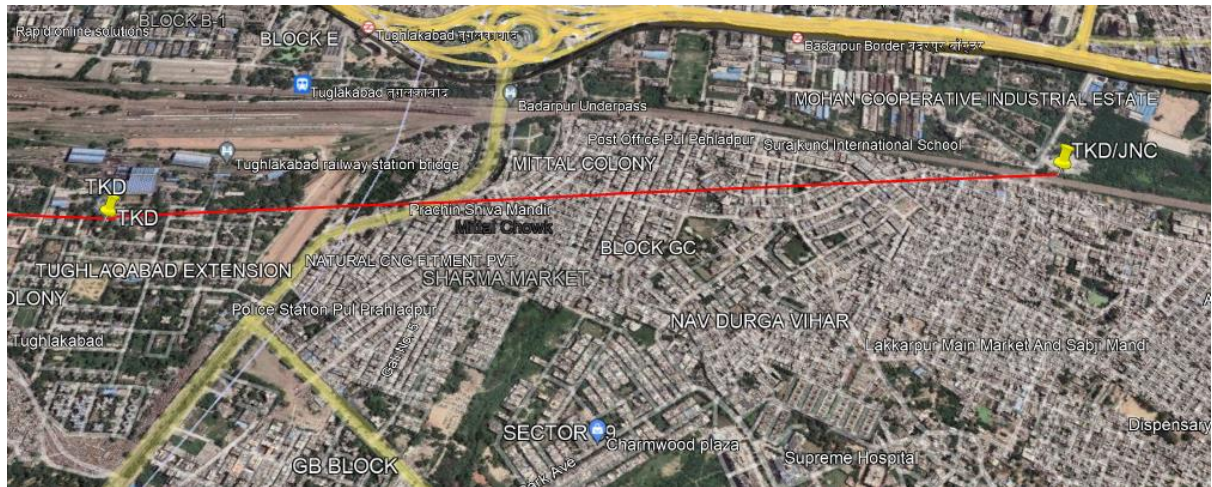
JNC to Tughlakabad

Antenna at 32 Meters



Tuglakabad to TKD/JNC

City 50%



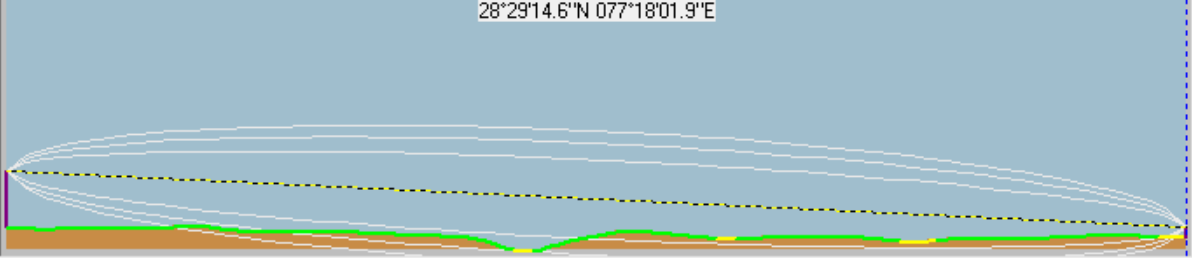
Antenna at 27 meters

Radio Link

Edit View Swap

Azimuth=157.62°	Elev. angle=-0.572°	Clearance at 2.04km	Worst Fresnel=0.5F1	Distance=2.18km
Free Space=92.1 dB	Obstruction=2.0 dB TR	Urban=13.0 dB	Forest=0.0 dB	Statistics=4.1 dB
PathLoss=111.1dB	E field=61.0dBμV/m	Rx level=-68.6dBm	Rx level=82.97μV	Rx Relative=1.4dB

28°29'14.6"N 077°18'01.9"E



Transmitter 28°30'19.9"N 077°17'31.3"E

S9+20

TKD

Role Slave

Tx system name27 Meters Antenna

Tx power10 W40 dBm

Line loss2.95 dB

Antenna gain5 dBi2.8 dBd

Radiated powerEIRP=16.03 WERP=9.77 W

Antenna height (m)27

Receiver 28°29'14.6"N 077°18'01.9"E

S9+20

TKD/JNC

Role Slave

Rx system nameLoco

Required E Field59.63 dBμV/m

Antenna gain3 dBi0.8 dBd

Line loss2.52 dB

Rx sensitivity70.7946μV-70 dBm

Antenna height (m)4.2

Net

NR TCAC

Frequency (MHz)

Minimum416Maximum467

Radio Link

Edit View Swap

Azimuth=157.62°	Elev. angle=-0.834°	Clearance at 2.04km	Worst Fresnel=0.6F1	Distance=2.18km
Free Space=92.1 dB	Obstruction=0.8 dB TR	Urban=13.0 dB	Forest=0.0 dB	Statistics=4.1 dB
PathLoss=109.9dB	E field=61.7dBμV/m	Rx level=-67.9dBm	Rx level=89.67μV	Rx Relative=2.1dB

28°29'14.6"N 077°18'01.9"E

Transmitter 28°30'19.9"N 077°17'31.3"E

Role: Slave

Tx system name: 37 Meters Antenna

Tx power: 10 W 40 dBm

Line loss: 3.51 dB

Antenna gain: 5 dBi 2.8 dBd

Radiated power: EIRP=14.09 W ERP=8.59 W

Antenna height (m): 37

Net: NR TCAC

Receiver 28°29'14.6"N 077°18'01.9"E

Role: Slave

Rx system name: Loco

Required E Field: 59.63 dBμV/m

Antenna gain: 3 dBi 0.8 dBd

Line loss: 2.52 dB

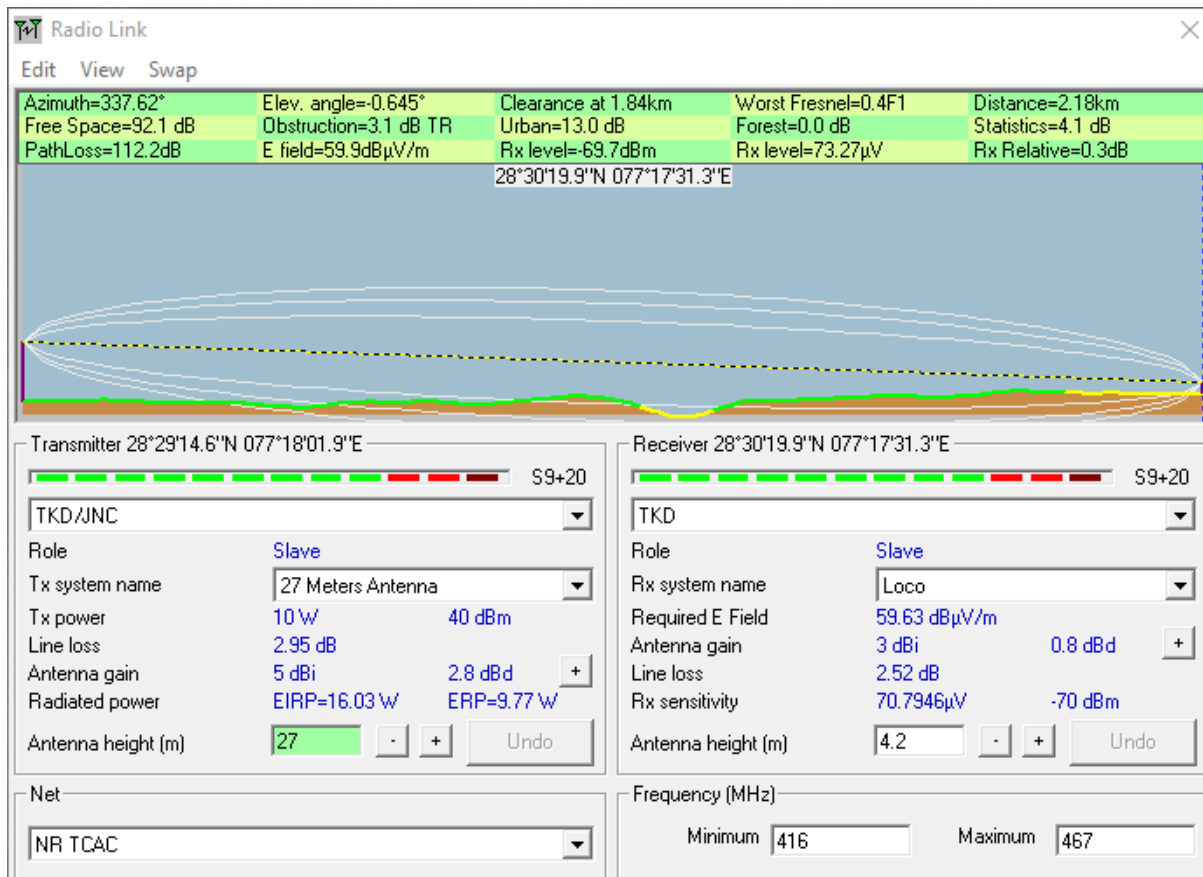
Rx sensitivity: 70.7946μV -70 dBm

Antenna height (m): 4.2

Frequency (MHz): Minimum 416 Maximum 467

TKD/JNC to Tuglakabad

Antenna at 27 Meters



Radio Link

Edit View Swap

Azimuth=337.62°	Elev. angle=-0.908°	Clearance at 1.84km	Worst Fresnel=0.6F1	Distance=2.18km
Free Space=92.1 dB	Obstruction=1.1 dB TR	Urban=13.0 dB	Forest=0.0 dB	Statistics=4.1 dB
PathLoss=110.2dB	E field=61.4dBμV/m	Rx level=-68.3dBm	Rx level=86.54μV	Rx Relative=1.7dB

28°30'19.9"N 077°17'31.3"E

Transmitter 28°29'14.6"N 077°18'01.9"E

S9+20

TKD/JNC

Role: Slave

Tx system name: 37 Meters Antenna

Tx power: 10 W 40 dBm

Line loss: 3.51 dB

Antenna gain: 5 dBi 2.8 dBd

Radiated power: EIRP=14.09 W ERP=8.59 W

Antenna height (m): 37

Receiver 28°30'19.9"N 077°17'31.3"E

S9+20

TKD

Role: Slave

Rx system name: Loco

Required E Field: 59.63 dBμV/m

Antenna gain: 3 dBi 0.8 dBd

Line loss: 2.52 dB

Rx sensitivity: 70.7946μV -70 dBm

Antenna height (m): 4.2

Net

NR TCAC

Frequency (MHz)

Minimum: 416 Maximum: 467

City 10 %



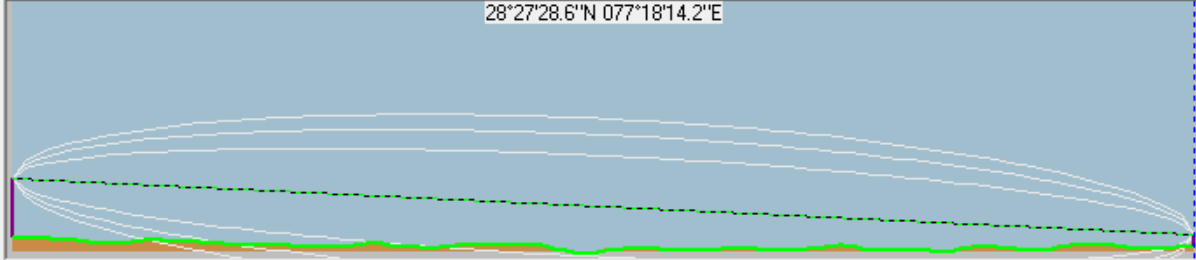
Antenna at 27 Meters

 Radio Link ✕

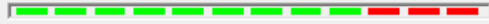
[Edit](#) [View](#) [Swap](#)

Azimuth=174.17°	Elev. angle=-0.312°	Clearance at 3.05km	Worst Fresnel=0.4F1	Distance=3.29km
Free Space=95.6 dB	Obstruction=3.3 dB TR	Urban=2.6 dB	Forest=0.0 dB	Statistics=4.1 dB
PathLoss=105.6dB	E field=66.5dBμV/m	Rx level=-63.1dBm	Rx level=156.33μV	Rx Relative=6.9dB

28°27'28.6"N 077°18'14.2"E



Transmitter 28°29'14.6"N 077°18'01.9"E

 S9+30

TKD/JNC

Role **Slave**

Tx system name 27 Meters Antenna

Tx power 10 W 40 dBm

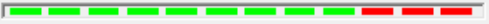
Line loss 2.95 dB

Antenna gain 5 dBi 2.8 dBd +

Radiated power EIRP=16.03 W ERP=9.77 W

Antenna height (m) 27 - + Undo

Receiver 28°27'28.6"N 077°18'14.2"E

 S9+30

JNC

Role **Slave**

Rx system name Loco

Required E Field 59.63 dBμV/m

Antenna gain 3 dBi 0.8 dBd +

Line loss 2.52 dB

Rx sensitivity 70.7946μV -70 dBm

Antenna height (m) 4.2 - + Undo

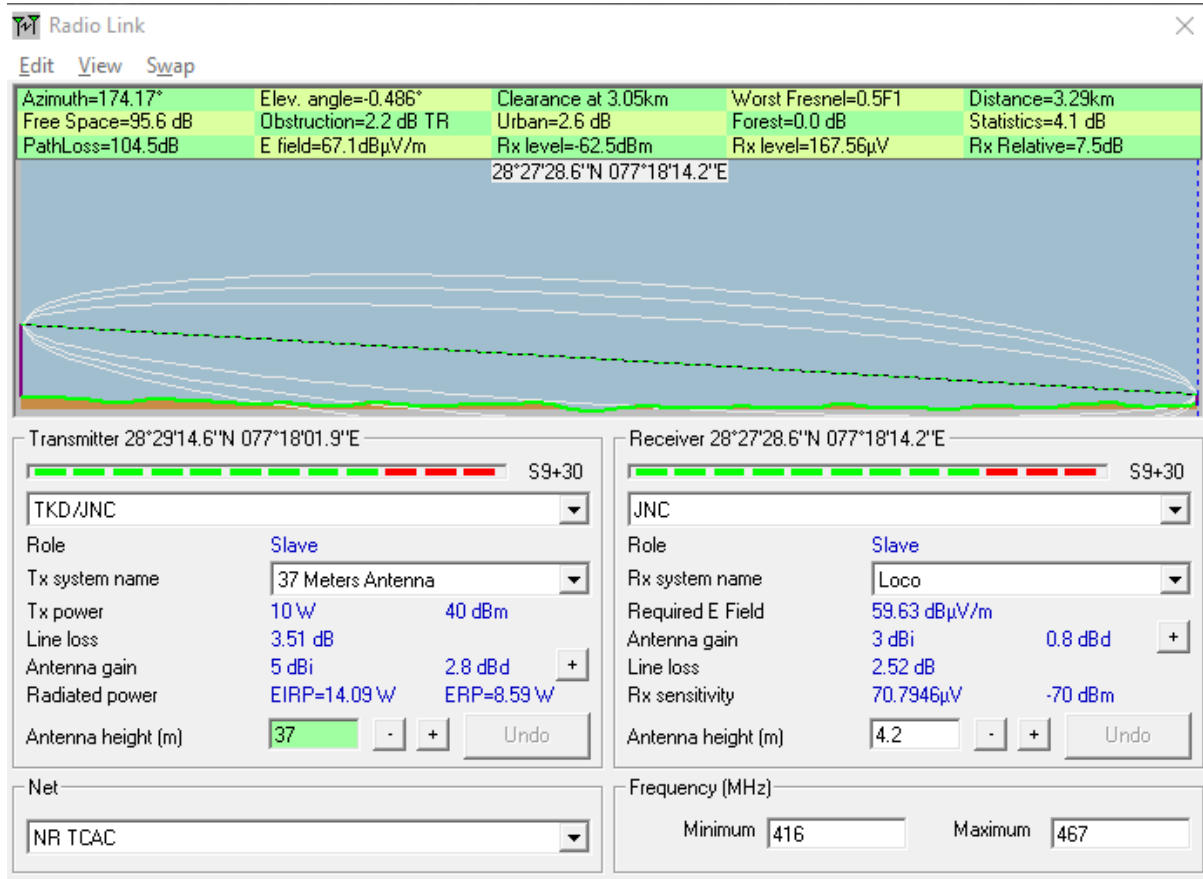
Net

NR TCAC

Frequency (MHz)

Minimum 416 Maximum 467

Antenna at 37 meters



Radio Link

Transmitter: 28°27'28.6"N 077°18'14.2"E

Receiver: 28°29'14.6"N 077°18'01.9"E

Link Parameters:

- Azimuth=354.17°
- Elev. angle=-0.598°
- Clearance at 2.91km
- Worst Fresnel=0.5F1
- Distance=3.29km
- Free Space=95.6 dB
- Obstruction=1.4 dB TR
- Urban=2.6 dB
- Forest=0.0 dB
- Statistics=4.1 dB
- PathLoss=103.7dB
- E field=68.2dBμV/m
- Rx level=-61.4dBm
- Rx level=189.65μV
- Rx Relative=8.6dB

Transmitter Details:

- Role: Slave
- Tx system name: 32 Meters Antenna
- Tx power: 10 W / 40 dBm
- Line loss: 3.23 dB
- Antenna gain: 5 dBi / 2.8 dBd
- Radiated power: EIRP=15.02 W / ERP=9.16 W
- Antenna height (m): 32

Receiver Details:

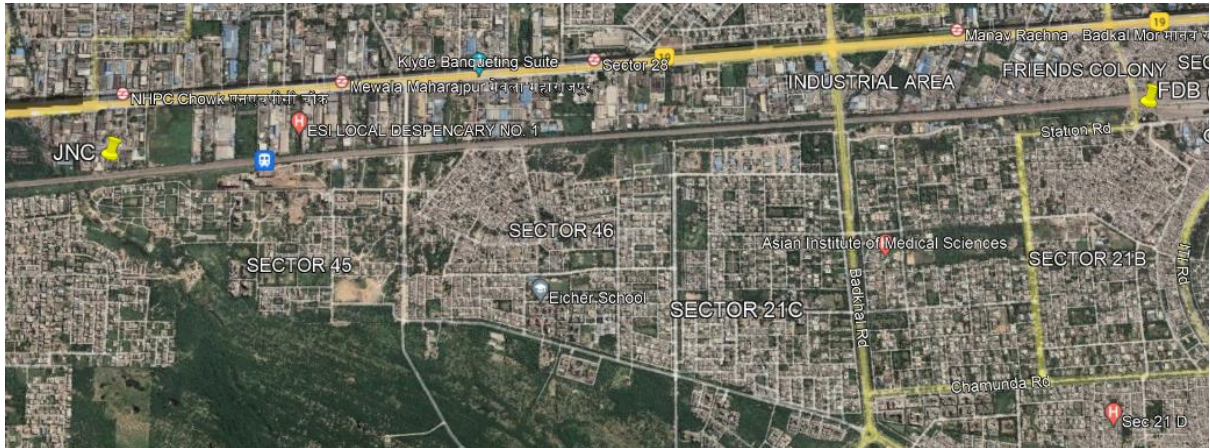
- Role: Slave
- Rx system name: Loco
- Required E Field: 59.63 dBμV/m
- Antenna gain: 3 dBi / 0.8 dBd
- Line loss: 2.52 dB
- Rx sensitivity: 70.7946μV / -70 dBm
- Antenna height (m): 4.2

Network and Frequency:

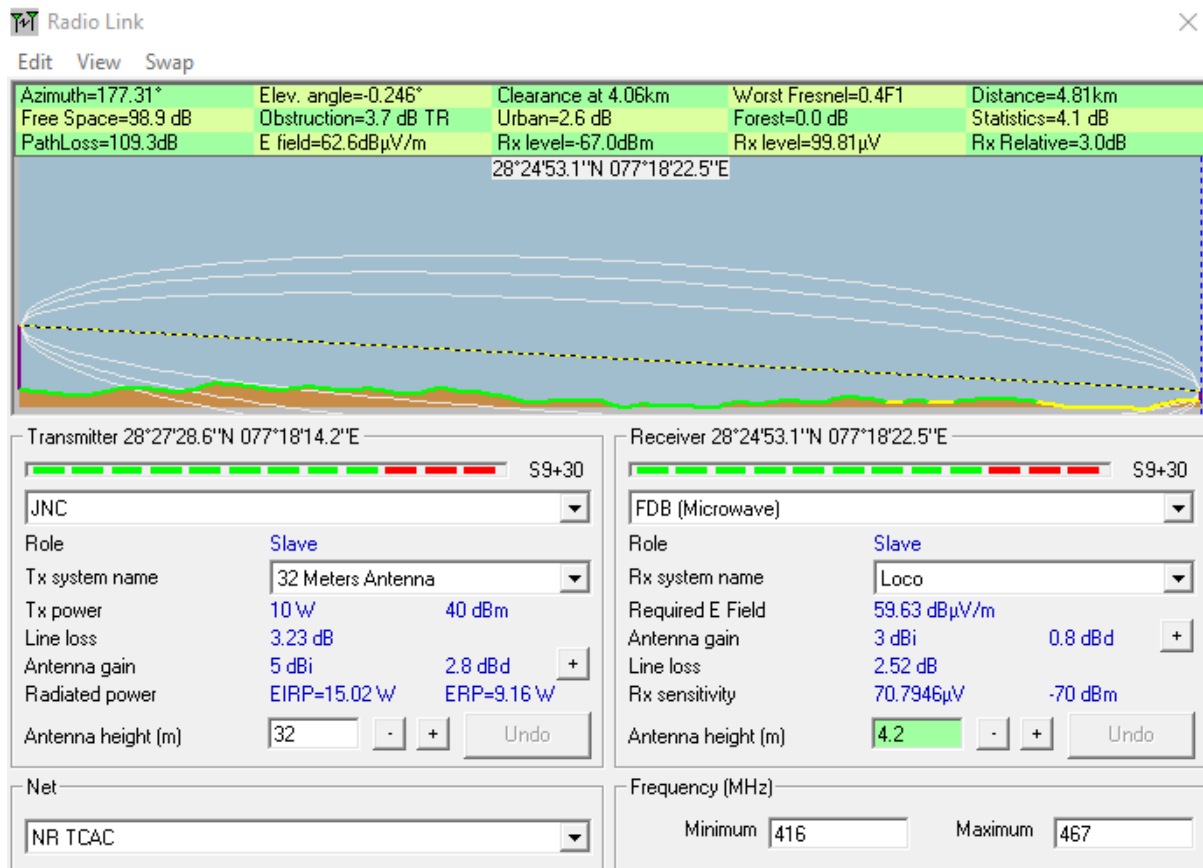
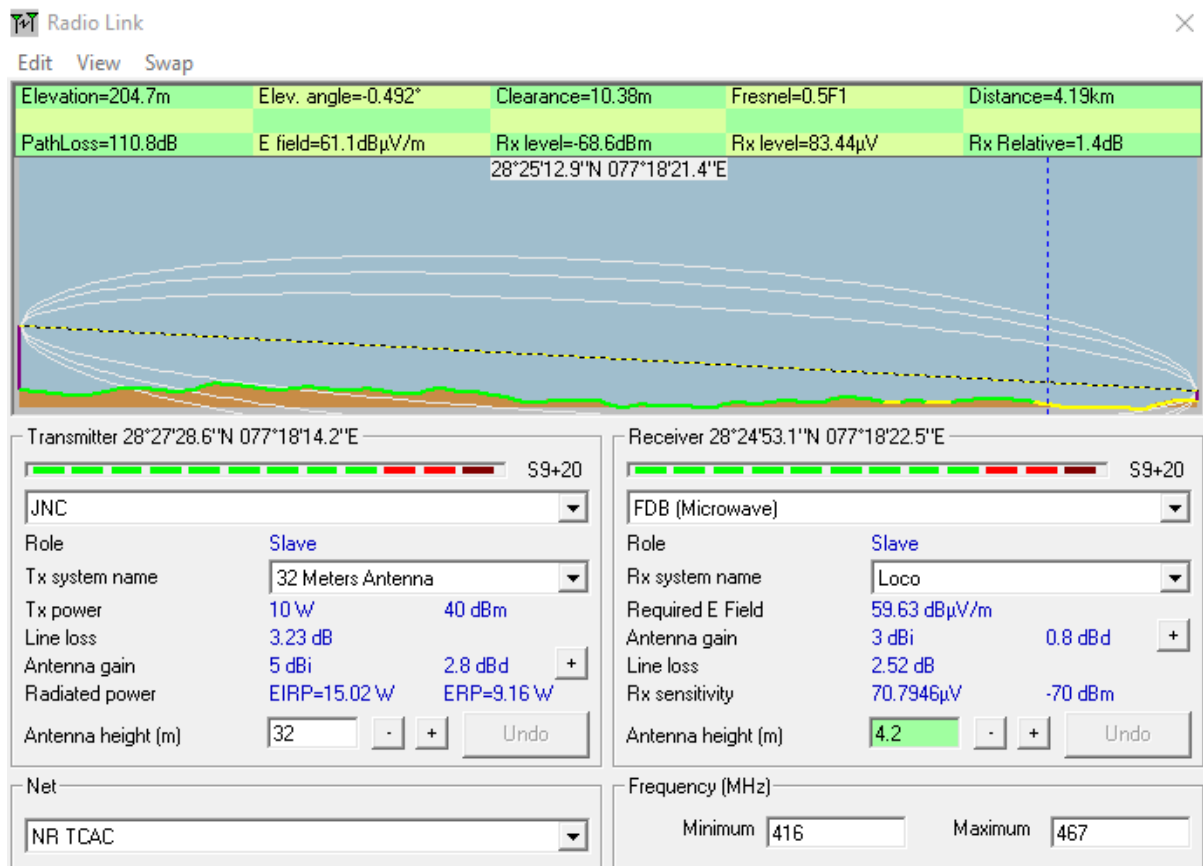
- Net: NR TCAC
- Frequency (MHz): Minimum 416, Maximum 467

JNC to Faridabad

City: 10 %

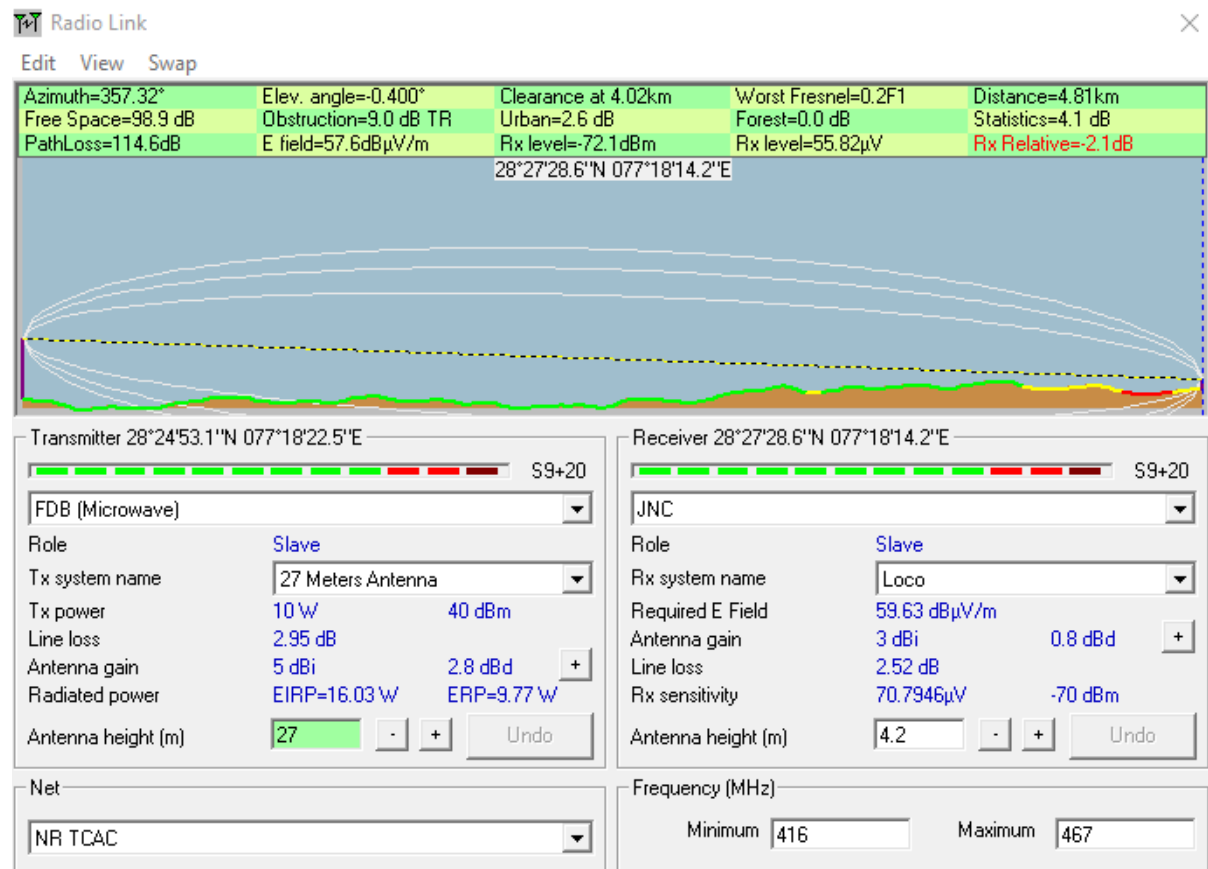
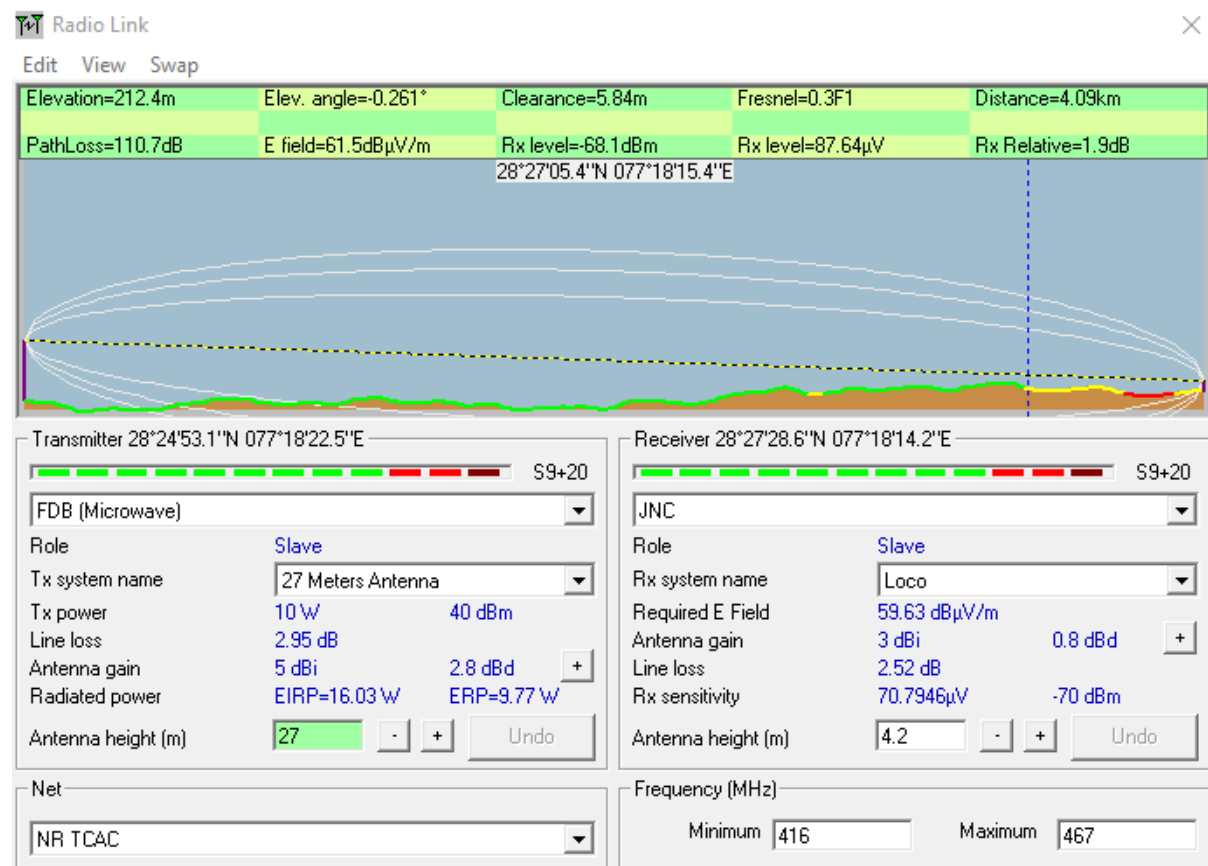


Antenna at 32 Meters



Faridabad to JNC

Antenna at 27 meters



Antenna at 37 meters

Radio Link

Edit View Swap

Azimuth=357.32°	Elev. angle=-0.519°	Clearance at 4.02km	Worst Fresnel=0.2F1	Distance=4.81km
Free Space=98.9 dB	Obstruction=7.4 dB TR	Urban=2.6 dB	Forest=0.0 dB	Statistics=4.1 dB
PathLoss=112.9dB	E field=58.7dBμV/m	Rx level=-70.9dBm	Rx level=63.52μV	Rx Relative=-0.9dB

28°27'28.6"N 077°18'14.2"E

Transmitter 28°24'53.1"N 077°18'22.5"E

S9+20

FDB (Microwave)

Role Slave

Tx system name 37 Meters Antenna

Tx power 10 W 40 dBm

Line loss 3.51 dB

Antenna gain 5 dBi 2.8 dBd +

Radiated power EIRP=14.09 W ERP=8.59 W

Antenna height (m) 37 - + Undo

Receiver 28°27'28.6"N 077°18'14.2"E

S9+20

JNC

Role Slave

Rx system name Loco

Required E Field 59.63 dBμV/m

Antenna gain 3 dBi 0.8 dBd +

Line loss 2.52 dB

Rx sensitivity 70.7946μV -70 dBm

Antenna height (m) 4.2 - + Undo

Net

NR TCAC

Frequency (MHz)

Minimum 416 Maximum 467

Radio Link

Edit View Swap

Elevation=212.4m	Elev. angle=-0.401°	Clearance=7.33m	Fresnel=0.4F1	Distance=4.09km
PathLoss=110.2dB	E field=61.4dBμV/m	Rx level=-68.2dBm	Rx level=87.25μV	Rx Relative=1.8dB

28°27'05.4"N 077°18'15.4"E

Transmitter 28°24'53.1"N 077°18'22.5"E

S9+20

FDB (Microwave)

Role Slave

Tx system name 37 Meters Antenna

Tx power 10 W 40 dBm

Line loss 3.51 dB

Antenna gain 5 dBi 2.8 dBd +

Radiated power EIRP=14.09 W ERP=8.59 W

Antenna height (m) 37 - + Undo

Receiver 28°27'28.6"N 077°18'14.2"E

S9+20

JNC

Role Slave

Rx system name Loco

Required E Field 59.63 dBμV/m

Antenna gain 3 dBi 0.8 dBd +

Line loss 2.52 dB

Rx sensitivity 70.7946μV -70 dBm

Antenna height (m) 4.2 - + Undo

Net

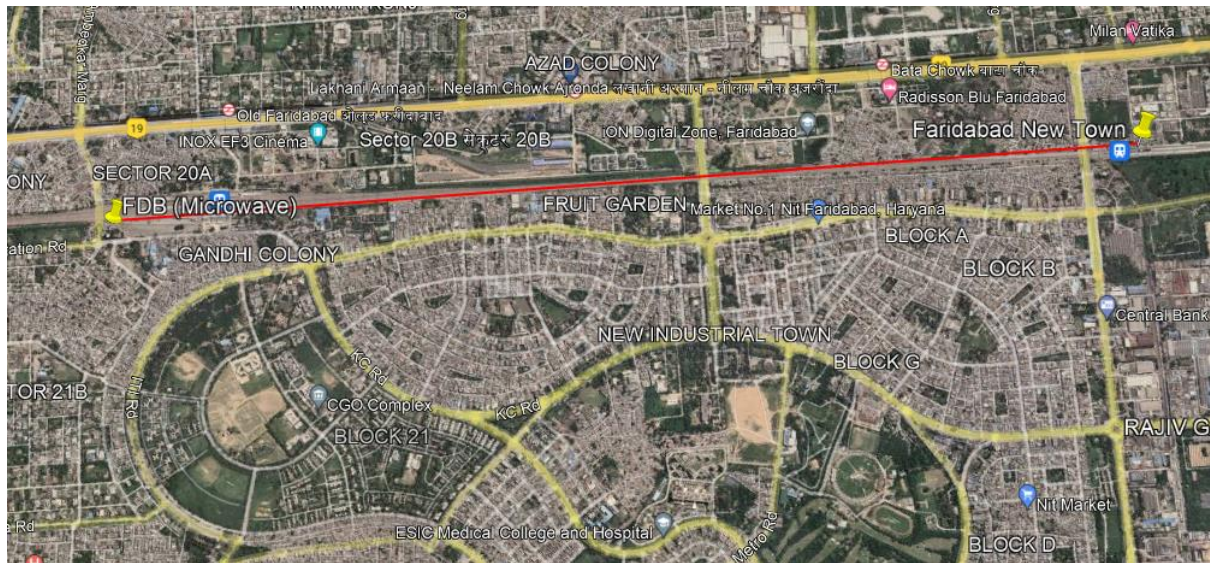
NR TCAC

Frequency (MHz)

Minimum 416 Maximum 467

Faridabad to Faridabad New Town

City 10 %



Antenna at 27 Meters

Radio Link

×

Edit View Swap

Azimuth=175.43°	Elev. angle=-0.201°	Clearance at 4.13km	Worst Fresnel=0.3F1	Distance=4.30km
Free Space=98.0 dB	Obstruction=7.4 dB TR	Urban=2.6 dB	Forest=0.0 dB	Statistics=4.1 dB
PathLoss=112.0dB	E field=60.1dBμV/m	Rx level=-69.5dBm	Rx level=75.11μV	Rx Relative=0.5dB

28°22'34.2"N 077°18'35.1"E

Transmitter 28°24'53.1"N 077°18'22.5"E

S9+20

FDB (Microwave)

Role Slave

Tx system name 27 Meters Antenna

Tx power 10 W 40 dBm

Line loss 2.95 dB

Antenna gain 5 dBi 2.8 dBd

Radiated power EIRP=16.03 W ERP=9.77 W

Antenna height (m) 27

Receiver 28°22'34.2"N 077°18'35.1"E

S9+20

Faridabad New Town

Role Slave

Rx system name Loco

Required E Field 59.63 dBμV/m

Antenna gain 3 dBi 0.8 dBd

Line loss 2.52 dB

Rx sensitivity 70.7946μV -70 dBm

Antenna height (m) 4.2

Net

NR TCAC

Frequency (MHz)

Minimum 416 Maximum 467

Antenna at 37 meters

Radio Link

Edit View Swap

Azimuth=175.43°

Elev. angle=-0.334°

Clearance at 4.13km

Worst Fresnel=0.3F1

Distance=4.30km

Free Space=98.0 dB

Obstruction=6.6 dB TR

Urban=2.6 dB

Forest=0.0 dB

Statistics=4.1 dB

PathLoss=111.2dB

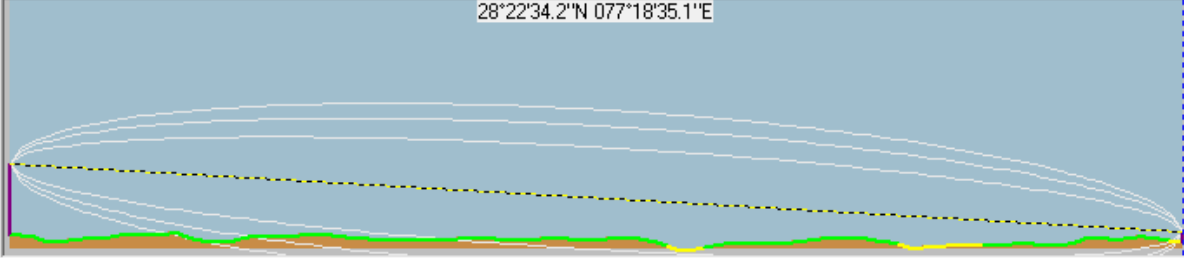
E field=60.4dBμV/m

Rx level=-69.2dBm

Rx level=77.59μV

Rx Relative=0.8dB

28°22'34.2"N 077°18'35.1"E



Transmitter 28°24'53.1"N 077°18'22.5"E

S9+20

FDB (Microwave)

Role Slave

Tx system name37 Meters Antenna

Tx power10 W40 dBm

Line loss3.51 dB

Antenna gain5 dBi2.8 dBd

Radiated powerEIRP=14.09 WERP=8.59 W

Antenna height (m)37

Receiver 28°22'34.2"N 077°18'35.1"E

S9+20

Faridabad New Town

Role Slave

Rx system nameLoco

Required E Field59.63 dBμV/m

Antenna gain3 dBi0.8 dBd

Line loss2.52 dB

Rx sensitivity70.7946μV-70 dBm

Antenna height (m)4.2

Net

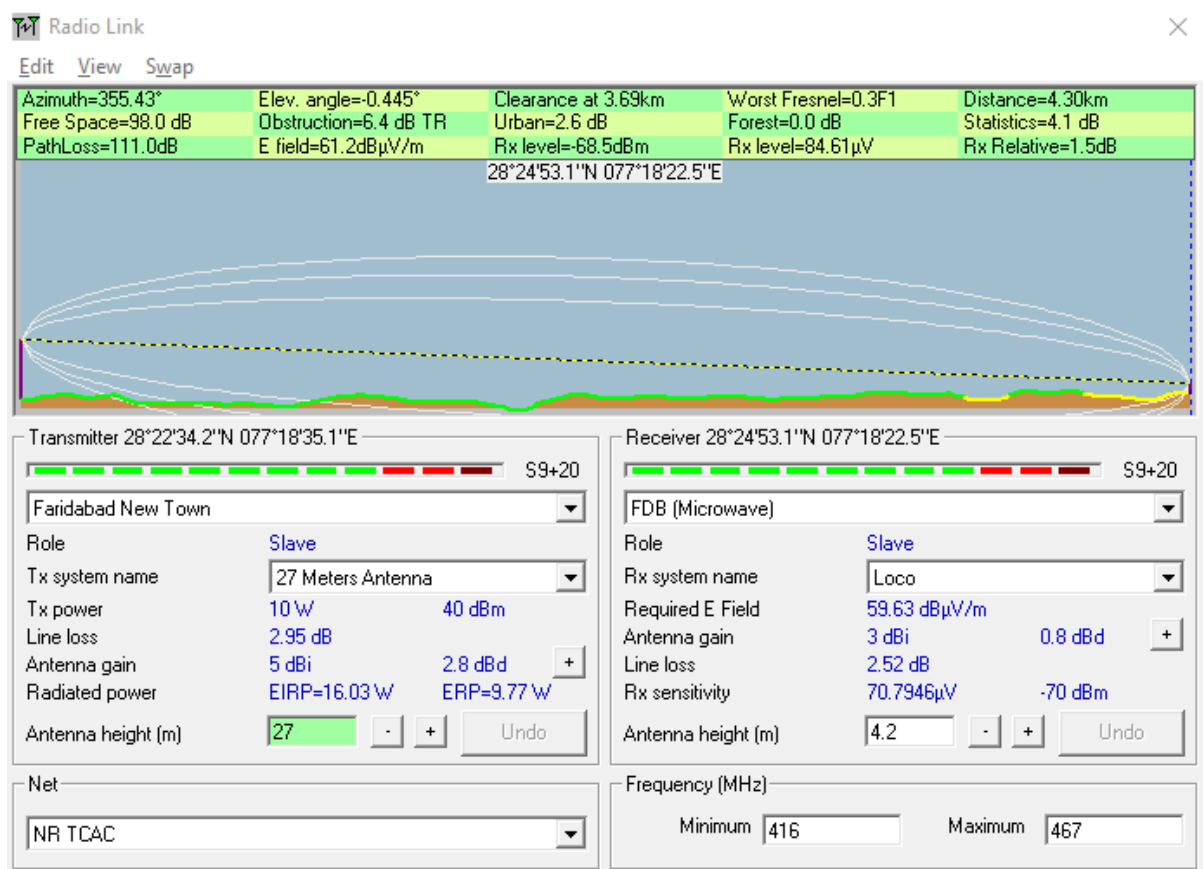
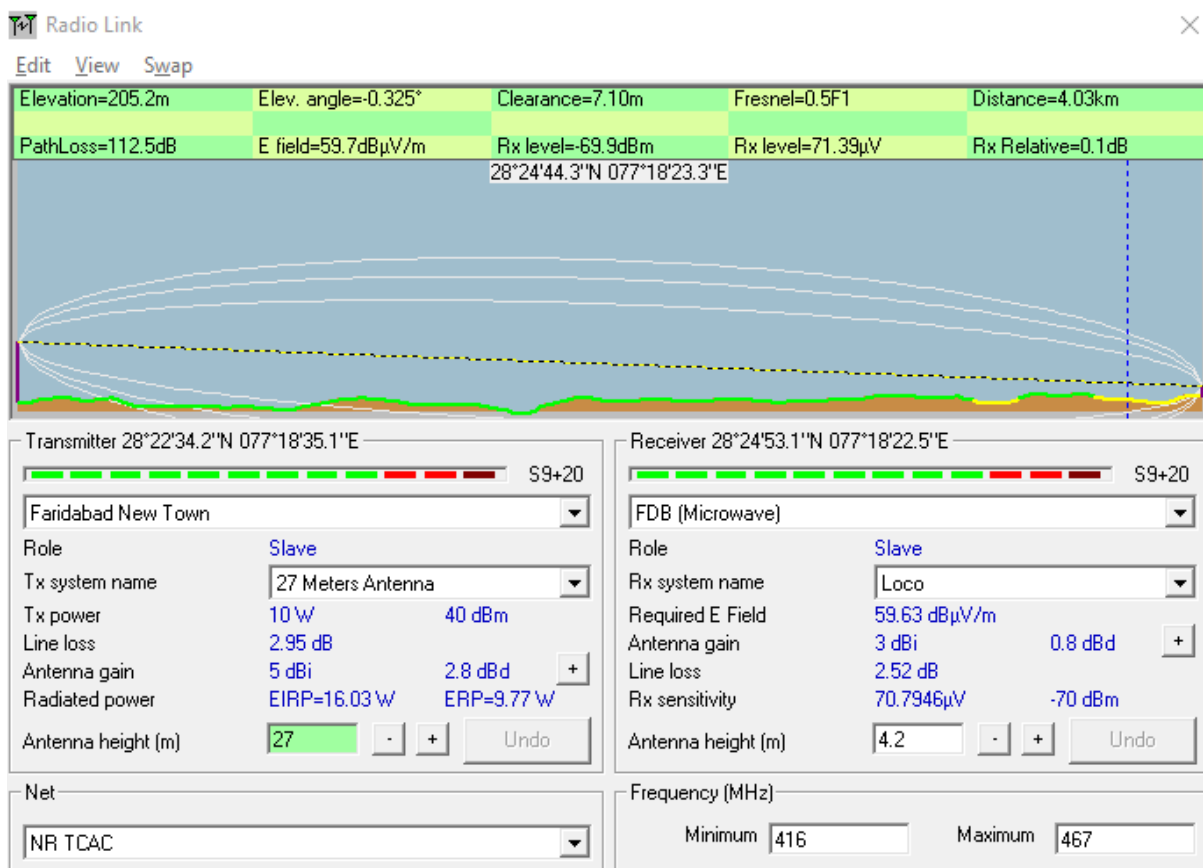
NR TCAC

Frequency (MHz)

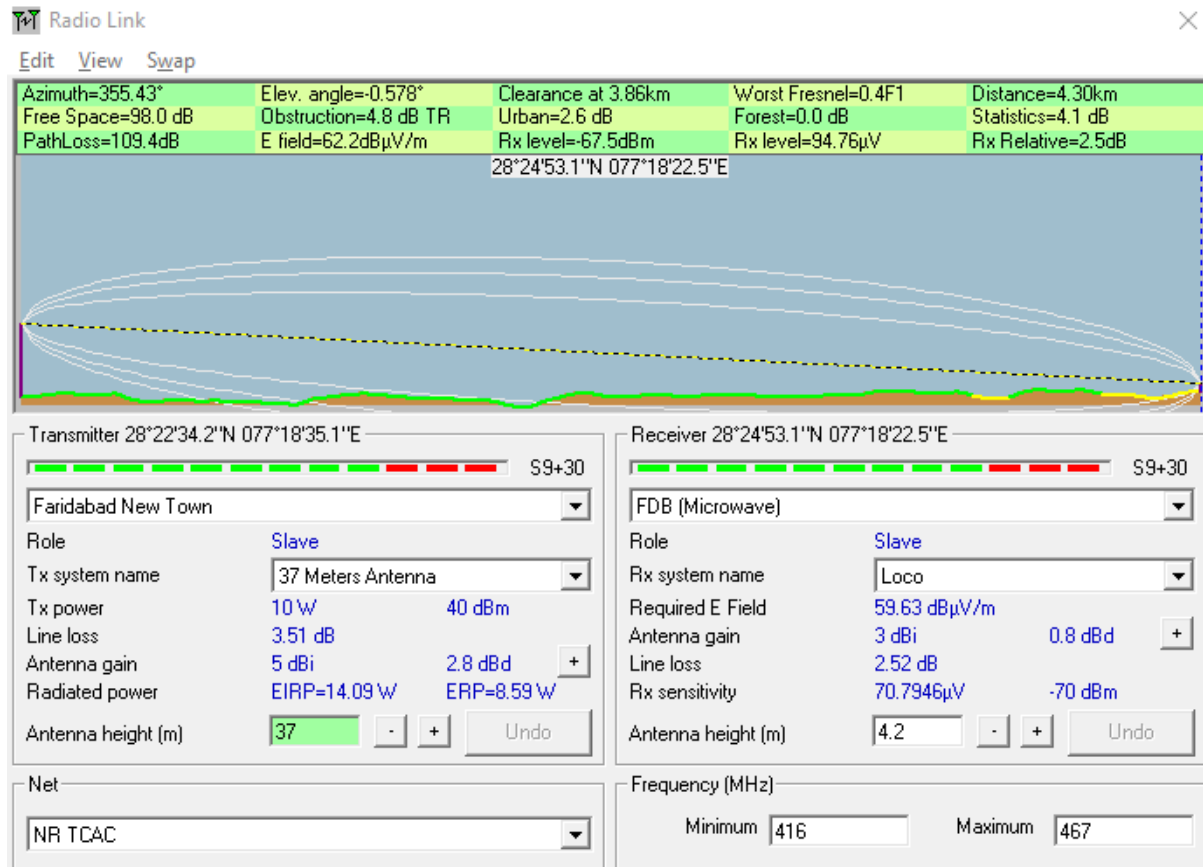
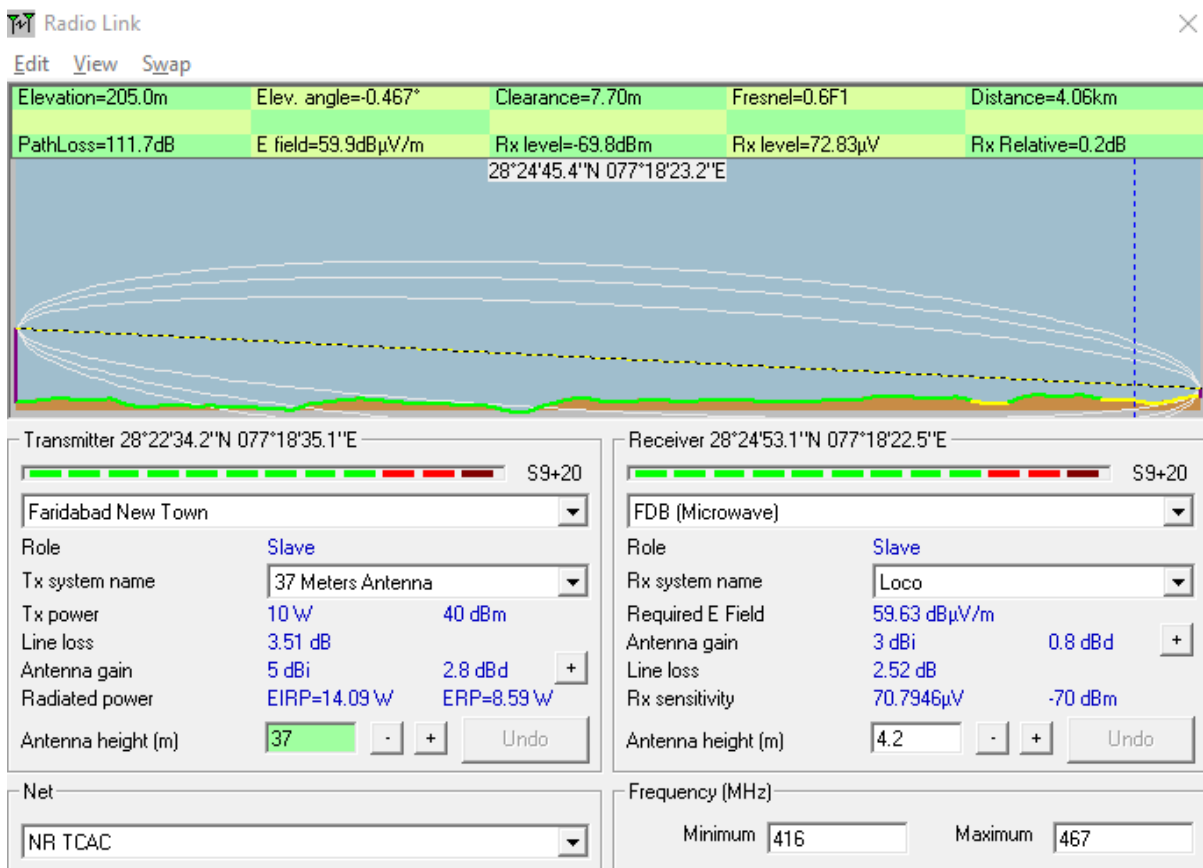
Minimum416Maximum467

Faridabad New Town to Faridabad

Antenna at 27 meters

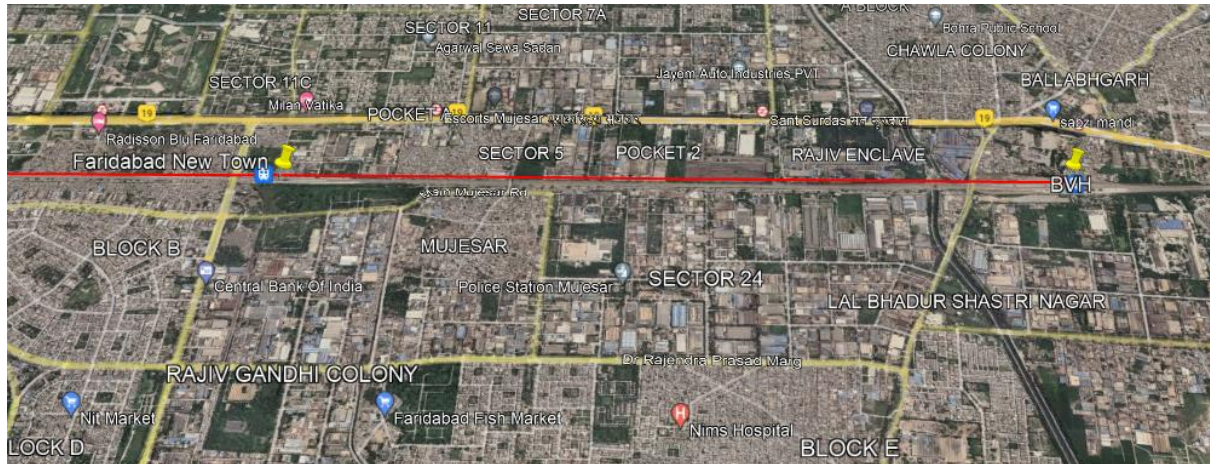


Antenna at 37 Meters



Faridabad New Town to Ballabhgarh

City 10 %



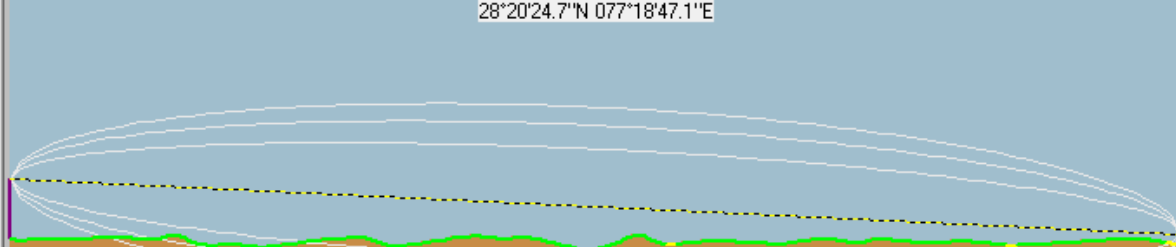
Antenna at 27 meters

Radio Link

Edit View Swap

Azimuth=175.35°	Elev. angle=-0.216°	Clearance at 3.84km	Worst Fresnel=0.3F1	Distance=4.01km
Free Space=97.4 dB	Obstruction=7.2 dB TR	Urban=2.6 dB	Forest=0.0 dB	Statistics=4.1 dB
PathLoss=111.2dB	E field=61.0dBμV/m	Rx level=-68.6dBm	Rx level=82.80μV	Rx Relative=1.4dB

28°20'24.7"N 077°18'47.1"E



Transmitter 28°22'34.2"N 077°18'35.1"E

S9+20

Faridabad New Town

Role Slave

Tx system name 27 Meters Antenna

Tx power 10 W 40 dBm

Line loss 2.95 dB

Antenna gain 5 dBi 2.8 dBd +

Radiated power EIRP=16.03 W ERP=9.77 W

Antenna height (m) 27 - + Undo

Receiver 28°20'24.7"N 077°18'47.1"E

S9+20

BVH

Role Slave

Rx system name Loco

Required E Field 59.63 dBμV/m

Antenna gain 3 dBi 0.8 dBd +

Line loss 2.52 dB

Rx sensitivity 70.7946μV -70 dBm

Antenna height (m) 4.2 - + Undo

Net

NR TCAC

Frequency (MHz)

Minimum 416 Maximum 467

Antenna at 37 Meters

Radio Link

Edit View Swap

Azimuth=175.35°	Elev. angle=-0.358°	Clearance at 3.84km	Worst Fresnel=0.3F1	Distance=4.01km
Free Space=97.4 dB	Obstruction=6.2 dB TR	Urban=2.6 dB	Forest=0.0 dB	Statistics=4.1 dB
PathLoss=110.3dB	E field=61.3dBμV/m	Rx level=-68.3dBm	Rx level=86.15μV	Rx Relative=1.7dB

28°20'24.7"N 077°18'47.1"E

Transmitter 28°22'34.2"N 077°18'35.1"E

S9+20

Faridabad New Town

Role Slave

Tx system name 37 Meters Antenna

Tx power 10 W 40 dBm

Line loss 3.51 dB

Antenna gain 5 dBi 2.8 dBd

Radiated power EIRP=14.09 W ERP=8.59 W

Antenna height (m) 37

Receiver 28°20'24.7"N 077°18'47.1"E

S9+20

BVH

Role Slave

Rx system name Loco

Required E Field 59.63 dBμV/m

Antenna gain 3 dBi 0.8 dBd

Line loss 2.52 dB

Rx sensitivity 70.7946μV -70 dBm

Antenna height (m) 4.2

Net

NR TCAC

Frequency (MHz)

Minimum 416 Maximum 467

Radio Link [X]

Edit View Swap

Azimuth=355.35°	Elev. angle=-0.471°	Clearance at 3.46km	Worst Fresnel=0.3F1	Distance=4.01km
Free Space=97.4 dB	Obstruction=6.7 dB TR	Urban=2.6 dB	Forest=0.0 dB	Statistics=4.1 dB
PathLoss=110.7dB	E field=61.5dBμV/m	Rx level=-68.2dBm	Rx level=87.44μV	Rx Relative=1.8dB

28°22'34.2"N 077°18'35.1"E

Transmitter 28°20'24.7"N 077°18'47.1"E

S9+20

BVH

Role: Slave

Tx system name: 27 Meters Antenna

Tx power: 10 W 40 dBm

Line loss: 2.95 dB

Antenna gain: 5 dBi 2.8 dBd

Radiated power: EIRP=16.03 W ERP=9.77 W

Antenna height (m): 27

Receiver 28°22'34.2"N 077°18'35.1"E

S9+20

Faridabad New Town

Role: Slave

Rx system name: Loco

Required E Field: 59.63 dBμV/m

Antenna gain: 3 dBi 0.8 dBd

Line loss: 2.52 dB

Rx sensitivity: 70.7946μV -70 dBm

Antenna height (m): 4.2

Net

NR TCAC

Frequency (MHz)

Minimum: 416 Maximum: 467

Antenna at 37 meters

Radio Link

Edit View Swap

Azimuth=355.35°	Elev. angle=-0.614°	Clearance at 3.46km	Worst Fresnel=0.4F1	Distance=4.01km
Free Space=97.4 dB	Obstruction=5.0 dB TR	Urban=2.6 dB	Forest=0.0 dB	Statistics=4.1 dB
PathLoss=109.1dB	E field=62.5dBμV/m	Rx level=-67.1dBm	Rx level=98.92μV	Rx Relative=2.9dB

28°22'34.2"N 077°18'35.1"E

Transmitter 28°20'24.7"N 077°18'47.1"E

S9+30

BVH

Role Slave

Tx system name 37 Meters Antenna

Tx power 10 W 40 dBm

Line loss 3.51 dB

Antenna gain 5 dBi 2.8 dBd

Radiated power EIRP=14.09 W ERP=8.59 W

Antenna height (m) 37

Receiver 28°22'34.2"N 077°18'35.1"E

S9+30

Faridabad New Town

Role Slave

Rx system name Loco

Required E Field 59.63 dBμV/m

Antenna gain 3 dBi 0.8 dBd

Line loss 2.52 dB

Rx sensitivity 70.7946μV -70 dBm

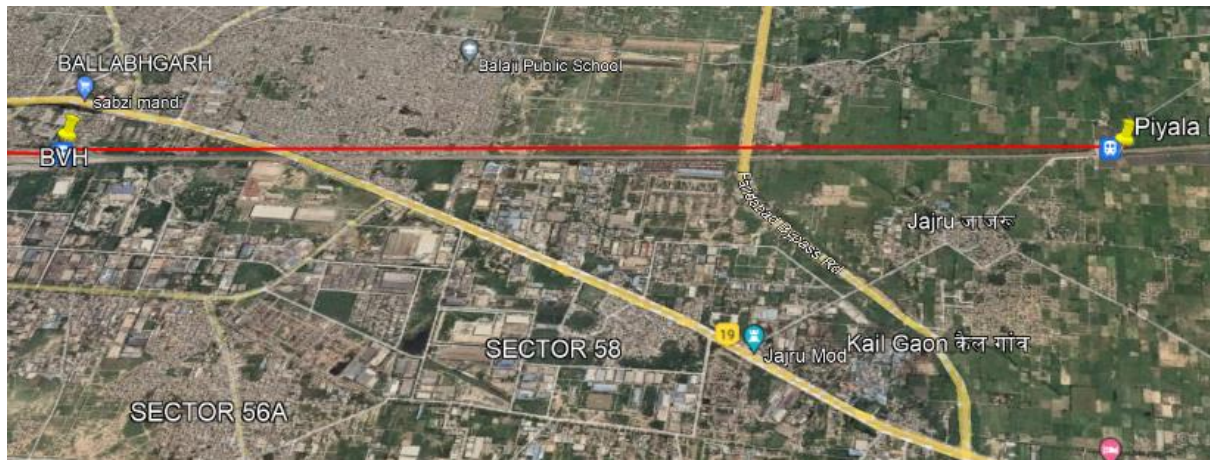
Antenna height (m) 4.2

Net NR TCAC

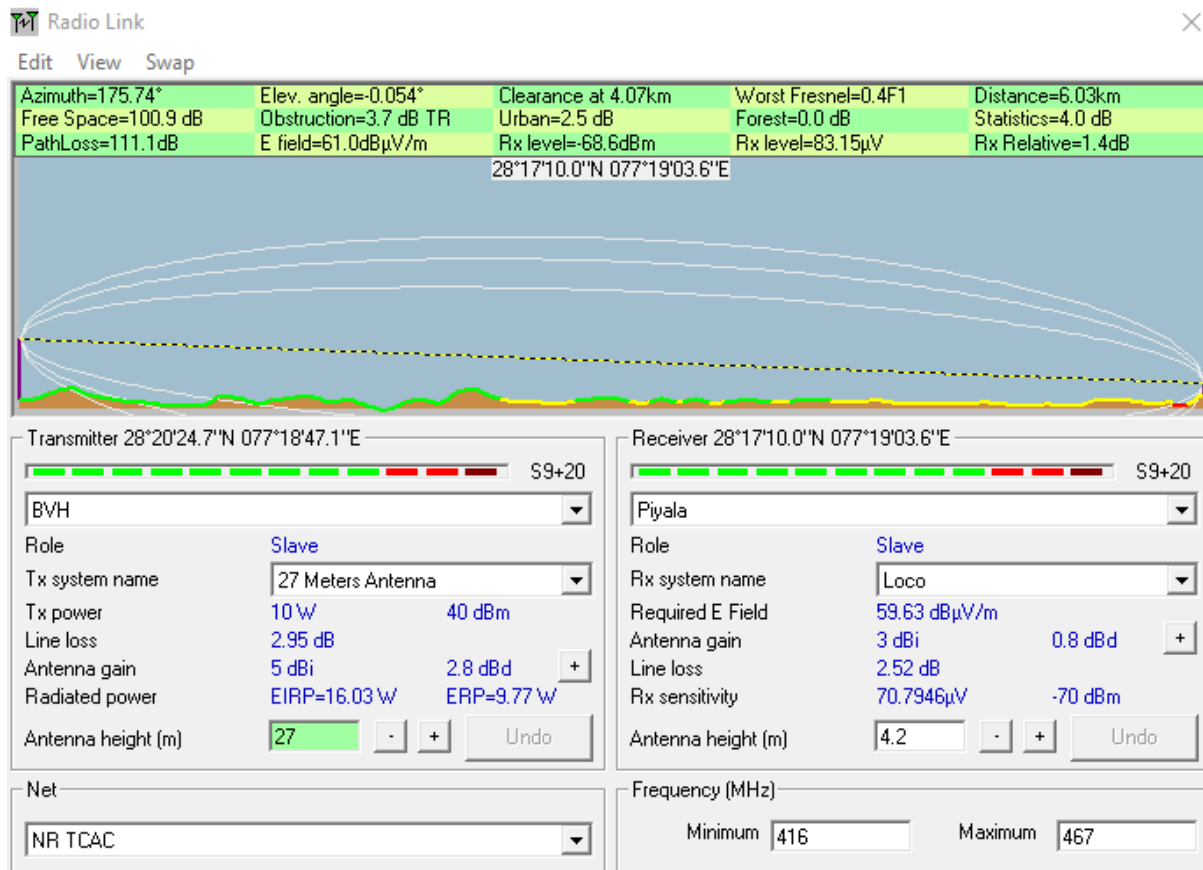
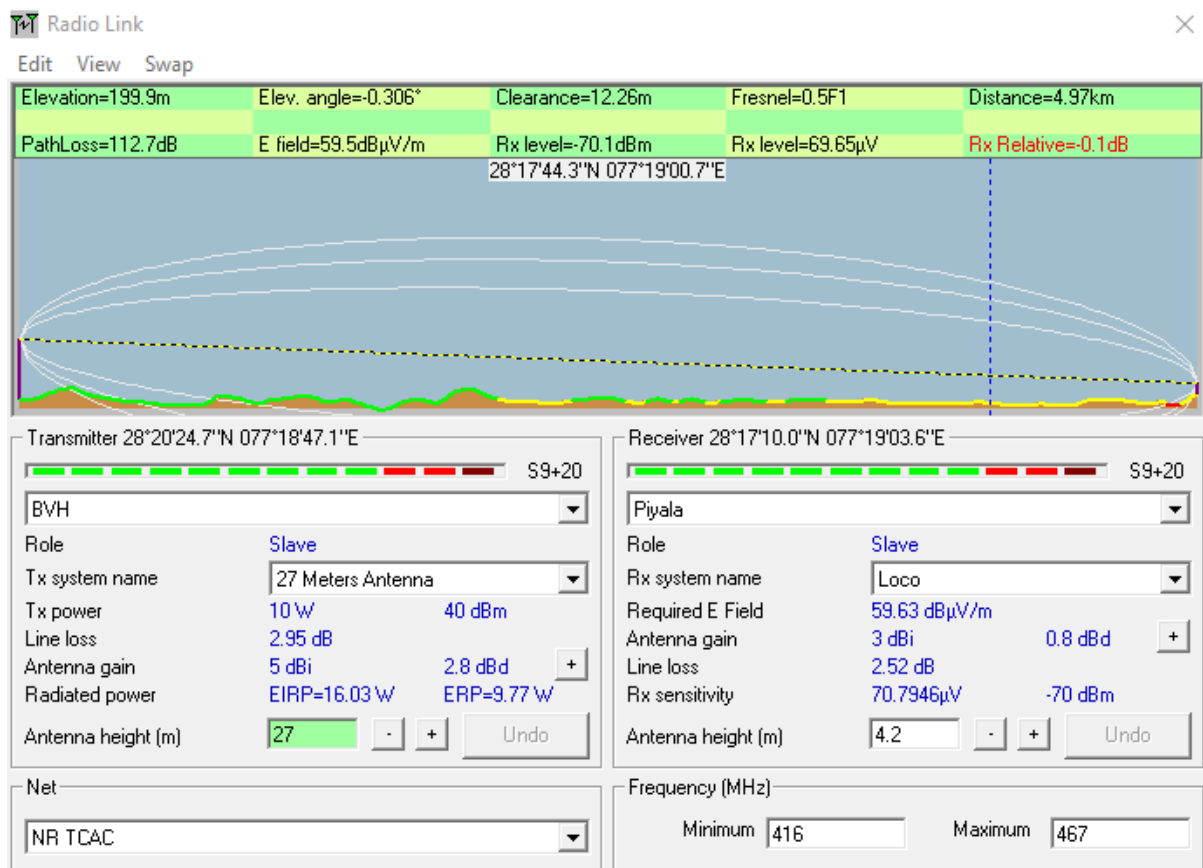
Frequency (MHz) Minimum 416 Maximum 467

Ballabgarh to Piyala

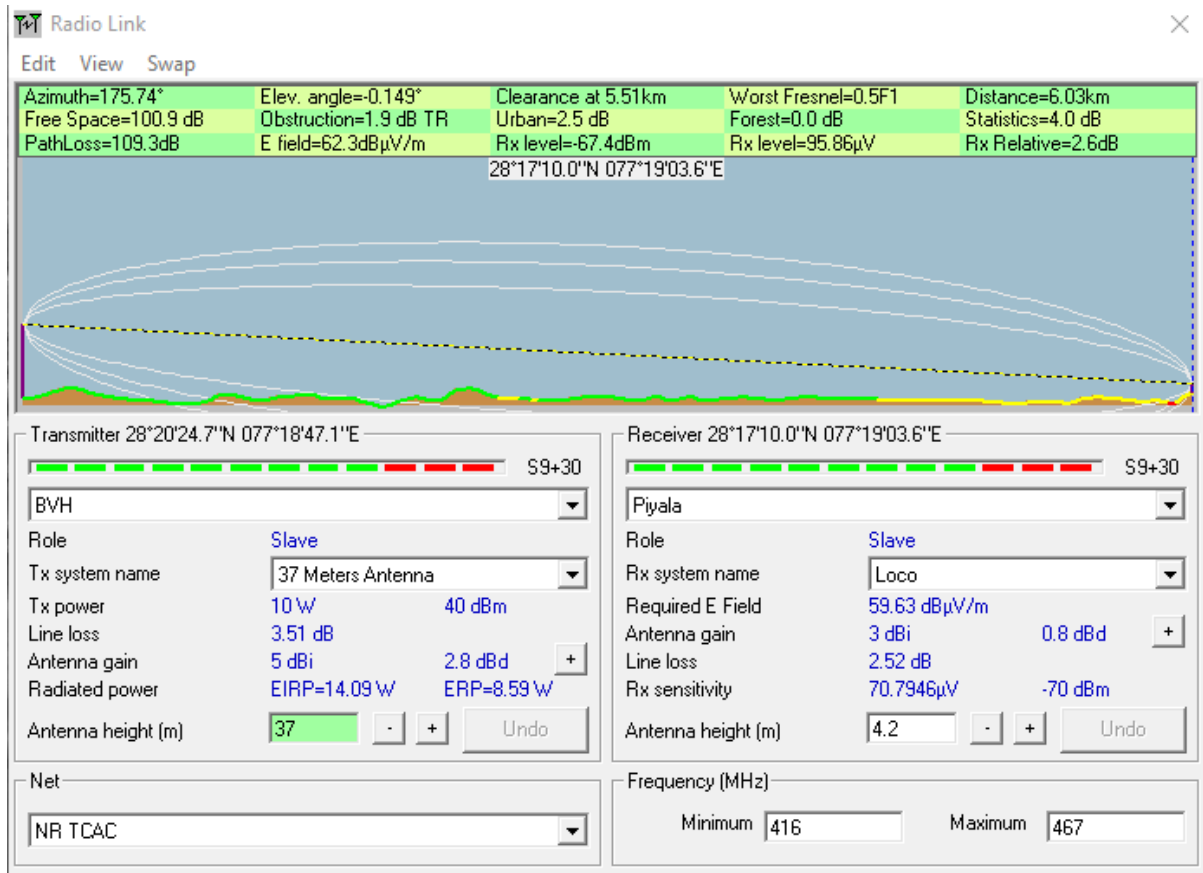
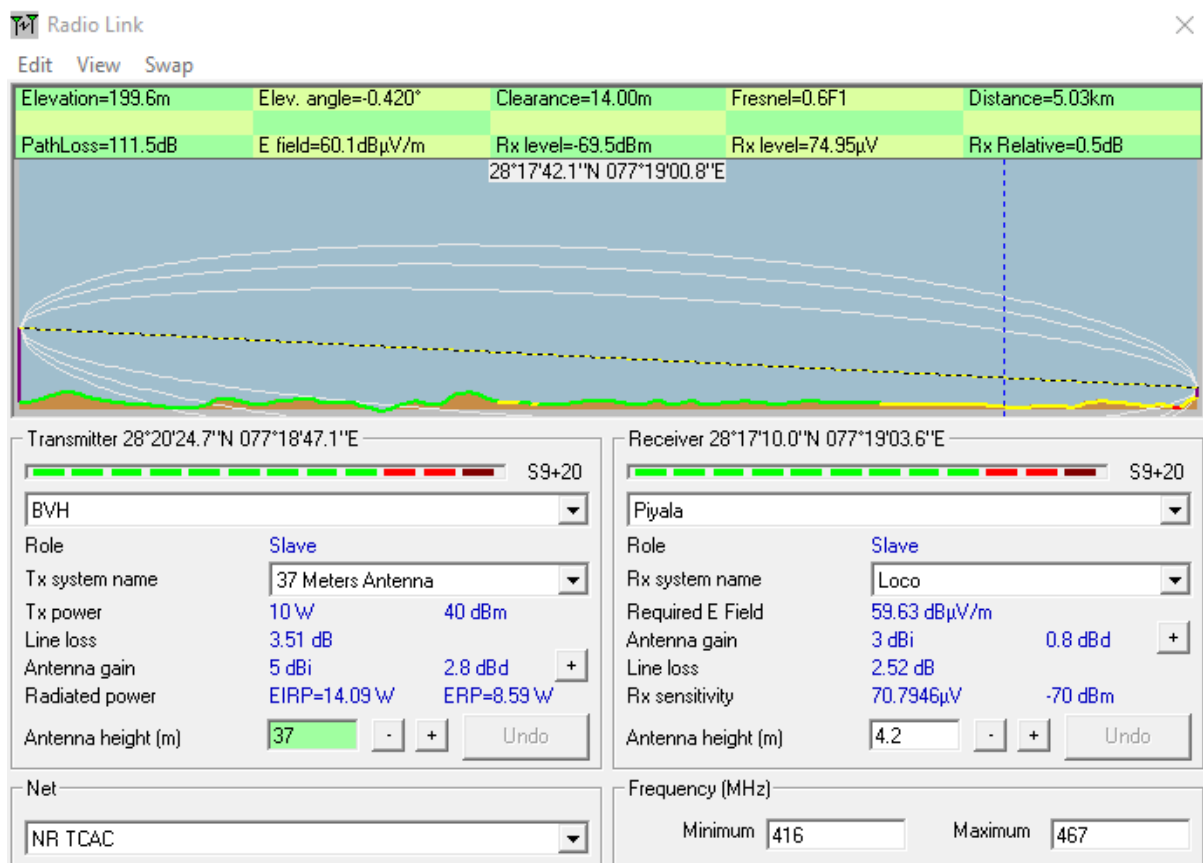
City 10 %



Antenna at 27 meters

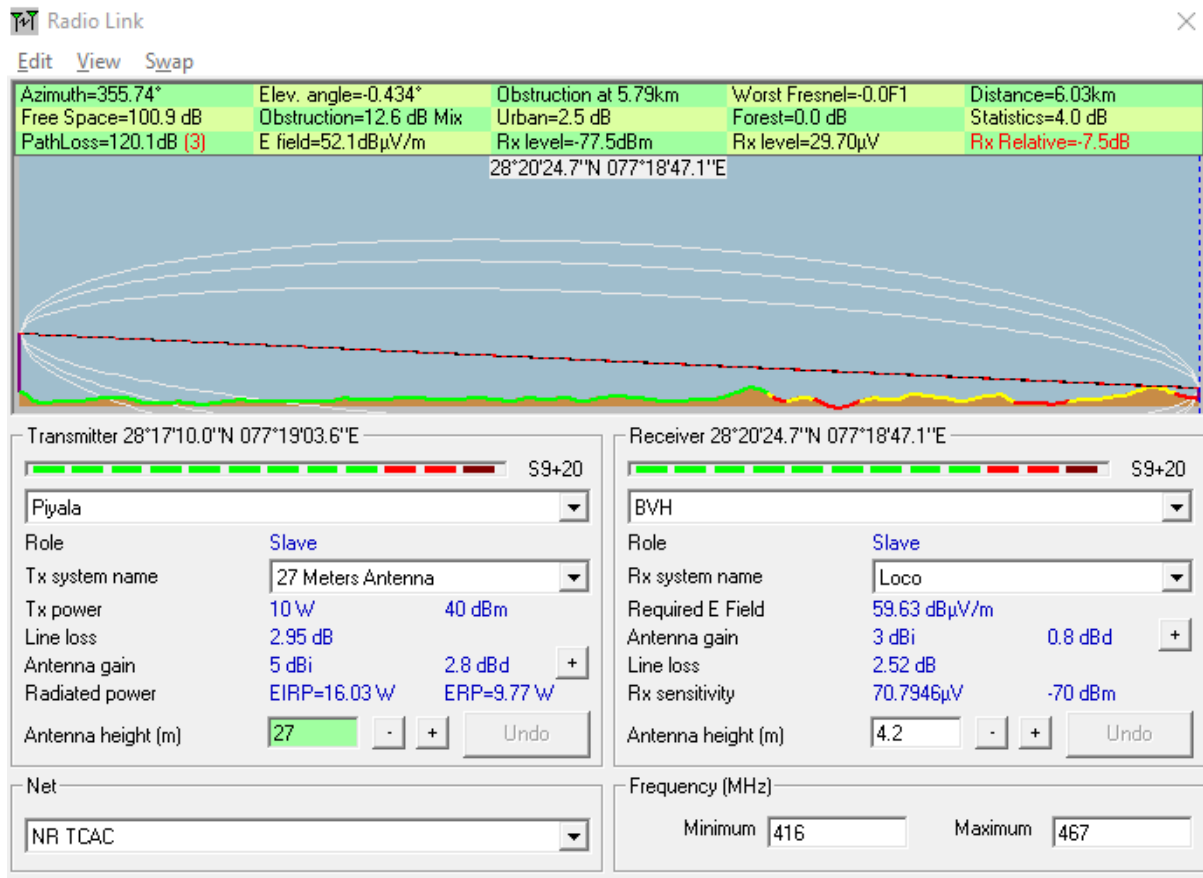
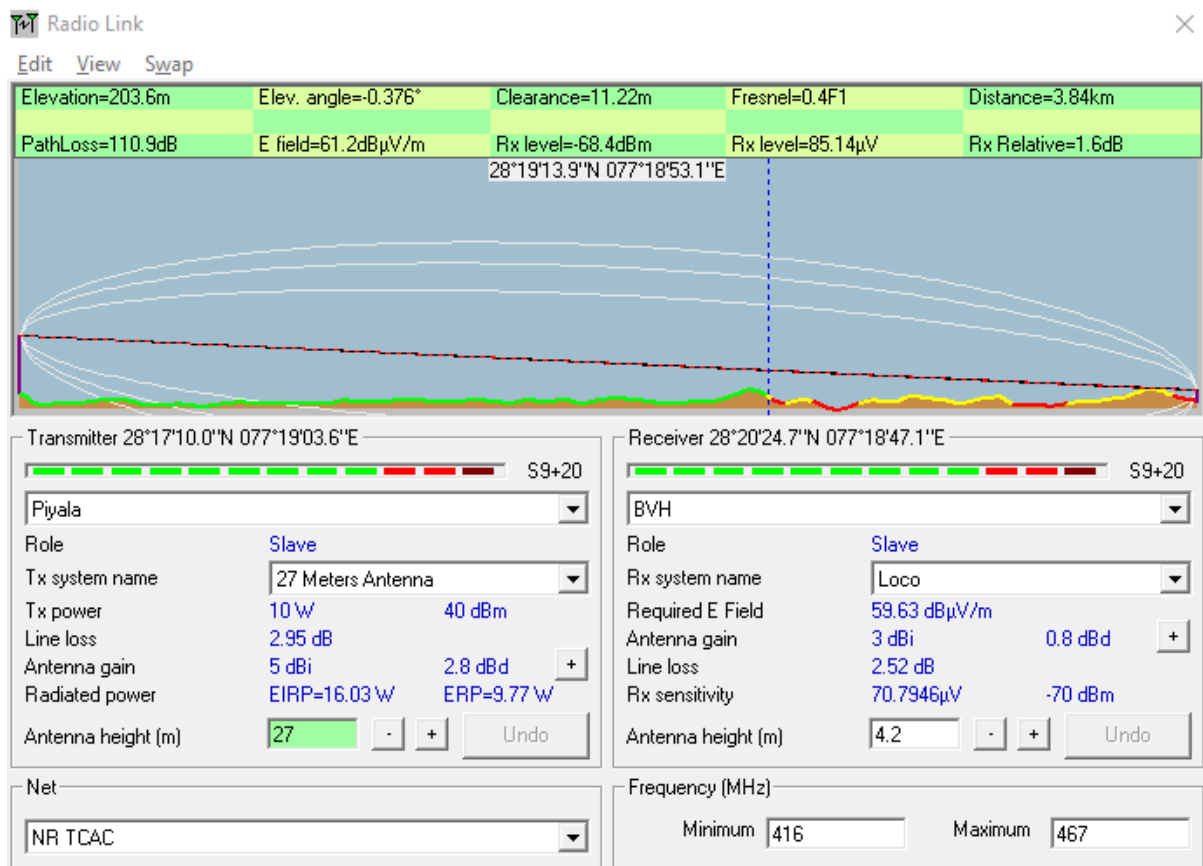


Antenna at 37 Meters



Piyala to Ballabgarh

Antenna at 27 Meters



Antenna at 37 Meters

Radio Link ✕

Edit View Swap

Azimuth=355.74°	Elev. angle=-0.529°	Clearance at 5.79km	Worst Fresnel=0.0F1	Distance=6.03km
Free Space=100.9 dB	Obstruction=12.9 dB TR	Urban=2.5 dB	Forest=0.0 dB	Statistics=4.0 dB
PathLoss=120.4dB	E field=51.2dBμV/m	Rx level=-78.4dBm	Rx level=26.91μV	Rx Relative=-8.4dB

28°20'24.7"N 077°18'47.1"E

Transmitter 28°17'10.0"N 077°19'03.6"E

S9+10

Piyala

Role Slave

Tx system name 37 Meters Antenna

Tx power 10 W 40 dBm

Line loss 3.51 dB

Antenna gain 5 dBi 2.8 dBd +

Radiated power EIRP=14.09 W ERP=8.59 W

Antenna height (m) 37 - + Undo

Receiver 28°20'24.7"N 077°18'47.1"E

S9+10

BVH

Role Slave

Rx system name Loco

Required E Field 59.63 dBμV/m

Antenna gain 3 dBi 0.8 dBd +

Line loss 2.52 dB

Rx sensitivity 70.7946μV -70 dBm

Antenna height (m) 4.2 - + Undo

Net

NR TCAC

Frequency (MHz)

Minimum 416 Maximum 467

Radio Link ✕

Edit View Swap

Elevation=203.6m	Elev. angle=-0.525°	Clearance=14.86m	Fresnel=0.5F1	Distance=3.84km
PathLoss=110.2dB	E field=61.4dBμV/m	Rx level=-68.3dBm	Rx level=86.57μV	Rx Relative=1.7dB

28°19'13.9"N 077°18'53.1"E

Transmitter 28°17'10.0"N 077°19'03.6"E

S9+20

Piyala

Role Slave

Tx system name 37 Meters Antenna

Tx power 10 W 40 dBm

Line loss 3.51 dB

Antenna gain 5 dBi 2.8 dBd +

Radiated power EIRP=14.09 W ERP=8.59 W

Antenna height (m) 37 - + Undo

Receiver 28°20'24.7"N 077°18'47.1"E

S9+20

BVH

Role Slave

Rx system name Loco

Required E Field 59.63 dBμV/m

Antenna gain 3 dBi 0.8 dBd +

Line loss 2.52 dB

Rx sensitivity 70.7946μV -70 dBm

Antenna height (m) 4.2 - + Undo

Net

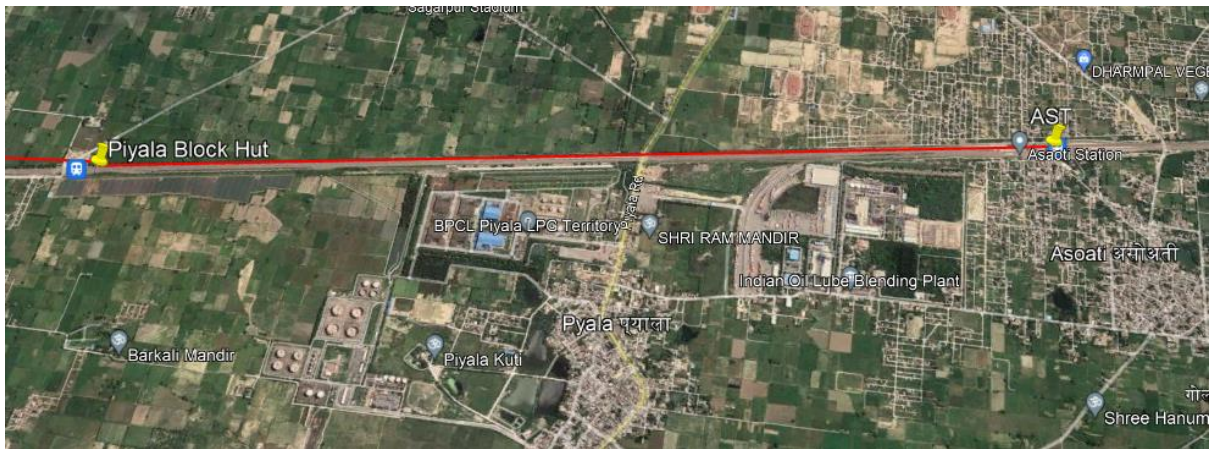
NR TCAC

Frequency (MHz)

Minimum 416 Maximum 467

Piyala to Asaoti

City 10 %



Radio Link

Edit View Swap

Azimuth=170.78°	Elev. angle=-0.255°	Clearance at 3.48km	Worst Fresnel=0.5F1	Distance=3.86km
Free Space=97.0 dB	Obstruction=2.6 dB TR	Urban=2.6 dB	Forest=0.0 dB	Statistics=4.1 dB
PathLoss=106.3dB	E field=65.8dBμV/m	Rx level=-63.8dBm	Rx level=144.65μV	Rx Relative=6.2dB

28°15'06.6"N 077°19'26.3"E

Transmitter 28°17'10.0"N 077°19'03.6"E

S9+30

Piyala

Role Slave

Tx system name 27 Meters Antenna

Tx power 10 W 40 dBm

Line loss 2.95 dB

Antenna gain 5 dBi 2.8 dBd +

Radiated power EIRP=16.03 W ERP=9.77 W

Antenna height (m) 27 - + Undo

Net NR TCAC

Receiver 28°15'06.6"N 077°19'26.3"E

S9+30

AST

Role Slave

Rx system name Loco

Required E Field 59.63 dBμV/m

Antenna gain 3 dBi 0.8 dBd +

Line loss 2.52 dB

Rx sensitivity 70.7946μV -70 dBm

Antenna height (m) 4.2 - + Undo

Frequency (MHz)

Minimum 416 Maximum 467

Radio Link Summary:

Azimuth=170.78°	Elev. angle=-0.403°	Clearance at 3.48km	Worst Fresnel=0.5F1	Distance=3.86km
Free Space=97.0 dB	Obstruction=1.4 dB TR	Urban=2.6 dB	Forest=0.0 dB	Statistics=4.1 dB
PathLoss=105.1dB	E field=66.5dBμV/m	Rx level=-63.1dBm	Rx level=156.42μV	Rx Relative=6.9dB

Transmitter Settings (Piyala):

- Role: Slave
- Tx system name: 37 Meters Antenna
- Tx power: 10 W (40 dBm)
- Line loss: 3.51 dB
- Antenna gain: 5 dBi (2.8 dBd)
- Radiated power: EIRP=14.09 W (ERP=8.59 W)
- Antenna height (m): 37

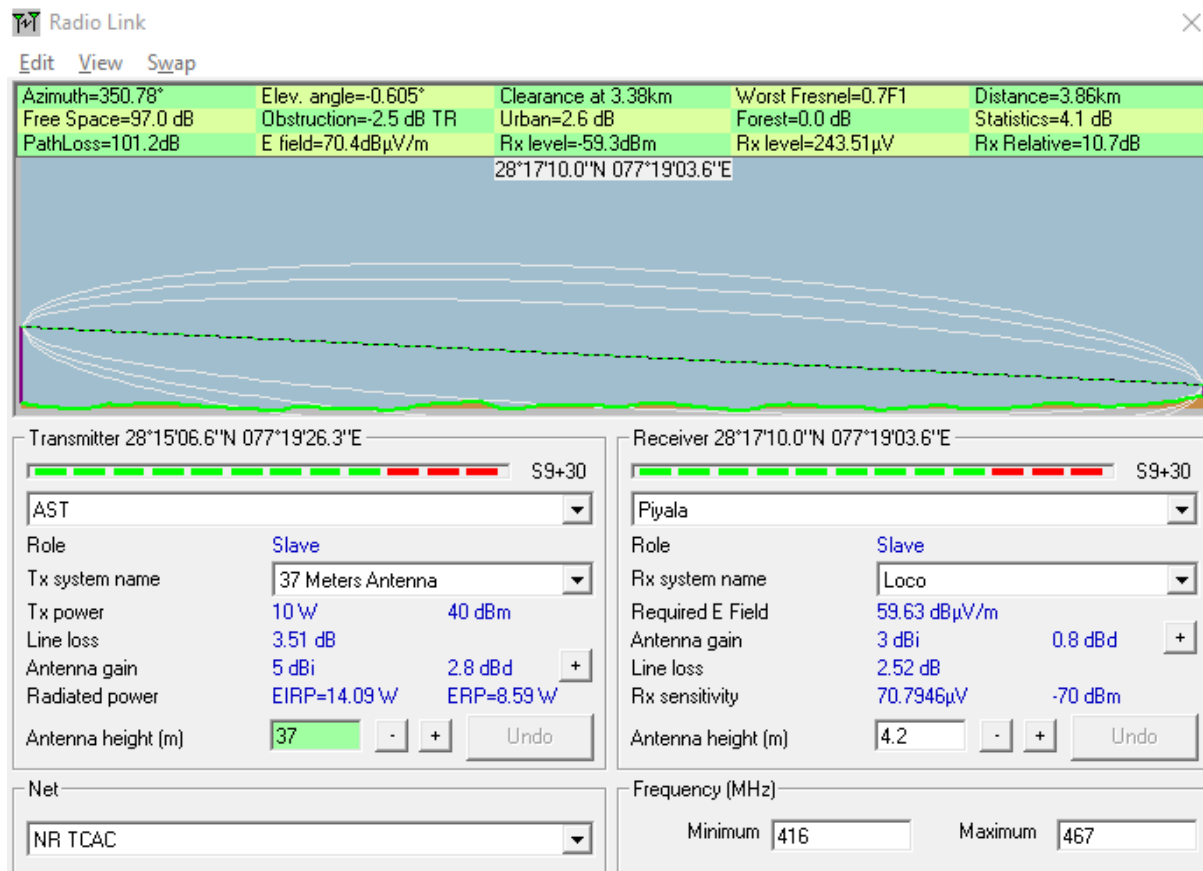
Receiver Settings (AST):

- Role: Slave
- Rx system name: Loco
- Required E Field: 59.63 dBμV/m
- Antenna gain: 3 dBi (0.8 dBd)
- Line loss: 2.52 dB
- Rx sensitivity: 70.7946μV (-70 dBm)
- Antenna height (m): 4.2

Frequency (MHz): Minimum 416, Maximum 467

Asaoti to Piyala

Antenna at 37 meters



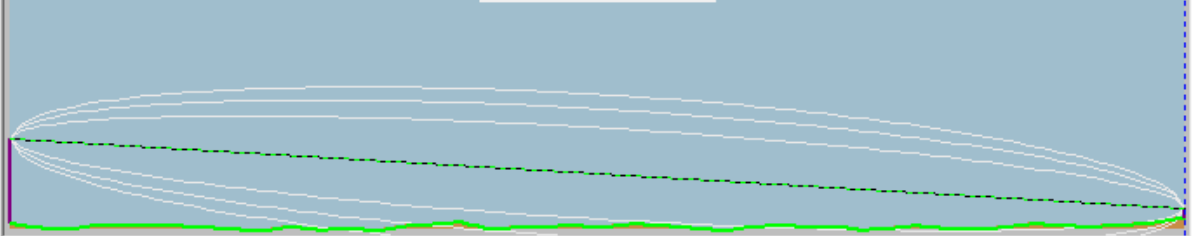
Antenna at 47 Meters

Radio Link

Edit View Swap

Azimuth=350.78°	Elev. angle=-0.753°	Clearance at 3.38km	Worst Fresnel=0.8F1	Distance=3.86km
Free Space=97.0 dB	Obstruction=-3.8 dB TR	Urban=2.6 dB	Forest=0.0 dB	Statistics=4.1 dB
PathLoss=99.9dB	E field=71.1dBμV/m	Rx level=-58.5dBm	Rx level=265.66μV	Rx Relative=11.5dB

28°17'10.0"N 077°19'03.6"E



Transmitter 28°15'06.6"N 077°19'26.3"E

S9+30

AST

Role Slave

Tx system name 47 Meters Antenna

Tx power 10 W 40 dBm

Line loss 4.07 dB

Antenna gain 5 dBi 2.8 dBd +

Radiated power EIRP=12.38 W ERP=7.55 W

Antenna height (m) 47 - + Undo

Receiver 28°17'10.0"N 077°19'03.6"E

S9+30

Piyala

Role Slave

Rx system name Loco

Required E Field 59.63 dBμV/m

Antenna gain 3 dBi 0.8 dBd +

Line loss 2.52 dB

Rx sensitivity 70.7946μV -70 dBm

Antenna height (m) 4.2 - + Undo

Net

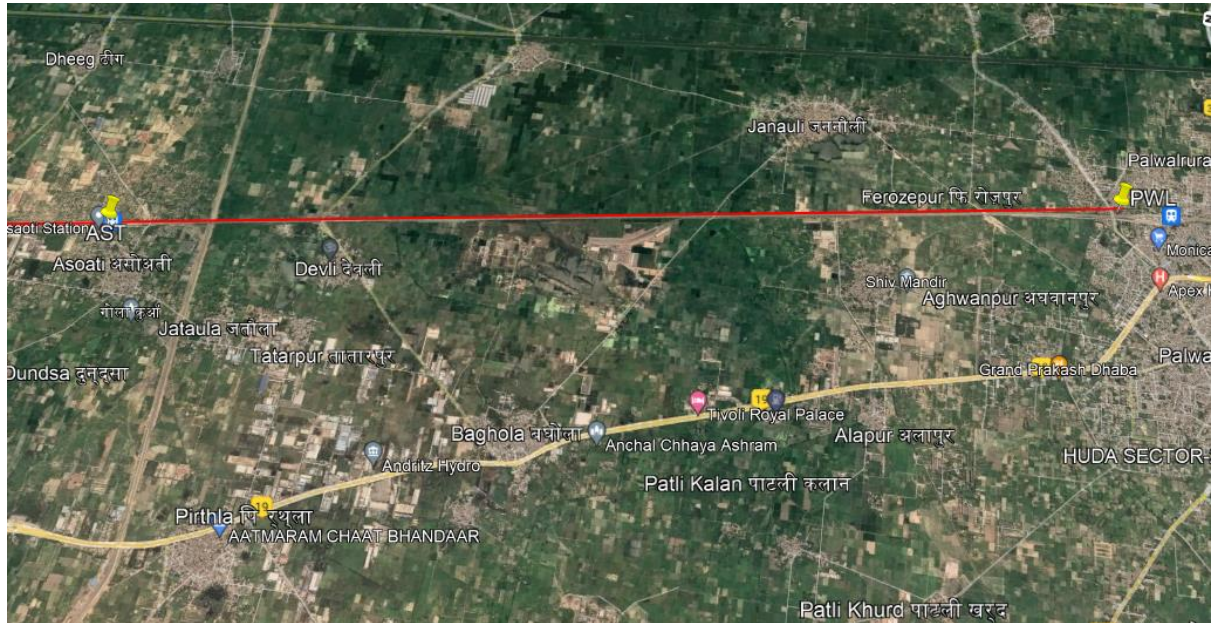
NR TCAC

Frequency (MHz)

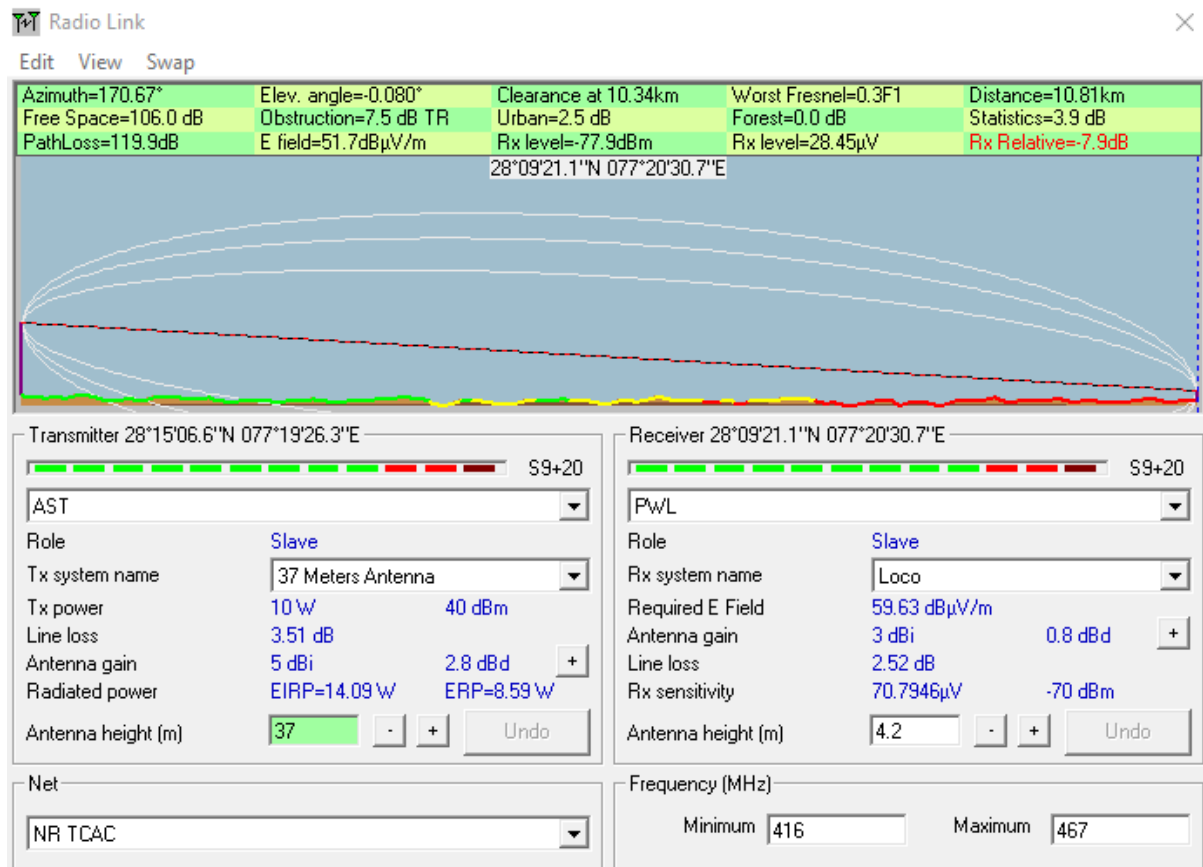
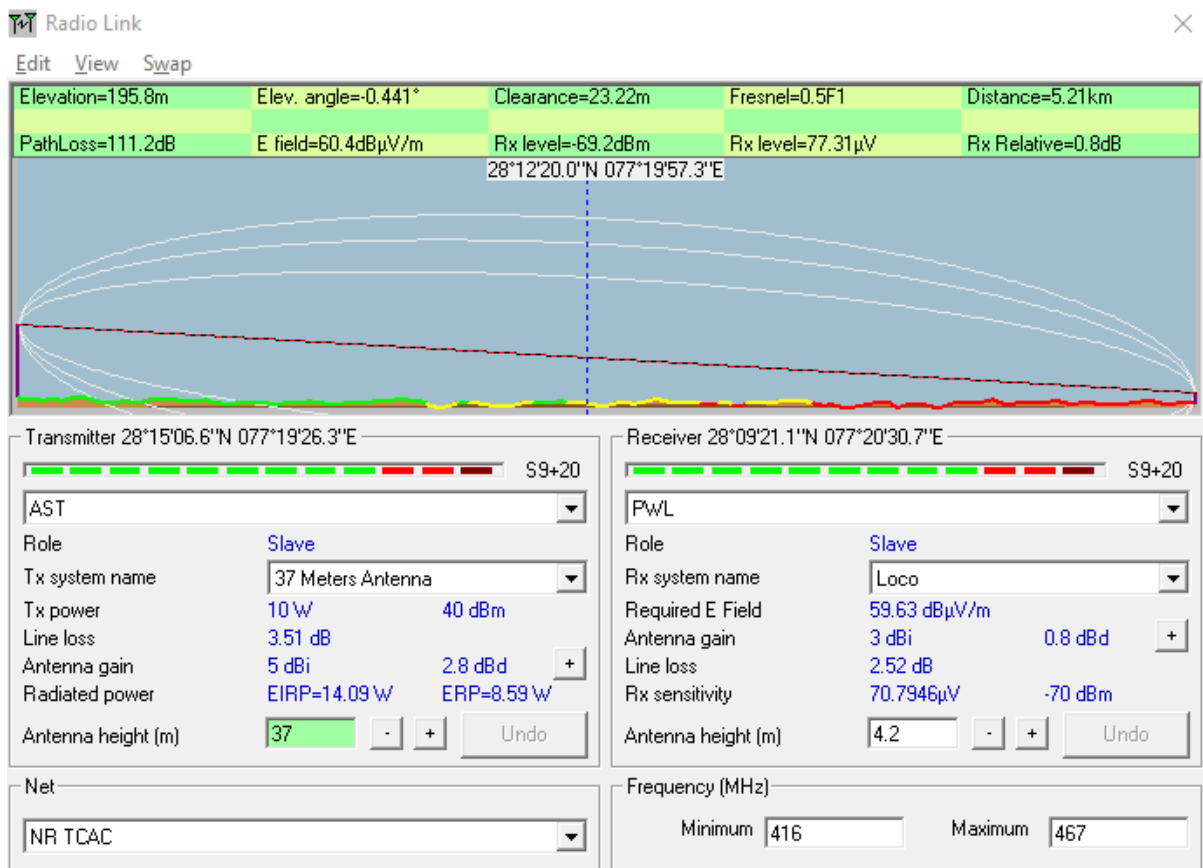
Minimum 416 Maximum 467

Asaoti to Palwal

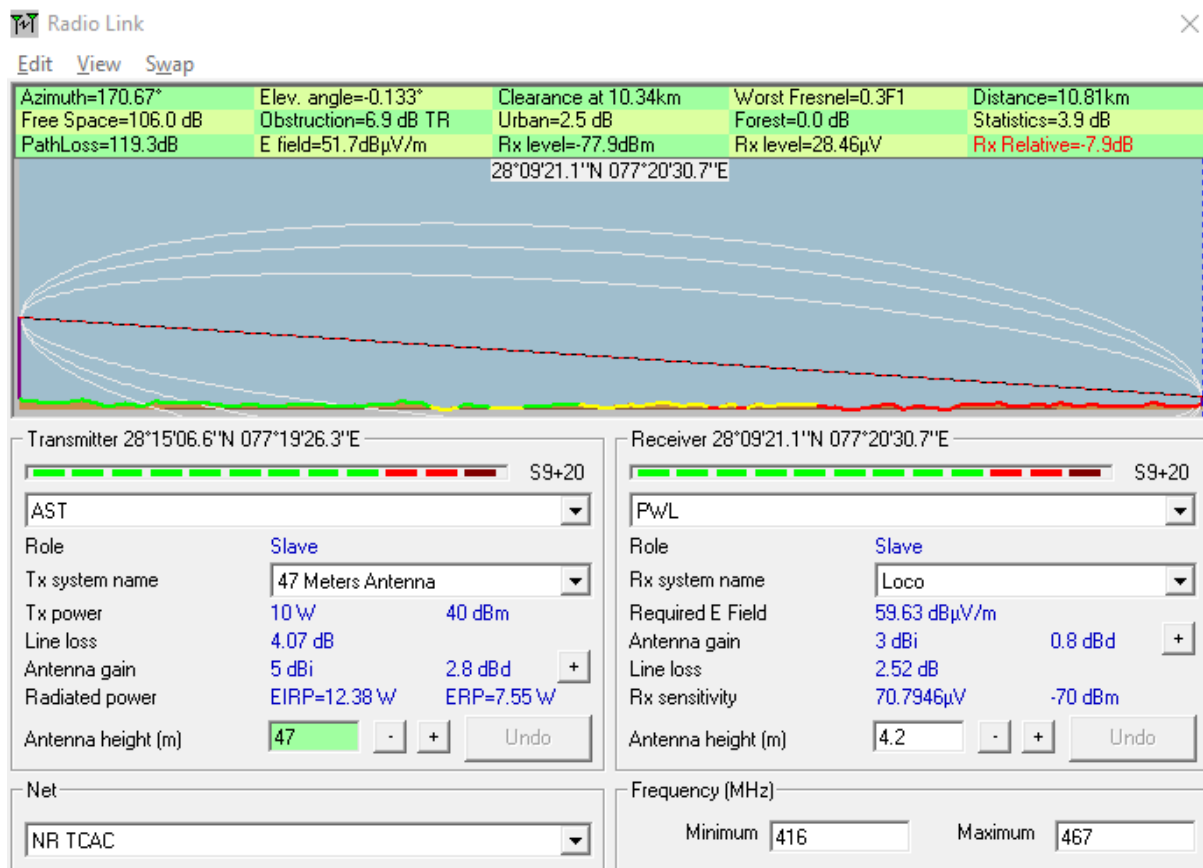
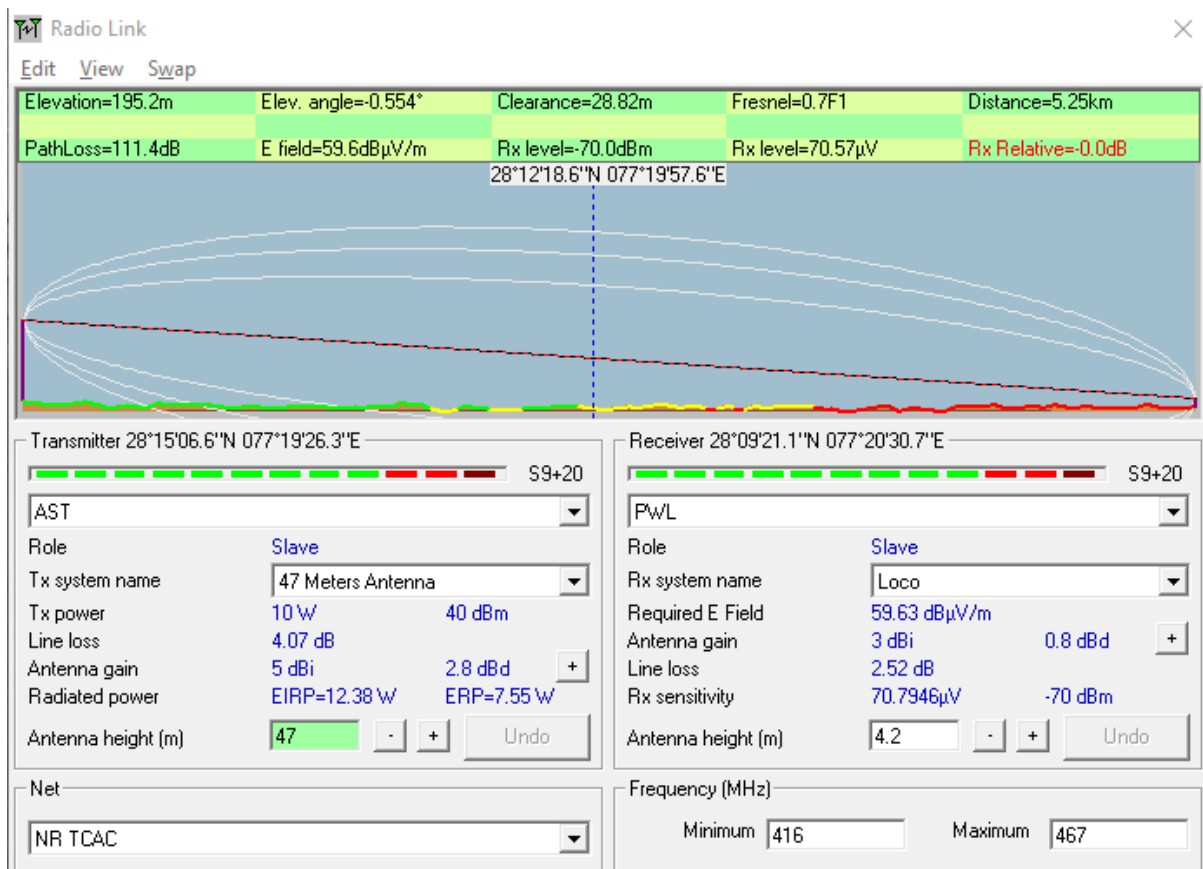
City: 10 %



Antenna at 37 Meters

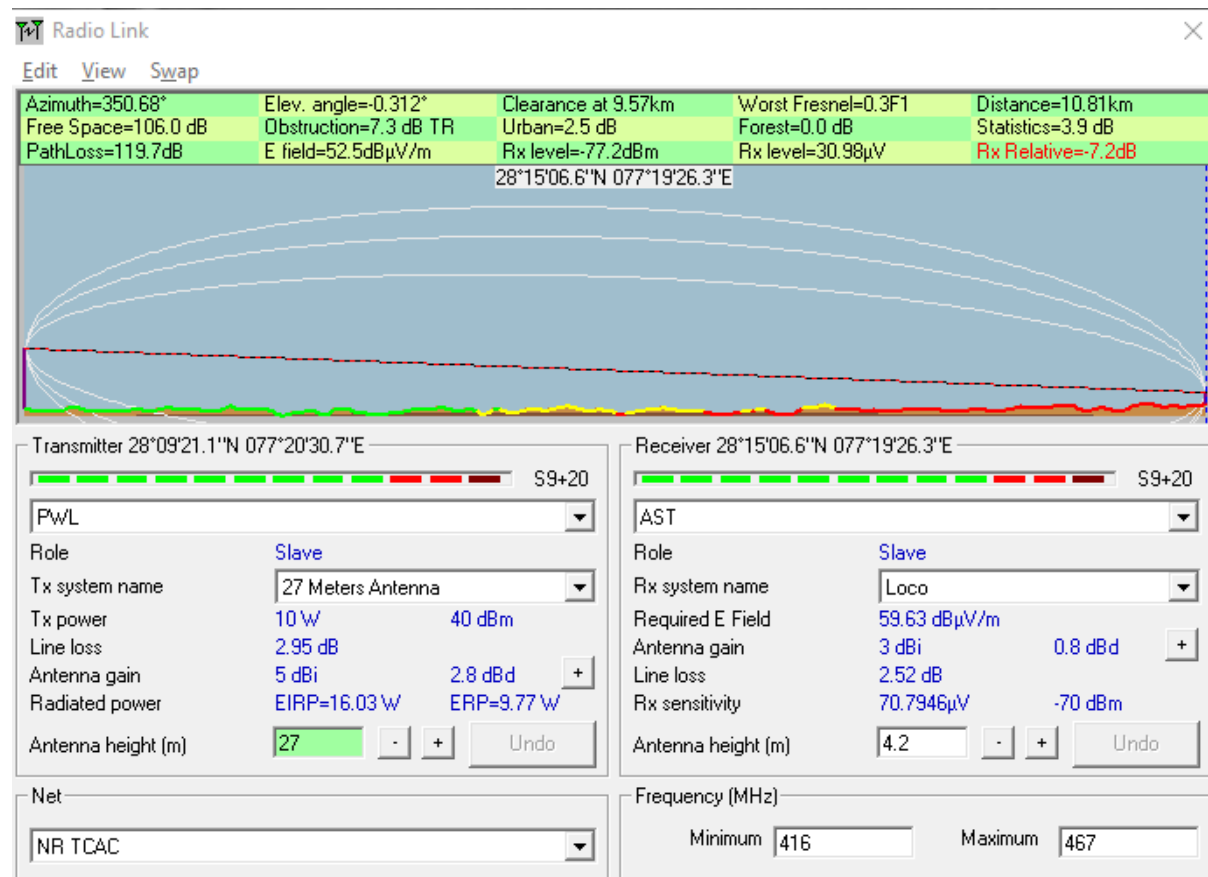
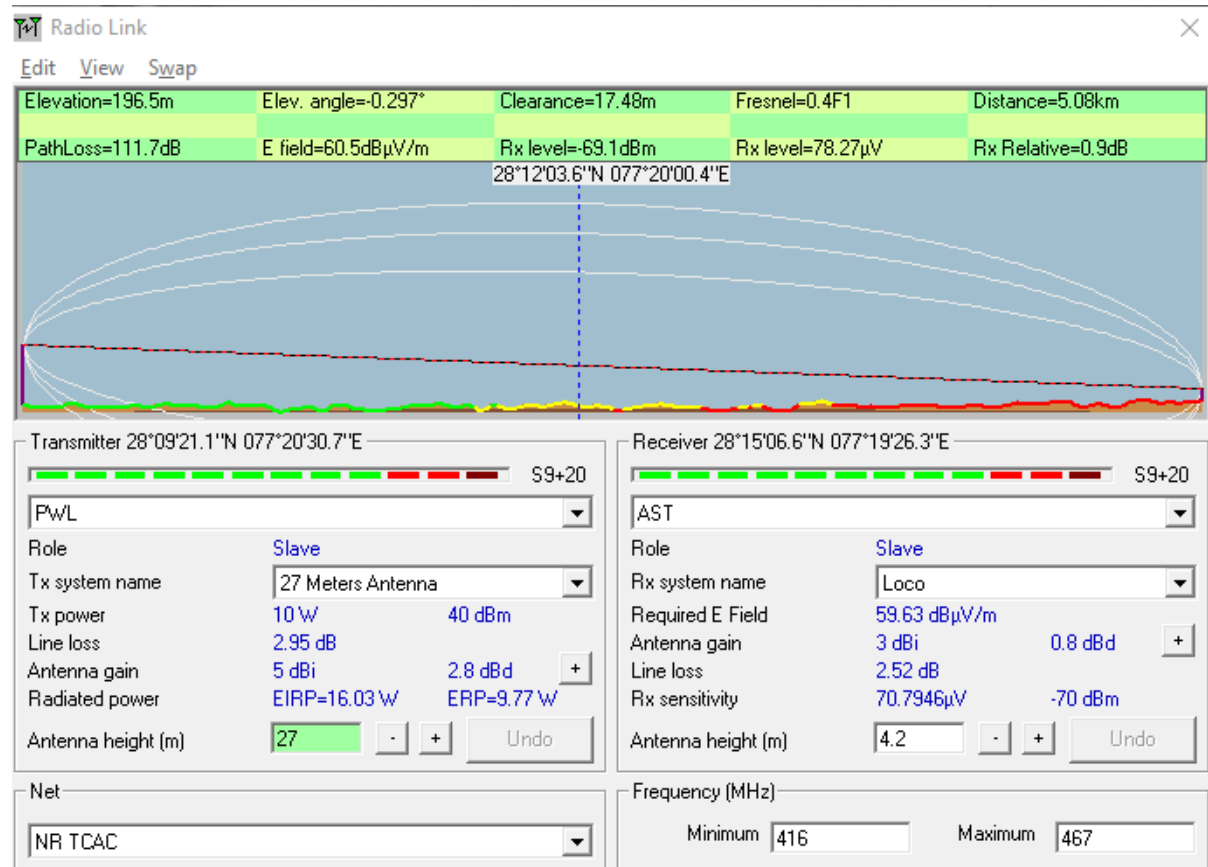


Antenna at 47 meters

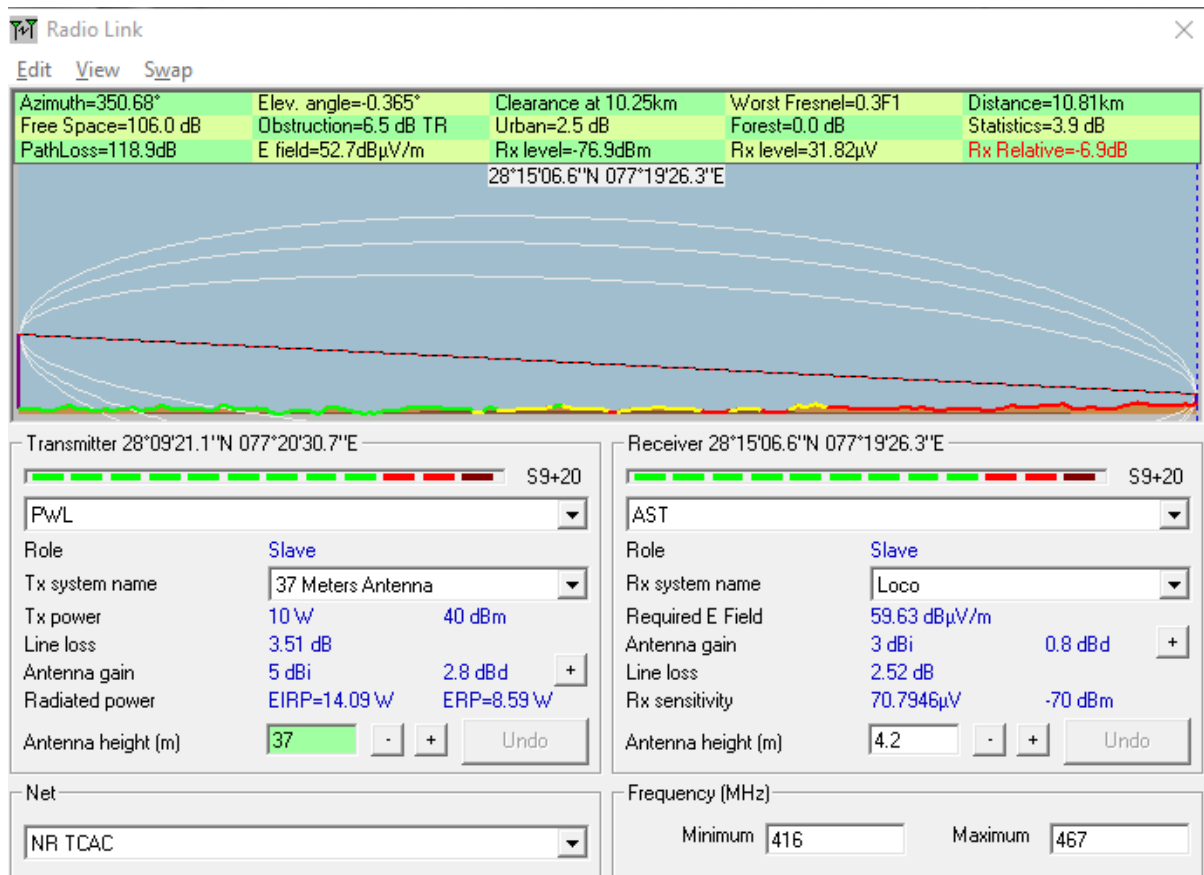
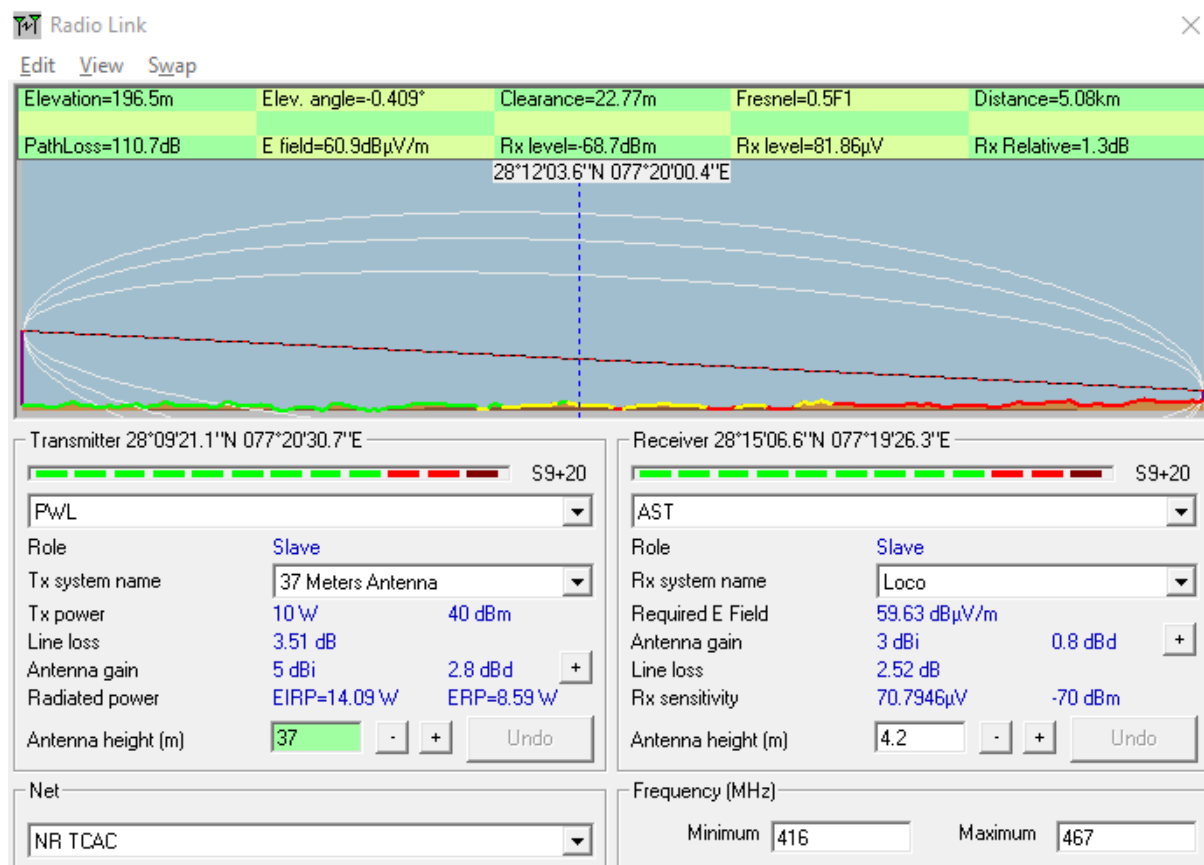


Palwal to Asaoti

Antenna at 27 Meters

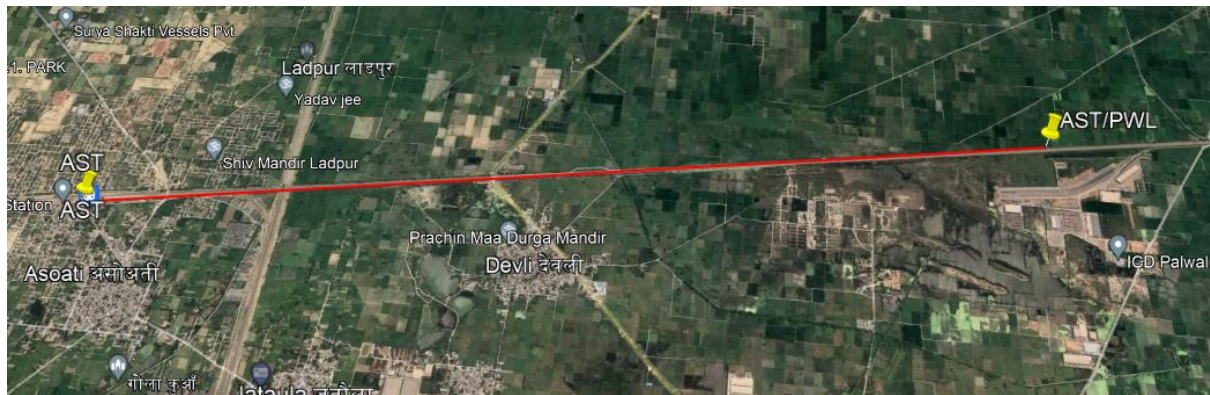


Antenna at 37 Meters



AST to AST/PWL

City 10 %



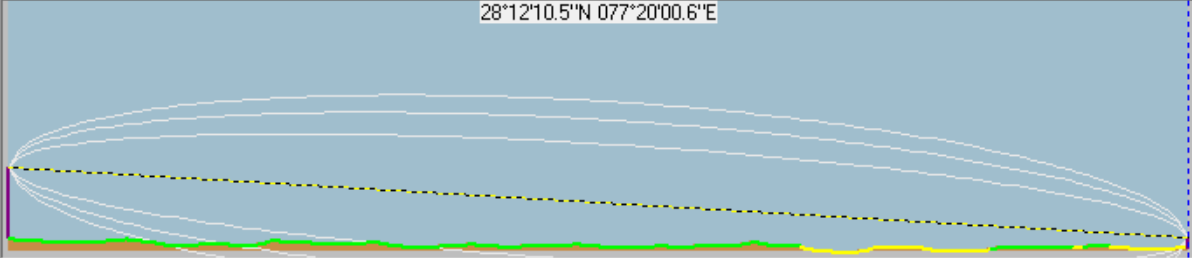
Antenna at 37 meters

 Radio Link ✕

Edit View Swap

Azimuth=170.26°	Elev. angle=-0.250°	Clearance at 5.09km	Worst Fresnel=0.4F1	Distance=5.51km
Free Space=100.1 dB	Obstruction=4.1 dB TR	Urban=2.6 dB	Forest=0.0 dB	Statistics=4.0 dB
PathLoss=110.9dB	E field=60.7dBμV/m	Rx level=-68.9dBm	Rx level=80.52μV	Rx Relative=1.1dB

28°12'10.5"N 077°20'00.6"E



Transmitter 28°15'06.6"N 077°19'26.3"E

S9+20

AST

Role Slave

Tx system name 37 Meters Antenna

Tx power 10 W 40 dBm

Line loss 3.51 dB

Antenna gain 5 dBi 2.8 dBd +

Radiated power EIRP=14.09 W ERP=8.59 W

Antenna height (m) 37 - + Undo

Receiver 28°12'10.5"N 077°20'00.6"E

S9+20

AST/PwL

Role Slave

Rx system name Loco

Required E Field 59.63 dBμV/m

Antenna gain 3 dBi 0.8 dBd +

Line loss 2.52 dB

Rx sensitivity 70.7946μV -70 dBm

Antenna height (m) 4.2 - + Undo

Net

NR TCAC

Frequency (MHz)

Minimum 416 Maximum 467

Radio Link [X]

Edit View Swap

Azimuth=170.26°	Elev. angle=-0.354°	Clearance at 5.09km	Worst Fresnel=0.5F1	Distance=5.51km
Free Space=100.1 dB	Obstruction=3.1 dB TR	Urban=2.6 dB	Forest=0.0 dB	Statistics=4.1 dB
PathLoss=109.9dB	E field=61.2dBμV/m	Rx level=-68.5dBm	Rx level=84.50μV	Rx Relative=1.5dB

28°12'10.5"N 077°20'00.6"E

Transmitter 28°15'06.6"N 077°19'26.3"E

S9+20

AST

Role: **Slave**

Tx system name: 47 Meters Antenna

Tx power: 10 W 40 dBm

Line loss: 4.07 dB

Antenna gain: 5 dBi 2.8 dBd

Radiated power: EIRP=12.38 W ERP=7.55 W

Antenna height (m): 47

Receiver 28°12'10.5"N 077°20'00.6"E

S9+20

AST/PWL

Role: **Slave**

Rx system name: Loco

Required E Field: 59.63 dBμV/m

Antenna gain: 3 dBi 0.8 dBd

Line loss: 2.52 dB

Rx sensitivity: 70.7946μV -70 dBm

Antenna height (m): 4.2

Net

NR TCAC

Frequency (MHz)

Minimum: 416 Maximum: 467

AST/PWL to AST

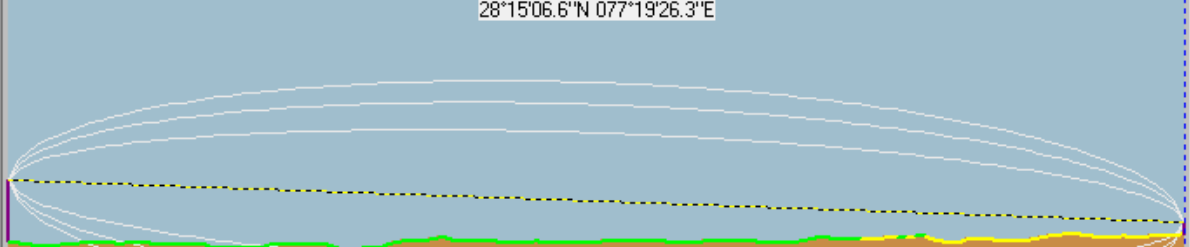
Antenna at 27 Meters

 Radio Link ✕

Edit View Swap

Azimuth=350.26°	Elev. angle=-0.376°	Clearance at 4.96km	Worst Fresnel=0.3F1	Distance=5.51km
Free Space=100.1 dB	Obstruction=5.4 dB TR	Urban=2.6 dB	Forest=0.0 dB	Statistics=4.0 dB
PathLoss=112.2dB	E field=60.0dBμV/m	Rx level=-69.6dBm	Rx level=73.80μV	Rx Relative=0.4dB

28°15'06.6"N 077°19'26.3"E



Transmitter 28°12'10.5"N 077°20'00.6"E

 S9+20

AST/PwL

Role **Slave**

Tx system name 27 Meters Antenna

Tx power 10 W 40 dBm

Line loss 2.95 dB

Antenna gain 5 dBi 2.8 dBd +

Radiated power EIRP=16.03 W ERP=9.77 W

Antenna height (m) 27 - + Undo

Receiver 28°15'06.6"N 077°19'26.3"E

 S9+20

AST

Role **Slave**

Rx system name Loco

Required E Field 59.63 dBμV/m

Antenna gain 3 dBi 0.8 dBd +

Line loss 2.52 dB

Rx sensitivity 70.7946μV -70 dBm

Antenna height (m) 4.2 - + Undo

Net

NR TCAC

Frequency (MHz)

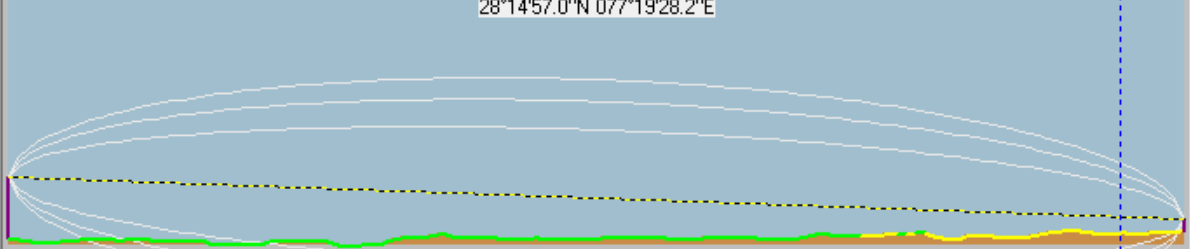
Minimum 416 Maximum 467

 Radio Link ✕

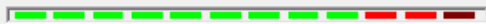
Edit View Swap

Elevation=199.6m	Elev. angle=-0.243°	Clearance=6.52m	Fresnel=0.5F1	Distance=5.22km
PathLoss=112.2dB	E field=60.0dBμV/m	Rx level=-69.6dBm	Rx level=73.71μV	Rx Relative=0.4dB

28°14'57.0"N 077°19'28.2"E



Transmitter 28°12'10.5"N 077°20'00.6"E

 S9+20

AST/PwL

Role **Slave**

Tx system name 27 Meters Antenna

Tx power 10 W 40 dBm

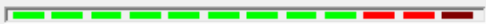
Line loss 2.95 dB

Antenna gain 5 dBi 2.8 dBd +

Radiated power EIRP=16.03 W ERP=9.77 W

Antenna height (m) 27 - + Undo

Receiver 28°15'06.6"N 077°19'26.3"E

 S9+20

AST

Role **Slave**

Rx system name Loco

Required E Field 59.63 dBμV/m

Antenna gain 3 dBi 0.8 dBd +

Line loss 2.52 dB

Rx sensitivity 70.7946μV -70 dBm

Antenna height (m) 4.2 - + Undo

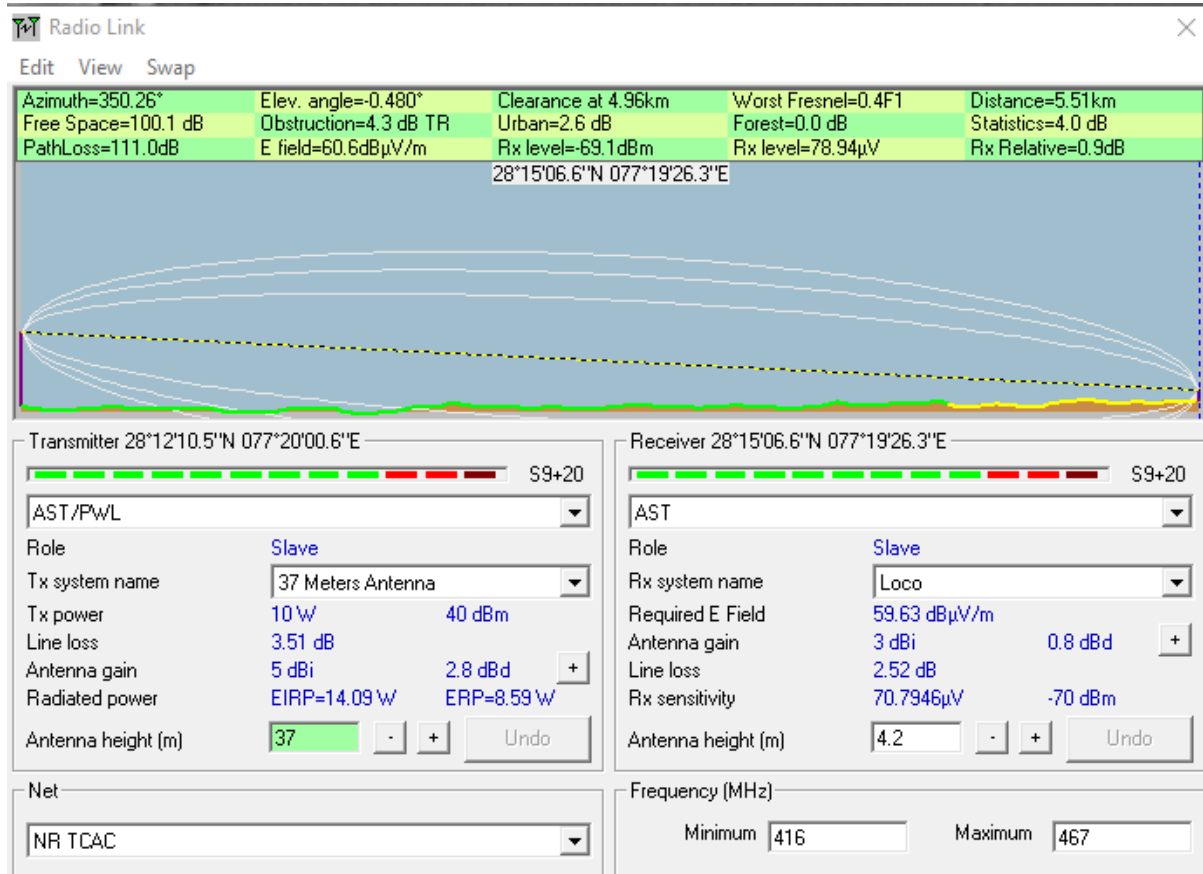
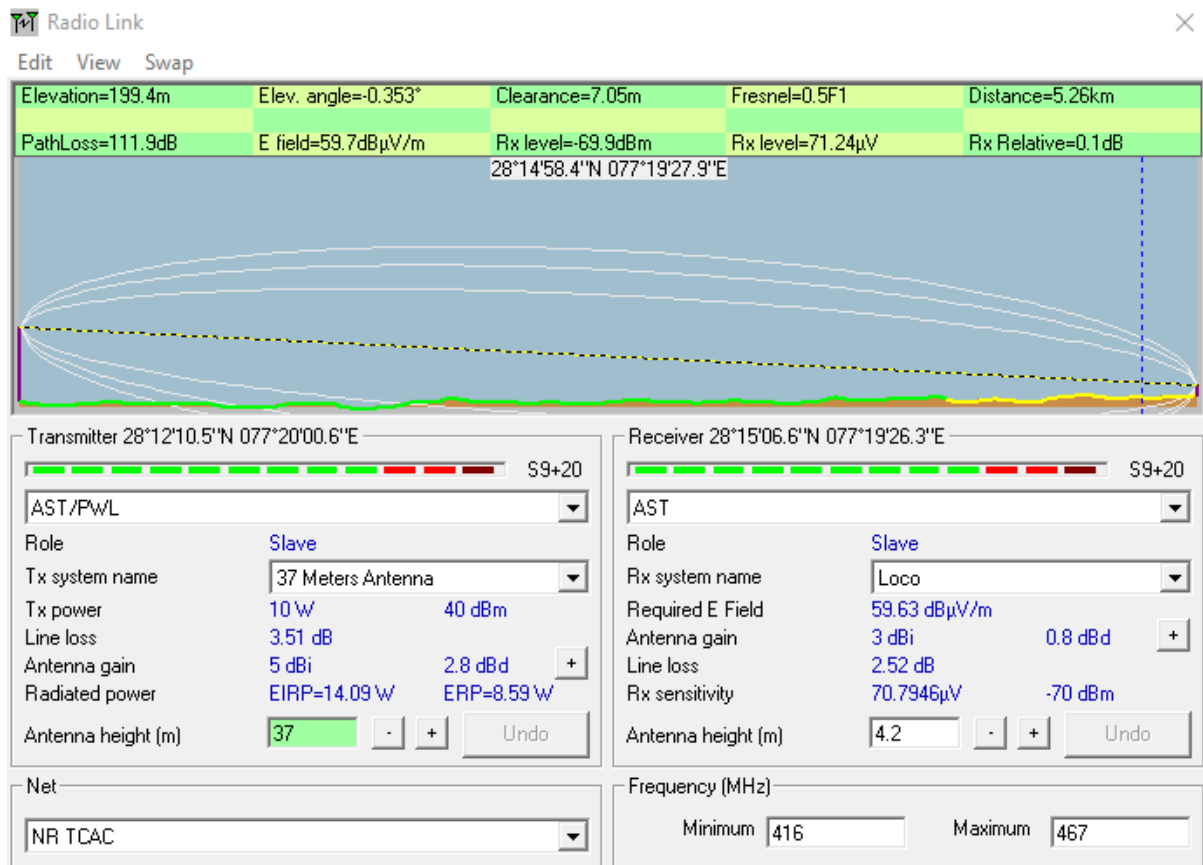
Net

NR TCAC

Frequency (MHz)

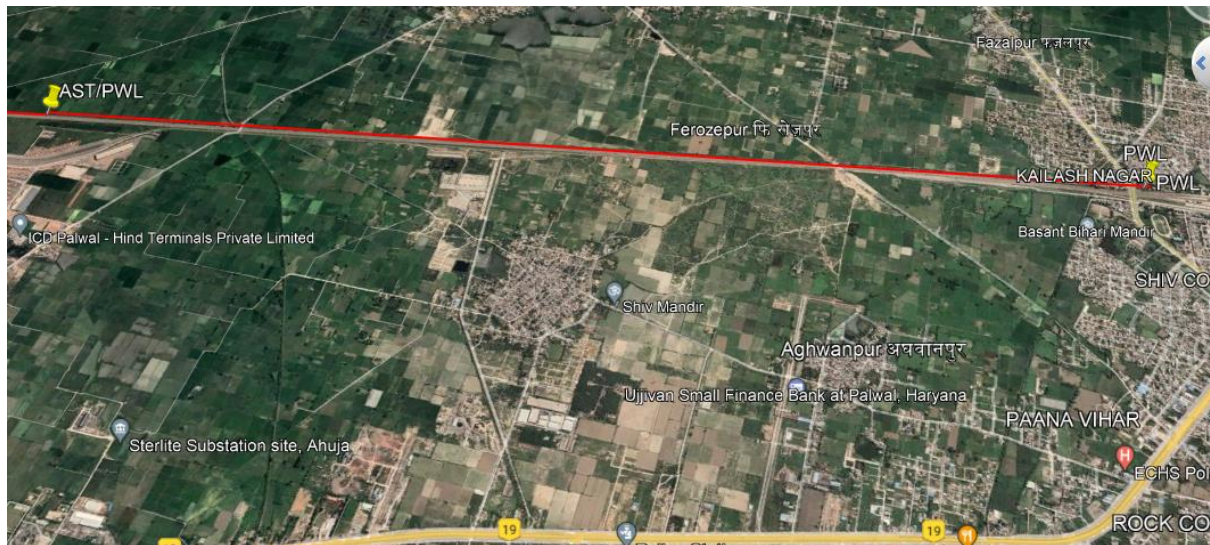
Minimum 416 Maximum 467

Antenna at 37 Meters



AST/PWL to Palwal

City 10 %



Antenna at 27 meters

Radio Link ✕

Edit View Swap

Azimuth=171.10°	Elev. angle=-0.099°	Clearance at 4.82km	Worst Fresnel=0.3F1	Distance=5.29km
Free Space=99.8 dB	Obstruction=6.6 dB TR	Urban=2.6 dB	Forest=0.0 dB	Statistics=4.0 dB
PathLoss=113.0dB	E field=59.2dBμV/m	Rx level=-70.4dBm	Rx level=67.38μV	Rx Relative=-0.4dB

28°09'21.1"N 077°20'30.7"E

Transmitter 28°12'10.5"N 077°20'00.6"E

S9+20

AST/PwL

Role Slave

Tx system name 27 Meters Antenna

Tx power 10 W 40 dBm

Line loss 2.95 dB

Antenna gain 5 dBi 2.8 dBd +

Radiated power EIRP=16.03 W ERP=9.77 W

Antenna height (m) 27 - + Undo

Net NR TCAC

Receiver 28°09'21.1"N 077°20'30.7"E

S9+20

PwL

Role Slave

Rx system name Loco

Required E Field 59.63 dBμV/m

Antenna gain 3 dBi 0.8 dBd +

Line loss 2.52 dB

Rx sensitivity 70.7946μV -70 dBm

Antenna height (m) 4.2 - + Undo

Frequency (MHz) Minimum 416 Maximum 467

Radio Link ✕

Edit View Swap

Elevation=197.8m	Elev. angle=-0.275°	Clearance=5.69m	Fresnel=0.4F1	Distance=4.95km
PathLoss=111.4dB	E field=60.8dBμV/m	Rx level=-68.8dBm	Rx level=80.99μV	Rx Relative=1.2dB

28°09'32.0"N 077°20'28.7"E

Transmitter 28°12'10.5"N 077°20'00.6"E

S9+20

AST/PwL

Role Slave

Tx system name 27 Meters Antenna

Tx power 10 W 40 dBm

Line loss 2.95 dB

Antenna gain 5 dBi 2.8 dBd +

Radiated power EIRP=16.03 W ERP=9.77 W

Antenna height (m) 27 - + Undo

Net NR TCAC

Receiver 28°09'21.1"N 077°20'30.7"E

S9+20

PwL

Role Slave

Rx system name Loco

Required E Field 59.63 dBμV/m

Antenna gain 3 dBi 0.8 dBd +

Line loss 2.52 dB

Rx sensitivity 70.7946μV -70 dBm

Antenna height (m) 4.2 - + Undo

Frequency (MHz) Minimum 416 Maximum 467

Antenna at 37 Meters

Radio Link ✕

Edit View Swap

Azimuth=171.10°	Elev. angle=-0.207°	Clearance at 4.82km	Worst Fresnel=0.3F1	Distance=5.29km
Free Space=99.8 dB	Obstruction=5.4 dB TR	Urban=2.6 dB	Forest=0.0 dB	Statistics=4.1 dB
PathLoss=111.8dB	E field=59.8dBμV/m	Rx level=-69.9dBm	Rx level=71.97μV	Rx Relative=0.1dB

28°09'21.1"N 077°20'30.7"E

Transmitter 28°12'10.5"N 077°20'00.6"E

S9+20

AST/PwL

Role Slave

Tx system name 37 Meters Antenna

Tx power 10 W 40 dBm

Line loss 3.51 dB

Antenna gain 5 dBi 2.8 dBd

Radiated power EIRP=14.09 W ERP=8.59 W

Antenna height (m) 37

Receiver 28°09'21.1"N 077°20'30.7"E

S9+20

PwL

Role Slave

Rx system name Loco

Required E Field 59.63 dBμV/m

Antenna gain 3 dBi 0.8 dBd

Line loss 2.52 dB

Rx sensitivity 70.7946μV -70 dBm

Antenna height (m) 4.2

Net

NR TCAC

Frequency (MHz)

Minimum 416 Maximum 467

Radio Link ✕

Edit View Swap

Elevation=197.8m	Elev. angle=-0.390°	Clearance=6.34m	Fresnel=0.4F1	Distance=4.95km
PathLoss=109.9dB	E field=61.7dBμV/m	Rx level=-67.9dBm	Rx level=90.28μV	Rx Relative=2.1dB

28°09'32.0"N 077°20'28.7"E

Transmitter 28°12'10.5"N 077°20'00.6"E

S9+30

AST/PwL

Role Slave

Tx system name 37 Meters Antenna

Tx power 10 W 40 dBm

Line loss 3.51 dB

Antenna gain 5 dBi 2.8 dBd

Radiated power EIRP=14.09 W ERP=8.59 W

Antenna height (m) 37

Receiver 28°09'21.1"N 077°20'30.7"E

S9+30

PwL

Role Slave

Rx system name Loco

Required E Field 59.63 dBμV/m

Antenna gain 3 dBi 0.8 dBd

Line loss 2.52 dB

Rx sensitivity 70.7946μV -70 dBm

Antenna height (m) 4.2

Net

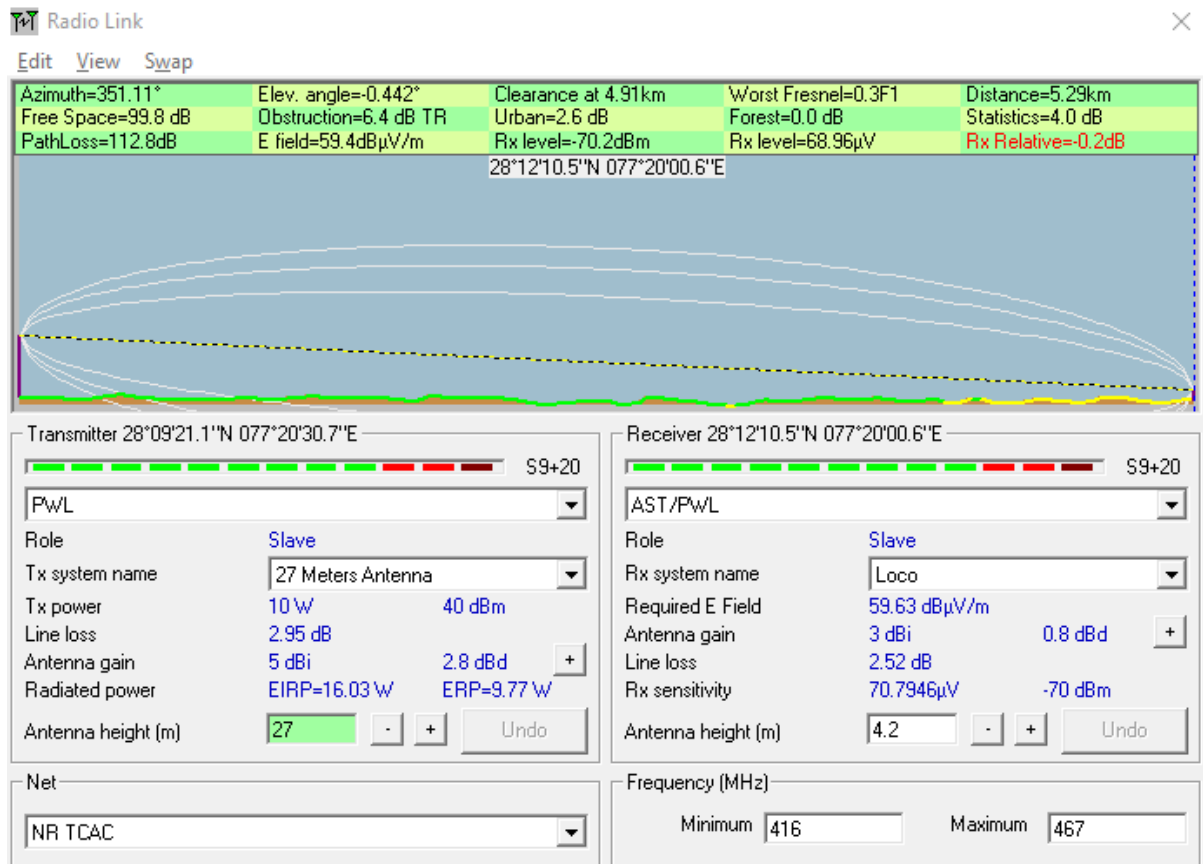
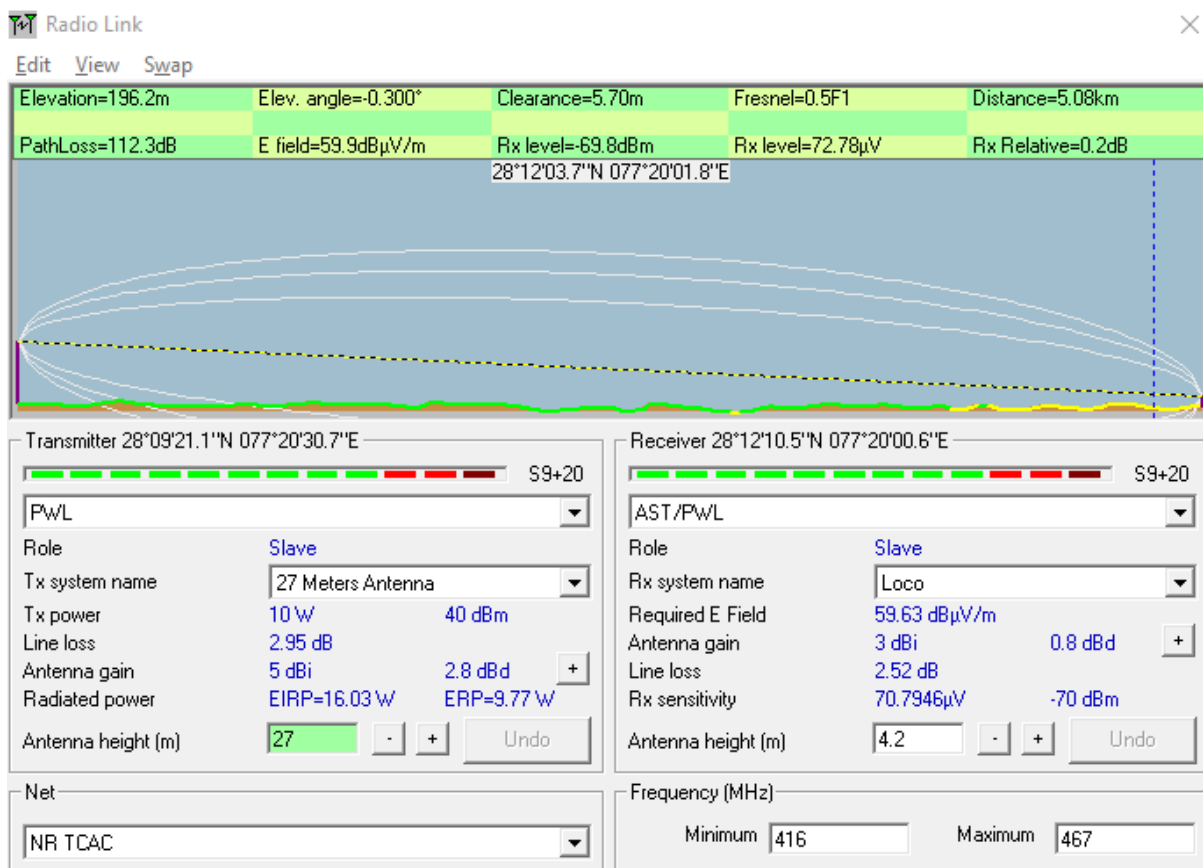
NR TCAC

Frequency (MHz)

Minimum 416 Maximum 467

Palwal to AST/PWL

Antenna at 27 meters



Antenna at 37 meters

