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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. **Tower 37 meters**

- 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

2. **Tower 27 meters**

- a. Cable length: 17 meters
- b. RSSI threshold as per RDSO: -100dBm
- c. Fade margin considered :30dB
- d. Antenna gain:5dBi
- e. Cable Loss: 2.95 dB
- f. Frequency Band :416-467 Mhz

3. **RF Parameter considered at Loco.**

- a. Cable length:20 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.

Lucknow to Manak Nagar

City: 50%



Antenna at 27 Meter

Radio Link

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

Azimuth=239.80°	Elev. angle=-0.291°	Clearance at 3.12km	Worst Fresnel=0.3F1	Distance=3.72km
Free Space=96.7 dB	Obstruction=6.5 dB TR	Urban=12.9 dB	Forest=0.0 dB	Statistics=4.1 dB
PathLoss=120.1dB	E field=52.0dBμV/m	Rx level=-77.7dBm	Rx level=29.33μV	Rx Relative=-7.7dB

26°48'40.6"N 080°53'30.6"E

Transmitter 26°49'41.2"N 080°55'27.3"E

S9+20

Lucknow Station

Role Slave

Tx system name 27 METER 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=9.78 W

Antenna height (m) 27 - + Undo

Receiver 26°48'40.6"N 080°53'30.6"E

S9+20

Manak Nagar

Role Slave

Rx system name LOCO

Required E Field 59.67 dBμV/m

Antenna gain 3 dBi 0.8 dBd +

Line loss 2.56 dB

Rx sensitivity 70.7946μV -70 dBm

Antenna height (m) 4.2 - + Undo

Net

NCR TCAS

Frequency (MHz)

Minimum 416 Maximum 467

Radio Link

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

Elevation=125.4m	Elev. angle=-0.612°	Clearance=14.38m	Fresnel=0.6F1	Distance=2.39km
PathLoss=112.1dB	E field=60.1dBμV/m	Rx level=-69.6dBm	Rx level=74.28μV	Rx Relative=0.4dB

26°49'02.2"N 080°54'12.2"E

Transmitter 26°49'41.2"N 080°55'27.3"E

S9+20

Lucknow Station

Role Slave

Tx system name 27 METER 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=9.78 W

Antenna height (m) 27 - + Undo

Receiver 26°48'40.6"N 080°53'30.6"E

S9+20

Manak Nagar

Role Slave

Rx system name LOCO

Required E Field 59.67 dBμV/m

Antenna gain 3 dBi 0.8 dBd +

Line loss 2.56 dB

Rx sensitivity 70.7946μV -70 dBm

Antenna height (m) 4.2 - + Undo

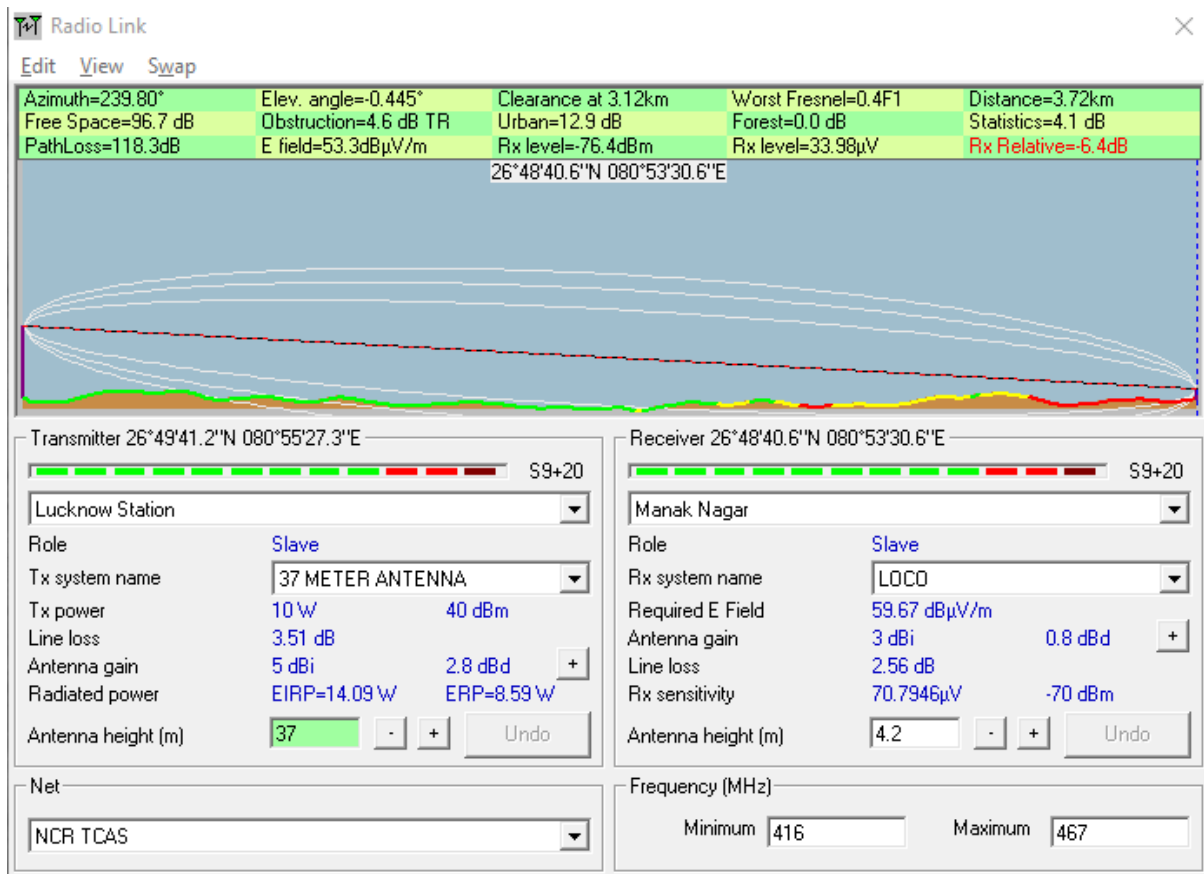
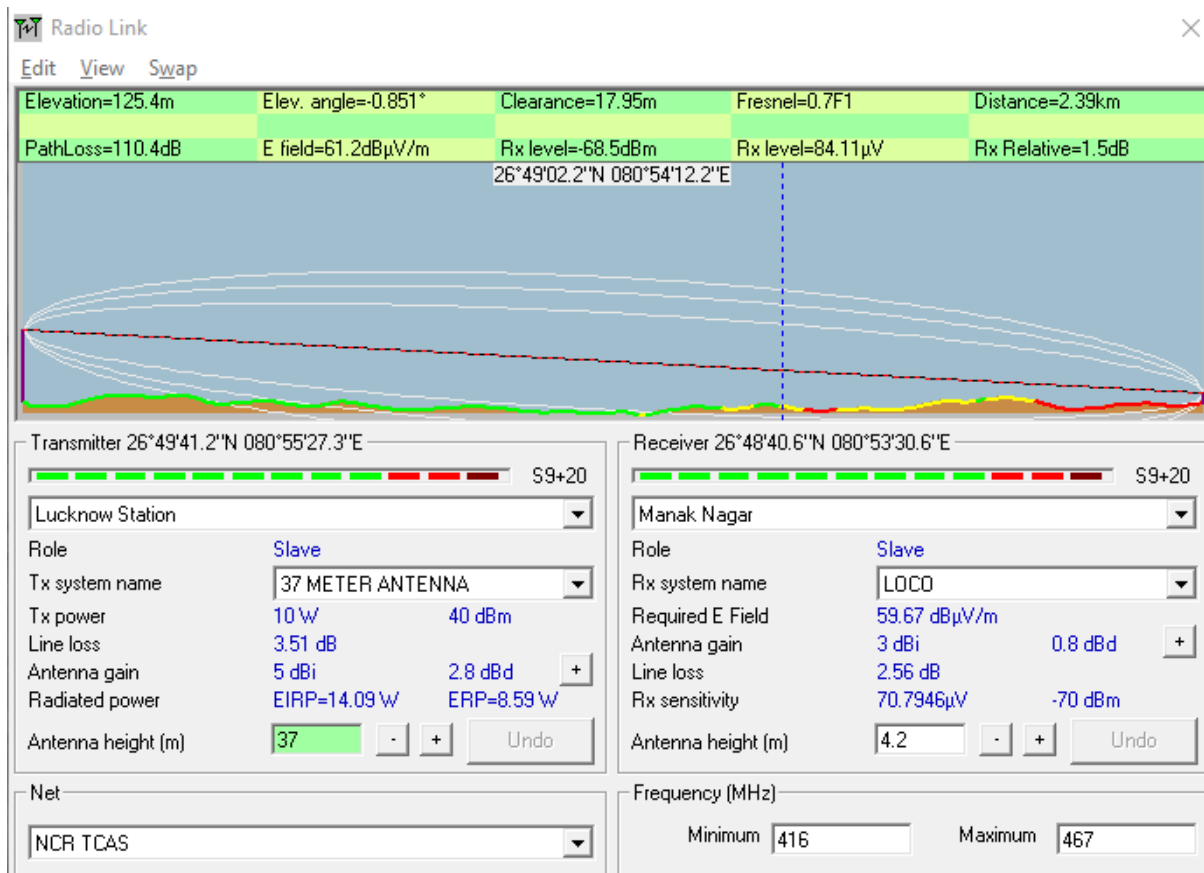
Net

NCR TCAS

Frequency (MHz)

Minimum 416 Maximum 467

Antenna at 37 Meter



Manak Nagar to Lucknow

Antenna at 27 Meter

Radio Link

Edit View Swap

Azimuth=59.79°

Elev. angle=-0.444°

Clearance at 3.23km

Worst Fresnel=0.2F1

Distance=3.72km

Free Space=96.7 dB

Obstruction=8.8 dB TR

Urban=12.9 dB

Forest=0.0 dB

Statistics=4.1 dB

PathLoss=122.5dB

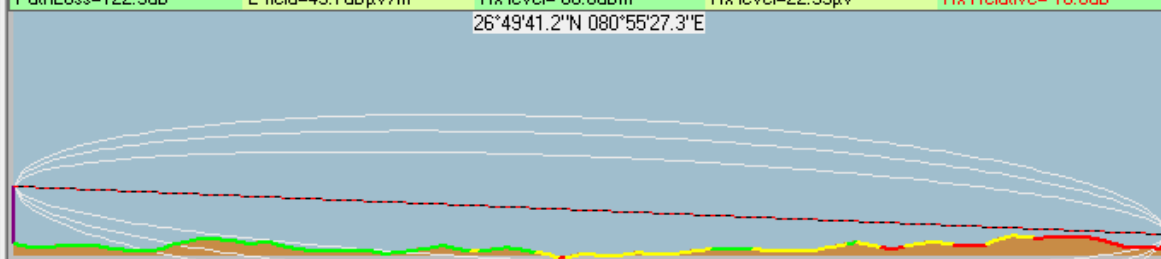
E field=49.7dBμV/m

Rx level=-80.0dBm

Rx level=22.39μV

Rx Relative=-10.0dB

26°49'41.2"N 080°55'27.3"E



Transmitter 26°48'40.6"N 080°53'30.6"E

S9+10

Manak Nagar

Role Slave

Tx system name 27 METER 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=9.78 W

Antenna height (m) 27 - + Undo

Receiver 26°49'41.2"N 080°55'27.3"E

S9+10

Lucknow Station

Role Slave

Rx system name LOCO

Required E Field 59.67 dBμV/m

Antenna gain 3 dBi 0.8 dBd +

Line loss 2.56 dB

Rx sensitivity 70.7946μV -70 dBm

Antenna height (m) 4.2 - + Undo

Net

NCR TCAS

Frequency (MHz)

Minimum 416 Maximum 467

Radio Link

Edit View Swap

Elevation=124.6m

Elev. angle=-0.622°

Clearance=15.05m

Fresnel=0.6F1

Distance=2.42km

PathLoss=111.9dB

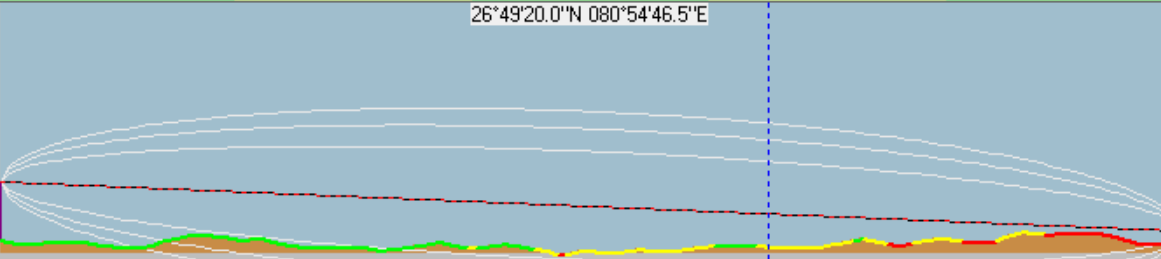
E field=60.2dBμV/m

Rx level=-69.4dBm

Rx level=75.66μV

Rx Relative=0.6dB

26°49'20.0"N 080°54'46.5"E



Transmitter 26°48'40.6"N 080°53'30.6"E

S9+20

Manak Nagar

Role Slave

Tx system name 27 METER 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=9.78 W

Antenna height (m) 27 - + Undo

Receiver 26°49'41.2"N 080°55'27.3"E

S9+20

Lucknow Station

Role Slave

Rx system name LOCO

Required E Field 59.67 dBμV/m

Antenna gain 3 dBi 0.8 dBd +

Line loss 2.56 dB

Rx sensitivity 70.7946μV -70 dBm

Antenna height (m) 4.2 - + Undo

Net

NCR TCAS

Frequency (MHz)

Minimum 416 Maximum 467

Antenna at 37 Meter

Radio Link ✕

Edit View Swap

Azimuth=59.79°	Elev. angle=-0.598°	Clearance at 3.46km	Worst Fresnel=0.2F1	Distance=3.72km
Free Space=96.7 dB	Obstruction=7.4 dB TR	Urban=12.9 dB	Forest=0.0 dB	Statistics=4.1 dB
PathLoss=121.1dB	E field=50.5dBμV/m	Rx level=-79.1dBm	Rx level=24.71μV	Rx Relative=-9.1dB

26°49'41.2"N 080°55'27.3"E

Transmitter 26°48'40.6"N 080°53'30.6"E

S9+10

Manak Nagar

Role Slave

Tx system name 37 METER 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 26°49'41.2"N 080°55'27.3"E

S9+10

Lucknow Station

Role Slave

Rx system name LOCO

Required E Field 59.67 dBμV/m

Antenna gain 3 dBi 0.8 dBd +

Line loss 2.56 dB

Rx sensitivity 70.7946μV -70 dBm

Antenna height (m) 4.2 - + Undo

Net

NCR TCAS

Frequency (MHz)

Minimum 416 Maximum 467

Radio Link ✕

Edit View Swap

Elevation=124.6m	Elev. angle=-0.859°	Clearance=18.55m	Fresnel=0.8F1	Distance=2.42km
PathLoss=110.9dB	E field=60.7dBμV/m	Rx level=-69.0dBm	Rx level=79.55μV	Rx Relative=1.0dB

26°49'20.0"N 080°54'46.5"E

Transmitter 26°48'40.6"N 080°53'30.6"E

S9+20

Manak Nagar

Role Slave

Tx system name 37 METER 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 26°49'41.2"N 080°55'27.3"E

S9+20

Lucknow Station

Role Slave

Rx system name LOCO

Required E Field 59.67 dBμV/m

Antenna gain 3 dBi 0.8 dBd +

Line loss 2.56 dB

Rx sensitivity 70.7946μV -70 dBm

Antenna height (m) 4.2 - + Undo

Net

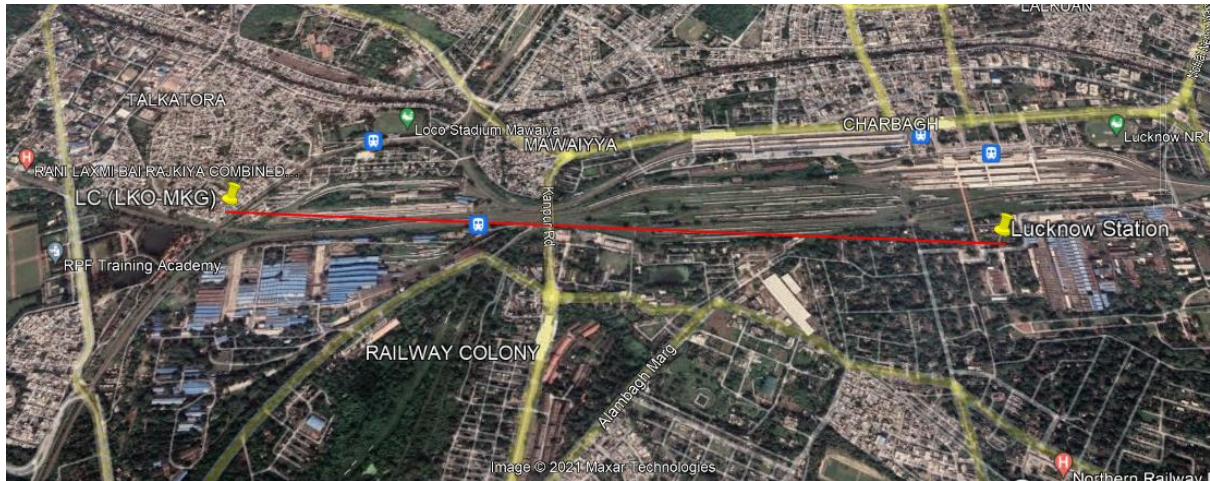
NCR TCAS

Frequency (MHz)

Minimum 416 Maximum 467

Lucknow to LC (LKO-MANAK)

City 20%



Antenna at 27 meters

Radio Link

Edit View Swap

Azimuth=272.68°	Elev. angle=-0.584°	Clearance at 1.99km	Worst Fresnel=0.5F1	Distance=2.49km
Free Space=93.2 dB	Obstruction=2.4 dB TR	Urban=5.2 dB	Forest=0.0 dB	Statistics=4.1 dB
PathLoss=104.9dB	E field=67.3dBμV/m	Rx level=-62.4dBm	Rx level=170.21μV	Rx Relative=7.6dB

26°49'45.0"N 080°53'57.0"E

Transmitter 26°49'41.2"N 080°55'27.3"E
 Lucknow Station
 Role: Slave
 Tx system name: 27 METER 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=9.78 W
 Antenna height (m): 27 - + Undo

Receiver 26°49'45.0"N 080°53'57.0"E
 LC (LKO-MKG)
 Role: Slave
 Rx system name: LOCO
 Required E Field: 59.67 dBμV/m
 Antenna gain: 3 dBi 0.8 dBd +
 Line loss: 2.56 dB
 Rx sensitivity: 70.7946μV -70 dBm
 Antenna height (m): 4.2 - + Undo

Net: NCR TCAS

Frequency (MHz): Minimum 416 Maximum 467

Antenna at 37 Meters

Radio Link

Edit View Swap

Azimuth=272.68°	Elev. angle=-0.814°	Clearance at 1.99km	Worst Fresnel=0.6F1	Distance=2.49km
Free Space=93.2 dB	Obstruction=-0.8 dB TR	Urban=5.2 dB	Forest=0.0 dB	Statistics=4.1 dB
PathLoss=101.7dB	E field=69.9dBμV/m	Rx level=-59.8dBm	Rx level=229.75μV	Rx Relative=10.2dB

26°49'45.0"N 080°53'57.0"E

Transmitter 26°49'41.2"N 080°55'27.3"E
 Lucknow Station
 Role: Slave
 Tx system name: 37 METER 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 26°49'45.0"N 080°53'57.0"E
 LC (LKO-MKG)
 Role: Slave
 Rx system name: LOCO
 Required E Field: 59.67 dBμV/m
 Antenna gain: 3 dBi 0.8 dBd +
 Line loss: 2.56 dB
 Rx sensitivity: 70.7946μV -70 dBm
 Antenna height (m): 4.2 - + Undo

Net: NCR TCAS

Frequency (MHz): Minimum 416 Maximum 467

LC (LKO- Manak) to Lucknow

Antenna at 27 meters

Radio Link

Edit View Swap

Azimuth=92.67°

Elev. angle=-0.487°

Clearance at 2.10km

Worst Fresnel=0.4F1

Distance=2.49km

Free Space=93.2 dB

Obstruction=5.0 dB TR

Urban=5.2 dB

Forest=0.0 dB

Statistics=4.1 dB

PathLoss=107.5dB

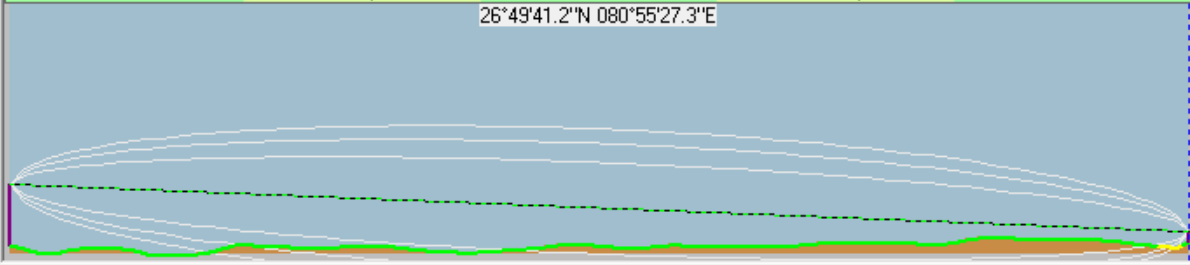
E field=64.7dBμV/m

Rx level=-65.0dBm

Rx level=125.67μV

Rx Relative=5.0dB

26°49'41.2"N 080°55'27.3"E



Transmitter 26°49'45.0"N 080°53'57.0"E

S9+30

LC (LKO-MKG)

Role Slave

Tx system name 27 METER 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=9.78 W

Antenna height (m) 27

Receiver 26°49'41.2"N 080°55'27.3"E

S9+30

Lucknow Station

Role Slave

Rx system name LOCO

Required E Field 59.67 dBμV/m

Antenna gain 3 dBi 0.8 dBd

Line loss 2.56 dB

Rx sensitivity 70.7946μV -70 dBm

Antenna height (m) 4.2

Net

NCR TCAS

Frequency (MHz)

Minimum 416 Maximum 467

Antenna at 37 Meters

Radio Link

Edit View Swap

Azimuth=92.67°

Elev. angle=-0.717°

Clearance at 2.10km

Worst Fresnel=0.5F1

Distance=2.49km

Free Space=93.2 dB

Obstruction=2.9 dB TR

Urban=5.2 dB

Forest=0.0 dB

Statistics=4.1 dB

PathLoss=105.4dB

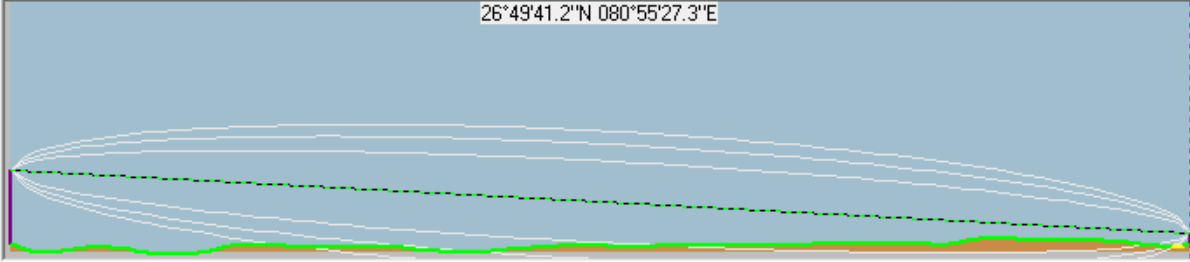
E field=66.2dBμV/m

Rx level=-63.5dBm

Rx level=149.82μV

Rx Relative=6.5dB

26°49'41.2"N 080°55'27.3"E



Transmitter 26°49'45.0"N 080°53'57.0"E

S9+30

LC (LKO-MKG)

Role Slave

Tx system name 37 METER 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 26°49'41.2"N 080°55'27.3"E

S9+30

Lucknow Station

Role Slave

Rx system name LOCO

Required E Field 59.67 dBμV/m

Antenna gain 3 dBi 0.8 dBd

Line loss 2.56 dB

Rx sensitivity 70.7946μV -70 dBm

Antenna height (m) 4.2

Net

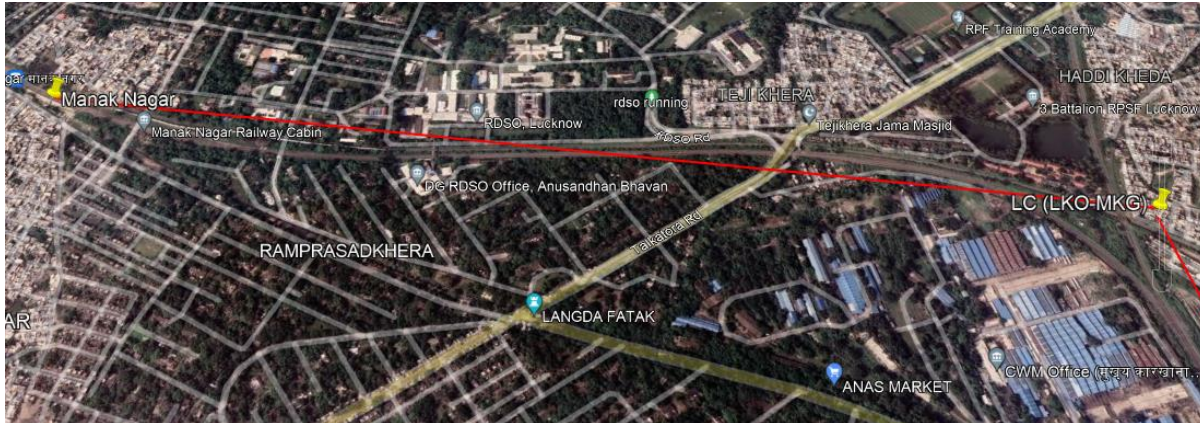
NCR TCAS

Frequency (MHz)

Minimum 416 Maximum 467

LC (LKO-Manak)-Manak

City 20%



Antenna at 27 Meters

Radio Link

Edit View Swap

Azimuth=200.11°	Elev. angle=-0.434°	Clearance at 1.49km	Worst Fresnel=0.5F1	Distance=2.12km
Free Space=91.8 dB	Obstruction=2.5 dB TR	Urban=5.2 dB	Forest=0.0 dB	Statistics=4.1 dB
PathLoss=103.7dB	E field=68.5dBμV/m	Rx level=-61.2dBm	Rx level=195.39μV	Rx Relative=8.8dB

26°48'40.6"N 080°53'30.6"E

Transmitter 26°49'45.0"N 080°53'57.0"E

S9+30

LC (LKO-MKG)

Role Slave

Tx system name 27 METER 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=9.78 W

Antenna height (m) 27 - + Undo

Receiver 26°48'40.6"N 080°53'30.6"E

S9+30

Manak Nagar

Role Slave

Rx system name LOCO

Required E Field 59.67 dBμV/m

Antenna gain 3 dBi 0.8 dBd +

Line loss 2.56 dB

Rx sensitivity 70.7946μV -70 dBm

Antenna height (m) 4.2 - + Undo

Net

NCR TCAS

Frequency (MHz)

Minimum 416 Maximum 467

Antenna at 37 meters

Radio Link

Edit View Swap

Azimuth=200.11°	Elev. angle=-0.704°	Clearance at 1.65km	Worst Fresnel=0.7F1	Distance=2.12km
Free Space=91.8 dB	Obstruction=-1.6 dB TR	Urban=5.2 dB	Forest=0.0 dB	Statistics=4.1 dB
PathLoss=99.5dB	E field=72.1dBμV/m	Rx level=-57.6dBm	Rx level=295.00μV	Rx Relative=12.4dB

26°48'40.6"N 080°53'30.6"E

Transmitter 26°49'45.0"N 080°53'57.0"E

S9+40

LC (LKO-MKG)

Role Slave

Tx system name 37 METER 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 26°48'40.6"N 080°53'30.6"E

S9+40

Manak Nagar

Role Slave

Rx system name LOCO

Required E Field 59.67 dBμV/m

Antenna gain 3 dBi 0.8 dBd +

Line loss 2.56 dB

Rx sensitivity 70.7946μV -70 dBm

Antenna height (m) 4.2 - + Undo

Net

NCR TCAS

Frequency (MHz)

Minimum 416 Maximum 467

Manak Nagar to LC (LKO- Manak)

Antenna at 27 Meters

Radio Link

Edit View Swap

Azimuth=20.11°	Elev. angle=-0.818°	Clearance at 1.91km	Worst Fresnel=0.3F1	Distance=2.12km
Free Space=91.8 dB	Obstruction=6.2 dB TR	Urban=5.2 dB	Forest=0.0 dB	Statistics=4.1 dB
PathLoss=107.3dB	E field=64.8dBμV/m	Rx level=-64.8dBm	Rx level=128.16μV	Rx Relative=5.2dB

26°49'45.0"N 080°53'57.0"E

Transmitter 26°48'40.6"N 080°53'30.6"E

S9+30

Manak Nagar

Role Slave

Tx system name 27 METER 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=9.78 W

Antenna height (m) 27 - + Undo

Receiver 26°49'45.0"N 080°53'57.0"E

S9+30

LC (LKO-MKG)

Role Slave

Rx system name LOCO

Required E Field 59.67 dBμV/m

Antenna gain 3 dBi 0.8 dBd +

Line loss 2.56 dB

Rx sensitivity 70.7946μV -70 dBm

Antenna height (m) 4.2 - + Undo

Net

NCR TCAS

Frequency (MHz)

Minimum 416 Maximum 467

Antenna at 37 meters

Radio Link

Edit View Swap

Azimuth=20.11°	Elev. angle=-1.088°	Clearance at 1.91km	Worst Fresnel=0.4F1	Distance=2.12km
Free Space=91.8 dB	Obstruction=4.4 dB TR	Urban=5.2 dB	Forest=0.0 dB	Statistics=4.1 dB
PathLoss=105.5dB	E field=66.1dBμV/m	Rx level=-63.6dBm	Rx level=148.63μV	Rx Relative=6.4dB

26°49'45.0"N 080°53'57.0"E

Transmitter 26°48'40.6"N 080°53'30.6"E

S9+30

Manak Nagar

Role Slave

Tx system name 37 METER 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 26°49'45.0"N 080°53'57.0"E

S9+30

LC (LKO-MKG)

Role Slave

Rx system name LOCO

Required E Field 59.67 dBμV/m

Antenna gain 3 dBi 0.8 dBd +

Line loss 2.56 dB

Rx sensitivity 70.7946μV -70 dBm

Antenna height (m) 4.2 - + Undo

Net

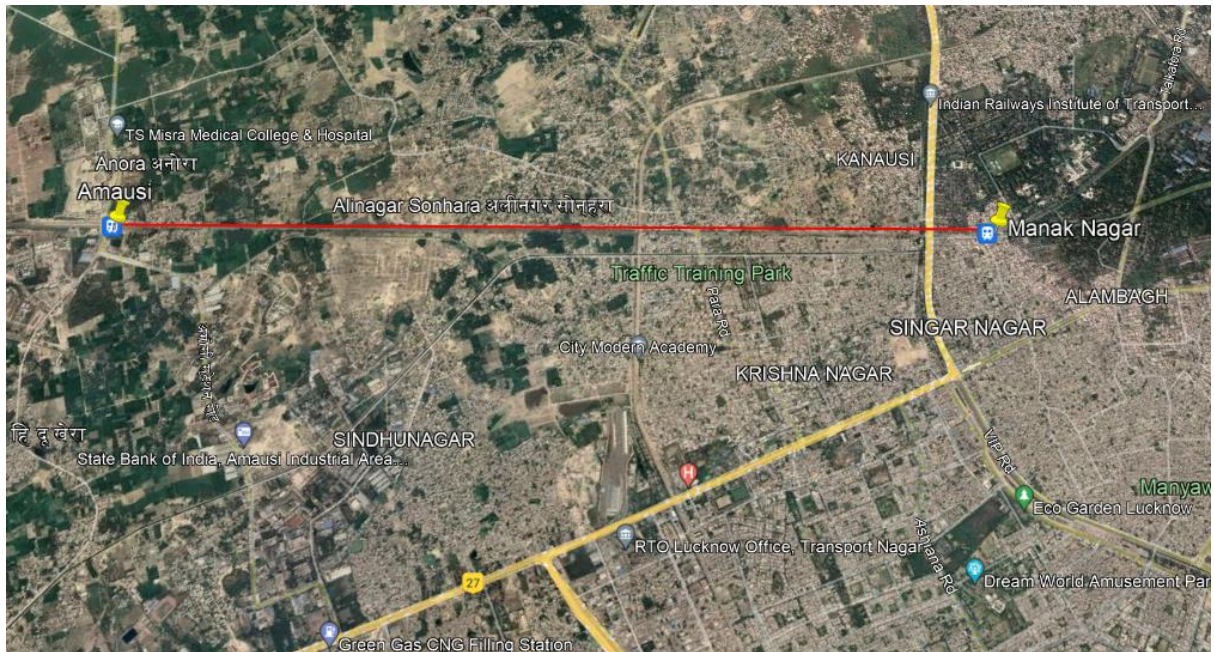
NCR TCAS

Frequency (MHz)

Minimum 416 Maximum 467

Manak Nagar to Amausi

City 10 %



Antenna at 27 Meter

Radio Link

Edit View Swap

Azimuth=230.50°	Elev. angle=-0.150°	Clearance at 5.84km	Worst Fresnel=0.2F1	Distance=6.34km
Free Space=101.3 dB	Obstruction=9.3 dB TR	Urban=5.1 dB	Forest=0.0 dB	Statistics=4.0 dB
PathLoss=119.7dB	E field=52.5dBμV/m	Rx level=-77.2dBm	Rx level=30.94μV	Rx Relative=-7.2dB

26°46'30.0"N 080°50'33.2"E

Transmitter 26°48'40.6"N 080°53'30.6"E

S9+20

Manak Nagar

Role Slave

Tx system name 27 METER 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=9.78 W

Antenna height (m) 27 - + Undo

Net NCR TCAS

Receiver 26°46'30.0"N 080°50'33.2"E

S9+20

Amausi

Role Slave

Rx system name LOCO

Required E Field 59.67 dBμV/m

Antenna gain 3 dBi 0.8 dBd +

Line loss 2.56 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=125.7m	Elev. angle=-0.391°	Clearance=13.77m	Fresnel=0.4F1	Distance=3.78km
PathLoss=112.3dB	E field=59.8dBμV/m	Rx level=-69.8dBm	Rx level=72.12μV	Rx Relative=0.2dB

26°47'22.7"N 080°51'44.7"E

Transmitter 26°48'40.6"N 080°53'30.6"E

S9+20

Manak Nagar

Role Slave

Tx system name 27 METER 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=9.78 W

Antenna height (m) 27 - + Undo

Net NCR TCAS

Receiver 26°46'30.0"N 080°50'33.2"E

S9+20

Amausi

Role Slave

Rx system name LOCO

Required E Field 59.67 dBμV/m

Antenna gain 3 dBi 0.8 dBd +

Line loss 2.56 dB

Rx sensitivity 70.7946μV -70 dBm

Antenna height (m) 4.2 - + Undo

Frequency (MHz) Minimum 416 Maximum 467

Antenna at 37 Meter

Radio Link

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

Azimuth=230.50°	Elev. angle=-0.241°	Clearance at 5.84km	Worst Fresnel=0.2F1	Distance=6.34km
Free Space=101.3 dB	Obstruction=8.2 dB TR	Urban=2.5 dB	Forest=0.0 dB	Statistics=4.0 dB
PathLoss=116.1dB	E field=55.5dBμV/m	Rx level=-74.2dBm	Rx level=43.76μV	Rx Relative=-4.2dB

26°46'30.0"N 080°50'33.2"E

Transmitter 26°48'40.6"N 080°53'30.6"E

S9+20

Manak Nagar

Role Slave

Tx system name 37 METER 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 26°46'30.0"N 080°50'33.2"E

S9+20

Amausi

Role Slave

Rx system name LOCO

Required E Field 59.67 dBμV/m

Antenna gain 3 dBi 0.8 dBd +

Line loss 2.56 dB

Rx sensitivity 70.7946μV -70 dBm

Antenna height (m) 4.2 - + Undo

Net

NCR TCAS

Frequency (MHz)

Minimum 416 Maximum 467

Radio Link

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

Elevation=127.9m	Elev. angle=-0.339°	Clearance=4.15m	Fresnel=0.3F1	Distance=5.97km
PathLoss=111.2dB	E field=60.4dBμV/m	Rx level=-69.3dBm	Rx level=77.11μV	Rx Relative=0.7dB

26°46'37.5"N 080°50'43.4"E

Transmitter 26°48'40.6"N 080°53'30.6"E

S9+20

Manak Nagar

Role Slave

Tx system name 37 METER 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 26°46'30.0"N 080°50'33.2"E

S9+20

Amausi

Role Slave

Rx system name LOCO

Required E Field 59.67 dBμV/m

Antenna gain 3 dBi 0.8 dBd +

Line loss 2.56 dB

Rx sensitivity 70.7946μV -70 dBm

Antenna height (m) 4.2 - + Undo

Net

NCR TCAS

Frequency (MHz)

Minimum 416 Maximum 467

Antenna at 27 Meter

Radio Link Summary:

Azimuth=50.48°	Elev. angle=-0.319°	Clearance at 5.97km	Worst Fresnel=0.3F1	Distance=6.34km
Free Space=101.3 dB	Obstruction=7.5 dB TR	Urban=2.5 dB	Forest=0.0 dB	Statistics=4.0 dB
PathLoss=115.4dB	E field=56.8dBμV/m	Rx level=-72.9dBm	Rx level=50.75μV	Rx Relative=-2.9dB

Coordinates: 26°48'40.6"N 080°53'30.6"E

Transmitter Settings (26°46'30.0"N 080°50'33.2"E):

- Role: Slave
- Tx system name: 27 METER 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=9.78 W
- Antenna height: 27 m

Receiver Settings (26°48'40.6"N 080°53'30.6"E):

- Role: Slave
- Rx system name: LOCO
- Required E Field: 59.67 dBμV/m
- Antenna gain: 3 dBi (0.8 dBd)
- Line loss: 2.56 dB
- Rx sensitivity: 70.7946 μV (-70 dBm)
- Antenna height: 4.2 m

Net: NCR TCAS

Frequency (MHz): Minimum 416, Maximum 467

Radio Link

Edit View Swap

Elevation=127.0m Elev. angle=-0.282° Clearance=9.51m Fresnel=0.3F1 Distance=4.80km

PathLoss=112.0dB E field=60.2dBμV/m Rx level=-69.5dBm Rx level=74.94μV Rx Relative=0.5dB

26°48'08.9"N 080°52'47.5"E

Transmitter 26°46'30.0"N 080°50'33.2"E

Receiver 26°48'40.6"N 080°53'30.6"E

Amausi

Role Slave

Tx system name 27 METER 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=9.78 W

Antenna height (m) 27

Manak Nagar

Role Slave

Rx system name LOCO

Required E Field 59.67 dBμV/m

Antenna gain 3 dBi 0.8 dBd

Line loss 2.56 dB

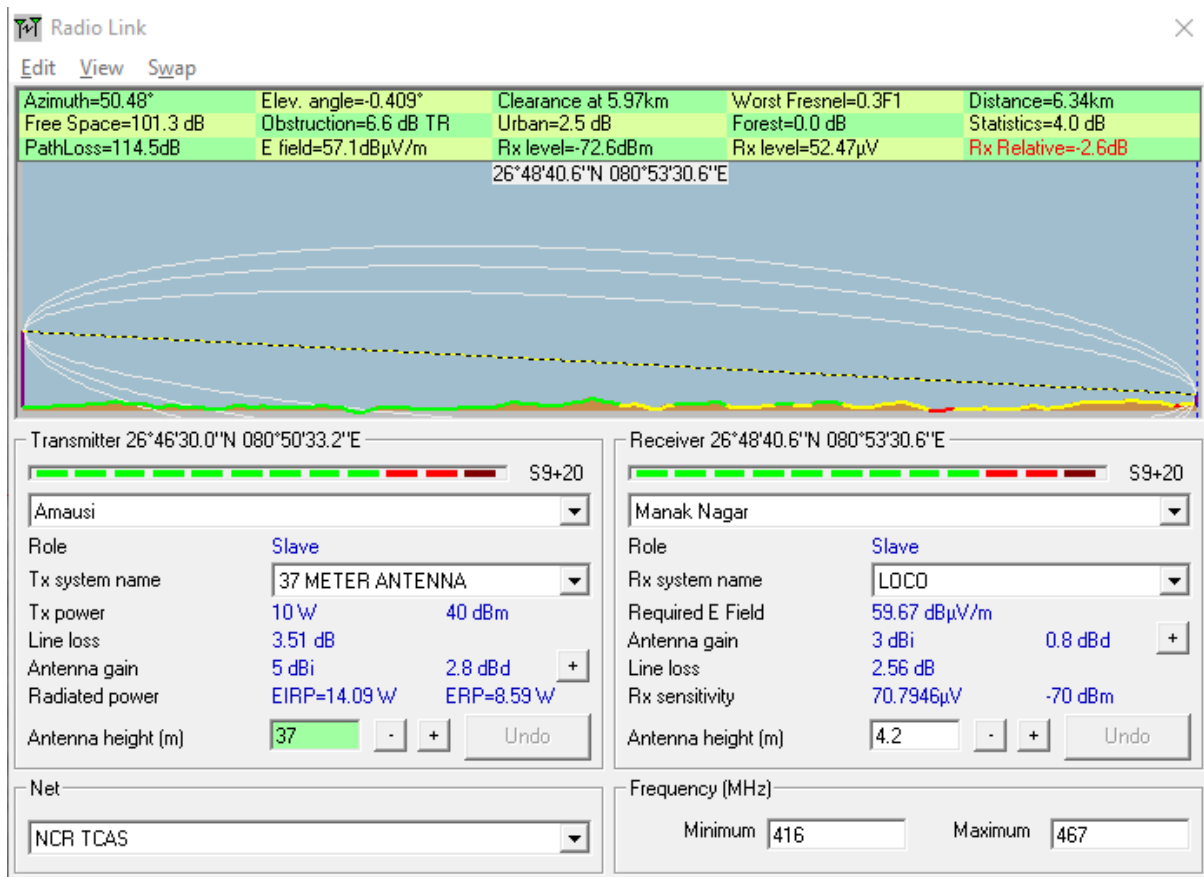
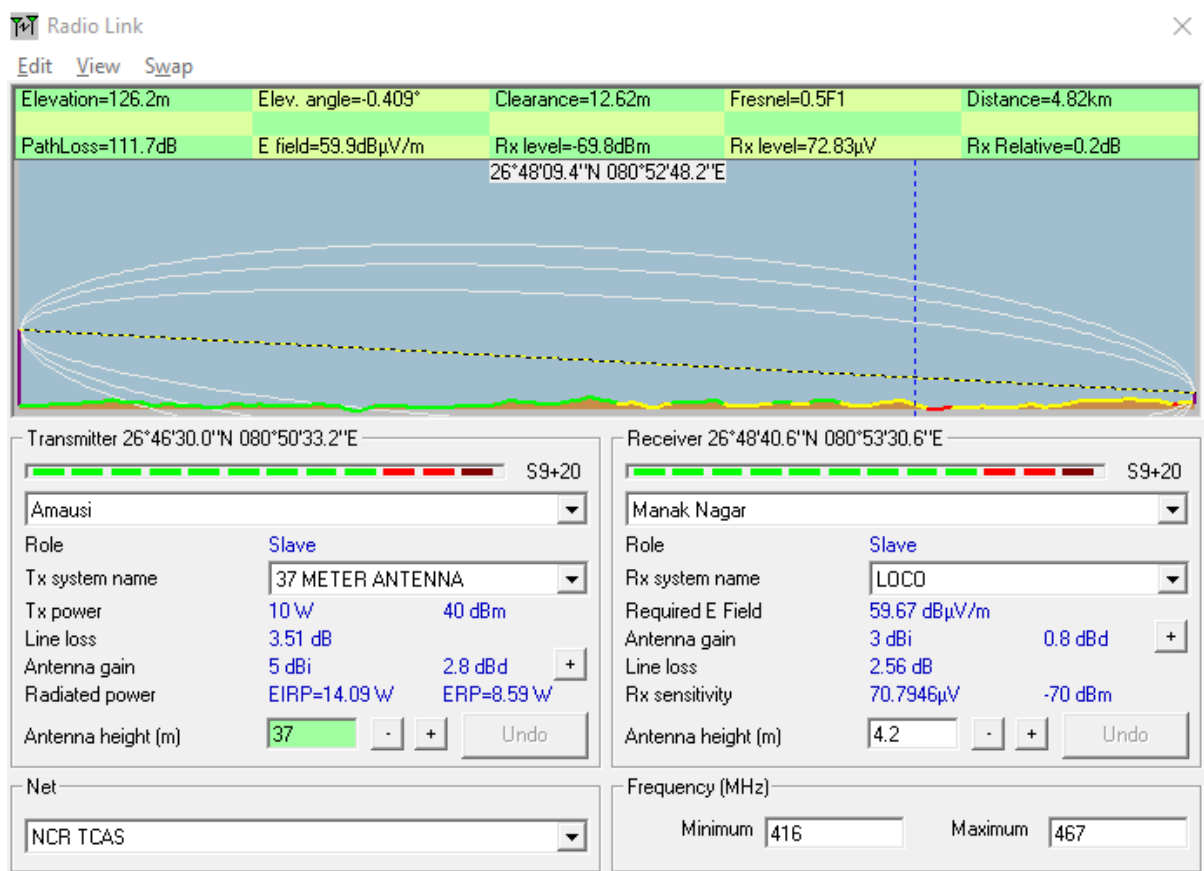
Rx sensitivity 70.7946μV -70 dBm

Antenna height (m) 4.2

Net NCR TCAS

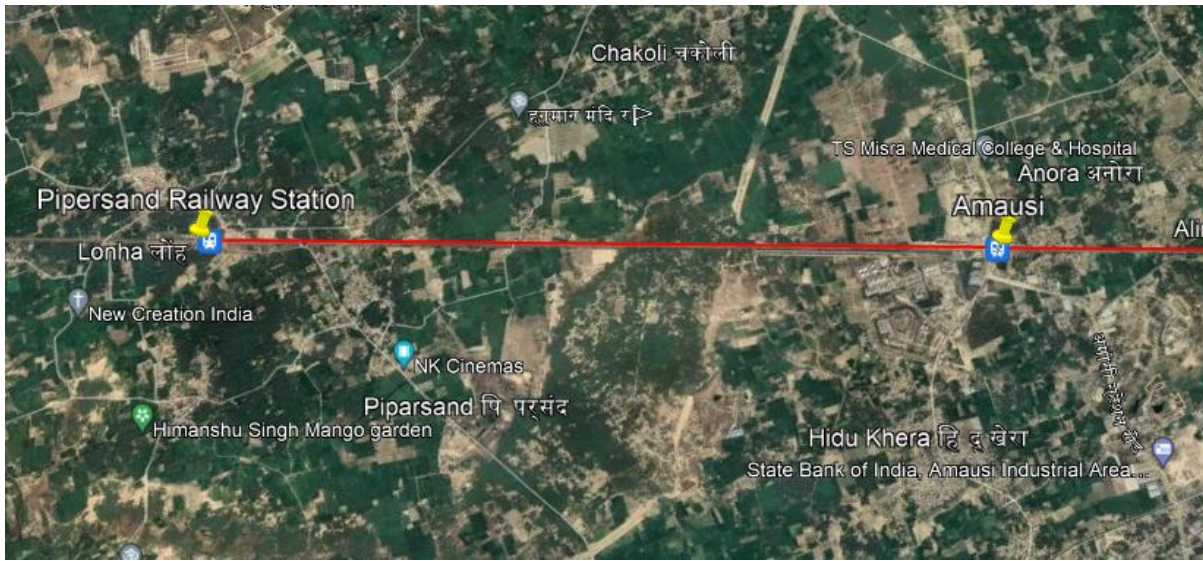
Frequency (MHz) Minimum 416 Maximum 467

Antenna at 37 Meter



Amausi to Pipersand

City 5 %



Antenna at 27 Meter

Radio Link ✕

Edit View Swap

Azimuth=230.70°	Elev. angle=-0.140°	Clearance at 4.97km	Worst Fresnel=0.3F1	Distance=5.88km
Free Space=100.7 dB	Obstruction=6.0 dB TR	Urban=1.3 dB	Forest=0.0 dB	Statistics=4.0 dB
PathLoss=112.0dB	E field=60.2dBμV/m	Rx level=-69.5dBm	Rx level=74.84μV	Rx Relative=0.5dB

26°44'29.3"N 080°47'48.1"E

Transmitter 26°46'30.0"N 080°50'33.2"E

S9+20

Amausi

Role Slave

Tx system name 27 METER 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=9.78 W

Antenna height (m) 27 - + Undo

Receiver 26°44'29.3"N 080°47'48.1"E

S9+20

Pipersand

Role Slave

Rx system name LOCO

Required E Field 59.67 dBμV/m

Antenna gain 3 dBi 0.8 dBd +

Line loss 2.56 dB

Rx sensitivity 70.7946μV -70 dBm

Antenna height (m) 4.2 - + Undo

Net

NCR TCAS

Frequency (MHz)

Minimum 416 Maximum 467

Radio Link ✕

Edit View Swap

Elevation=124.7m	Elev. angle=-0.295°	Clearance=9.25m	Fresnel=0.4F1	Distance=5.07km
PathLoss=112.1dB	E field=60.0dBμV/m	Rx level=-69.6dBm	Rx level=73.77μV	Rx Relative=0.4dB

26°44'45.9"N 080°48'10.8"E

Transmitter 26°46'30.0"N 080°50'33.2"E

S9+20

Amausi

Role Slave

Tx system name 27 METER 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=9.78 W

Antenna height (m) 27 - + Undo

Receiver 26°44'29.3"N 080°47'48.1"E

S9+20

Pipersand

Role Slave

Rx system name LOCO

Required E Field 59.67 dBμV/m

Antenna gain 3 dBi 0.8 dBd +

Line loss 2.56 dB

Rx sensitivity 70.7946μV -70 dBm

Antenna height (m) 4.2 - + Undo

Net

NCR TCAS

Frequency (MHz)

Minimum 416 Maximum 467

Antenna at 37 Meter

Radio Link ✕

Edit View Swap

Azimuth=230.70°	Elev. angle=-0.238°	Clearance at 4.97km	Worst Fresnel=0.4F1	Distance=5.88km
Free Space=100.7 dB	Obstruction=4.6 dB TR	Urban=1.3 dB	Forest=0.0 dB	Statistics=4.0 dB
PathLoss=110.6dB	E field=61.0dBμV/m	Rx level=-68.6dBm	Rx level=82.91μV	Rx Relative=1.4dB

26°44'29.3"N 080°47'48.1"E

Transmitter 26°46'30.0"N 080°50'33.2"E

S9+20

Amausi

Role Slave

Tx system name 37 METER 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 26°44'29.3"N 080°47'48.1"E

S9+20

Pipersand

Role Slave

Rx system name LOCO

Required E Field 59.67 dBμV/m

Antenna gain 3 dBi 0.8 dBd +

Line loss 2.56 dB

Rx sensitivity 70.7946μV -70 dBm

Antenna height (m) 4.2 - + Undo

Net

NCR TCAS

Frequency (MHz)

Minimum 416 Maximum 467

Radio Link ✕

Edit View Swap

Elevation=124.7m	Elev. angle=-0.408°	Clearance=10.62m	Fresnel=0.5F1	Distance=5.07km
PathLoss=111.4dB	E field=60.2dBμV/m	Rx level=-69.5dBm	Rx level=74.85μV	Rx Relative=0.5dB

26°44'45.9"N 080°48'10.8"E

Transmitter 26°46'30.0"N 080°50'33.2"E

S9+20

Amausi

Role Slave

Tx system name 37 METER 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 26°44'29.3"N 080°47'48.1"E

S9+20

Pipersand

Role Slave

Rx system name LOCO

Required E Field 59.67 dBμV/m

Antenna gain 3 dBi 0.8 dBd +

Line loss 2.56 dB

Rx sensitivity 70.7946μV -70 dBm

Antenna height (m) 4.2 - + Undo

Net

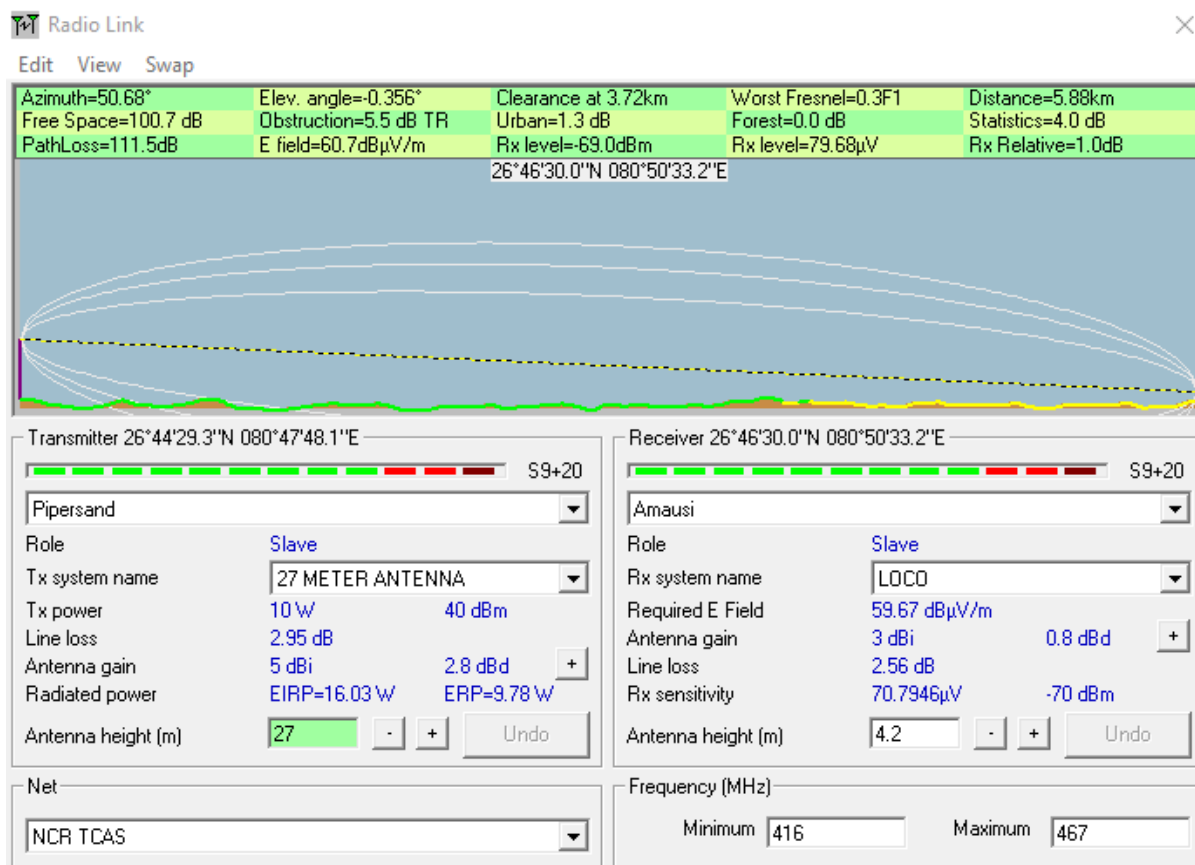
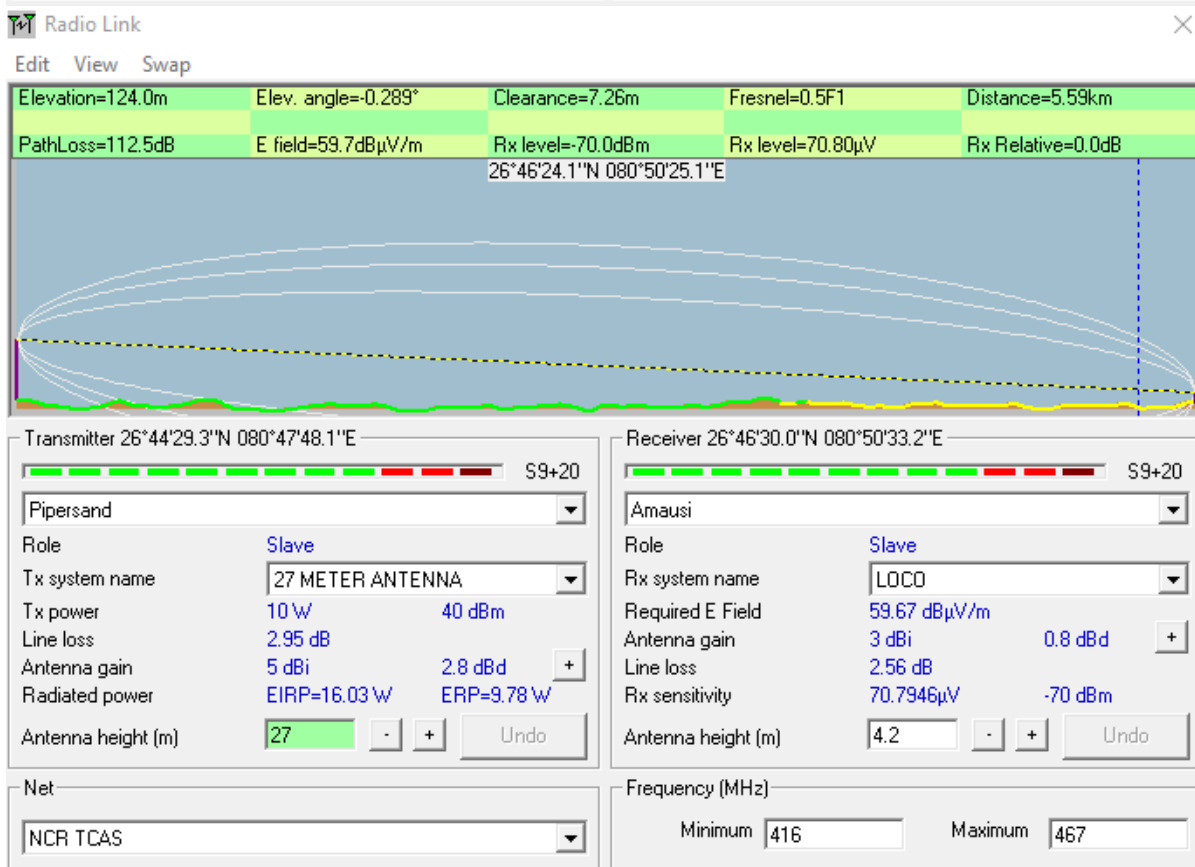
NCR TCAS

Frequency (MHz)

Minimum 416 Maximum 467

Pipersand to Amausi

Antenna at 27 Meter



Antenna at 37 Meters

Radio Link

×

Edit View Swap

Azimuth=50.68°

Elev. angle=-0.454°

Clearance at 4.58km

Worst Fresnel=0.4F1

Distance=5.88km

Free Space=100.7 dB

Obstruction=3.6 dB TR

Urban=1.3 dB

Forest=0.0 dB

Statistics=4.0 dB

PathLoss=109.6dB

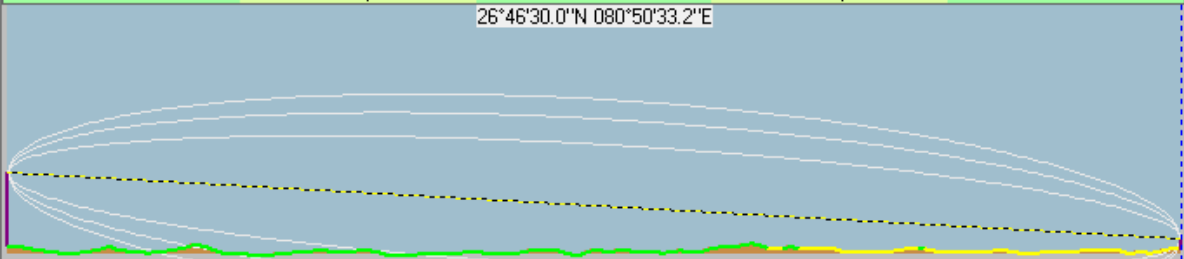
E field=62.0dBμV/m

Rx level=-67.7dBm

Rx level=92.39μV

Rx Relative=2.3dB

26°46'30.0"N 080°50'33.2"E



Transmitter 26°44'29.3"N 080°47'48.1"E

S9+30

Pipersand

Role Slave

Tx system name 37 METER 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 26°46'30.0"N 080°50'33.2"E

S9+30

Amausi

Role Slave

Rx system name LOCO

Required E Field 59.67 dBμV/m

Antenna gain 3 dBi 0.8 dBd +

Line loss 2.56 dB

Rx sensitivity 70.7946μV -70 dBm

Antenna height (m) 4.2 - + Undo

Net

NCR TCAS

Frequency (MHz)

Minimum 416 Maximum 467

Pipersand to Harauni

City: 5%



Antenna at 27 Meter

Radio Link ✕

Edit View Swap

Azimuth=230.97°	Elev. angle=-0.120°	Clearance at 5.65km	Worst Fresnel=0.4F1	Distance=6.27km
Free Space=101.2 dB	Obstruction=5.0 dB TR	Urban=1.3 dB	Forest=0.0 dB	Statistics=4.0 dB
PathLoss=111.6dB	E field=60.6dBμV/m	Rx level=-69.1dBm	Rx level=78.60μV	Rx Relative=0.9dB

26°42'21.3"N 080°44'51.4"E

Transmitter 26°44'29.3"N 080°47'48.1"E

S9+20

Pipersand

Role Slave

Tx system name 27 METER 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=9.78 W

Antenna height (m) 27 - + Undo

Receiver 26°42'21.3"N 080°44'51.4"E

S9+20

Harauni

Role Slave

Rx system name LOCO

Required E Field 59.67 dBμV/m

Antenna gain 3 dBi 0.8 dBd +

Line loss 2.56 dB

Rx sensitivity 70.7946μV -70 dBm

Antenna height (m) 4.2 - + Undo

Net

NCR TCAS

Frequency (MHz)

Minimum 416 Maximum 467

Radio Link ✕

Edit View Swap

Elevation=126.7m	Elev. angle=-0.254°	Clearance=7.89m	Fresnel=0.5F1	Distance=5.80km
PathLoss=111.8dB	E field=60.3dBμV/m	Rx level=-69.3dBm	Rx level=76.32μV	Rx Relative=0.7dB

26°42'30.9"N 080°45'04.6"E

Transmitter 26°44'29.3"N 080°47'48.1"E

S9+20

Pipersand

Role Slave

Tx system name 27 METER 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=9.78 W

Antenna height (m) 27 - + Undo

Receiver 26°42'21.3"N 080°44'51.4"E

S9+20

Harauni

Role Slave

Rx system name LOCO

Required E Field 59.67 dBμV/m

Antenna gain 3 dBi 0.8 dBd +

Line loss 2.56 dB

Rx sensitivity 70.7946μV -70 dBm

Antenna height (m) 4.2 - + Undo

Net

NCR TCAS

Frequency (MHz)

Minimum 416 Maximum 467

Antenna at 37 Meter

Radio Link ✕

Edit View Swap

Azimuth=230.97°	Elev. angle=-0.212°	Clearance at 5.65km	Worst Fresnel=0.4F1	Distance=6.27km
Free Space=101.2 dB	Obstruction=4.0 dB TR	Urban=1.3 dB	Forest=0.0 dB	Statistics=4.0 dB
PathLoss=110.5dB	E field=61.1dBμV/m	Rx level=-68.6dBm	Rx level=83.38μV	Rx Relative=1.4dB

26°42'21.3"N 080°44'51.4"E

Transmitter 26°44'29.3"N 080°47'48.1"E

S9+20

Pipersand

Role Slave

Tx system name 37 METER 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 26°42'21.3"N 080°44'51.4"E

S9+20

Harauni

Role Slave

Rx system name LOCO

Required E Field 59.67 dBμV/m

Antenna gain 3 dBi 0.8 dBd +

Line loss 2.56 dB

Rx sensitivity 70.7946μV -70 dBm

Antenna height (m) 4.2 - + Undo

Net

NCR TCAS

Frequency (MHz)

Minimum 416 Maximum 467

Radio Link ✕

Edit View Swap

Elevation=126.7m	Elev. angle=-0.353°	Clearance=8.64m	Fresnel=0.5F1	Distance=5.80km
PathLoss=110.7dB	E field=60.9dBμV/m	Rx level=-68.7dBm	Rx level=81.79μV	Rx Relative=1.3dB

26°42'30.9"N 080°45'04.6"E

Transmitter 26°44'29.3"N 080°47'48.1"E

S9+20

Pipersand

Role Slave

Tx system name 37 METER 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 26°42'21.3"N 080°44'51.4"E

S9+20

Harauni

Role Slave

Rx system name LOCO

Required E Field 59.67 dBμV/m

Antenna gain 3 dBi 0.8 dBd +

Line loss 2.56 dB

Rx sensitivity 70.7946μV -70 dBm

Antenna height (m) 4.2 - + Undo

Net

NCR TCAS

Frequency (MHz)

Minimum 416 Maximum 467

Harauni to Pipersand

Antenna at 27 Meter

Radio Link

Edit View Swap

Azimuth=50.94°	Elev. angle=-0.352°	Clearance at 5.23km	Worst Fresnel=0.3F1	Distance=6.27km
Free Space=101.2 dB	Obstruction=5.9 dB TR	Urban=1.3 dB	Forest=0.0 dB	Statistics=4.0 dB
PathLoss=112.4dB	E field=59.7dBμV/m	Rx level=-69.9dBm	Rx level=71.39μV	Rx Relative=0.1dB

26°44'29.3"N 080°47'48.1"E

Transmitter 26°42'21.3"N 080°44'51.4"E

S9+20

Harauni

Role Slave

Tx system name 27 METER 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=9.78 W

Antenna height (m) 27 - + Undo

Receiver 26°44'29.3"N 080°47'48.1"E

S9+20

Pipersand

Role Slave

Rx system name LOCO

Required E Field 59.67 dBμV/m

Antenna gain 3 dBi 0.8 dBd +

Line loss 2.56 dB

Rx sensitivity 70.7946μV -70 dBm

Antenna height (m) 4.2 - + Undo

Net

NCR TCAS

Frequency (MHz)

Minimum 416 Maximum 467

Radio Link

Edit View Swap

Elevation=125.1m	Elev. angle=-0.311°	Clearance=9.51m	Fresnel=0.4F1	Distance=5.33km
PathLoss=111.5dB	E field=60.7dBμV/m	Rx level=-69.0dBm	Rx level=79.45μV	Rx Relative=1.0dB

26°44'10.2"N 080°47'21.7"E

Transmitter 26°42'21.3"N 080°44'51.4"E

S9+20

Harauni

Role Slave

Tx system name 27 METER 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=9.78 W

Antenna height (m) 27 - + Undo

Receiver 26°44'29.3"N 080°47'48.1"E

S9+20

Pipersand

Role Slave

Rx system name LOCO

Required E Field 59.67 dBμV/m

Antenna gain 3 dBi 0.8 dBd +

Line loss 2.56 dB

Rx sensitivity 70.7946μV -70 dBm

Antenna height (m) 4.2 - + Undo

Net

NCR TCAS

Frequency (MHz)

Minimum 416 Maximum 467

Antenna at 37 Meters

Radio Link ✕

Edit View Swap

Azimuth=50.94°	Elev. angle=-0.443°	Clearance at 5.83km	Worst Fresnel=0.4F1	Distance=6.27km
Free Space=101.2 dB	Obstruction=4.8 dB TR	Urban=1.3 dB	Forest=0.0 dB	Statistics=4.0 dB
PathLoss=111.4dB	E field=60.2dBμV/m	Rx level=-69.4dBm	Rx level=75.51μV	Rx Relative=0.6dB

26°44'29.3"N 080°47'48.1"E

Transmitter 26°42'21.3"N 080°44'51.4"E

S9+20

Harauni

Role Slave

Tx system name 37 METER 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 26°44'29.3"N 080°47'48.1"E

S9+20

Pipersand

Role Slave

Rx system name LOCO

Required E Field 59.67 dBμV/m

Antenna gain 3 dBi 0.8 dBd +

Line loss 2.56 dB

Rx sensitivity 70.7946μV -70 dBm

Antenna height (m) 4.2 - + Undo

Net

NCR TCAS

Frequency (MHz)

Minimum 416 Maximum 467

Radio Link ✕

Edit View Swap

Elevation=125.1m	Elev. angle=-0.418°	Clearance=11.00m	Fresnel=0.5F1	Distance=5.33km
PathLoss=110.8dB	E field=60.8dBμV/m	Rx level=-68.9dBm	Rx level=80.22μV	Rx Relative=1.1dB

26°44'10.2"N 080°47'21.7"E

Transmitter 26°42'21.3"N 080°44'51.4"E

S9+20

Harauni

Role Slave

Tx system name 37 METER 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 26°44'29.3"N 080°47'48.1"E

S9+20

Pipersand

Role Slave

Rx system name LOCO

Required E Field 59.67 dBμV/m

Antenna gain 3 dBi 0.8 dBd +

Line loss 2.56 dB

Rx sensitivity 70.7946μV -70 dBm

Antenna height (m) 4.2 - + Undo

Net

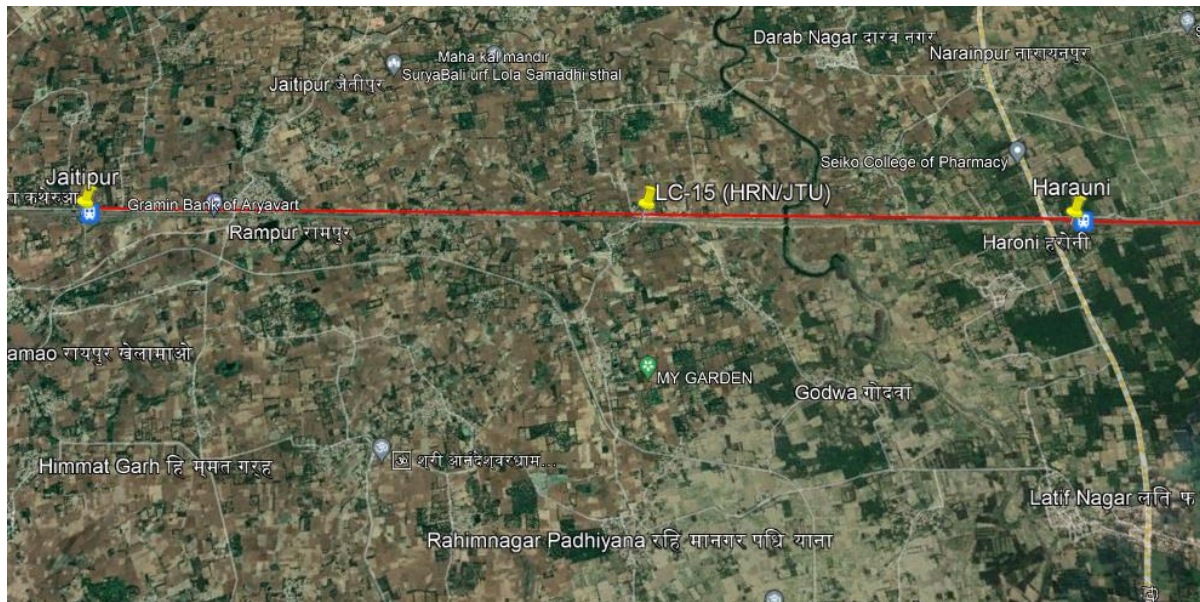
NCR TCAS

Frequency (MHz)

Minimum 416 Maximum 467

Harauni to Jaitpur

City: 10%



Antenna at 27 Meter

Radio Link Summary:

Azimuth=230.81°	Elev. angle=-0.131°	Clearance at 6.54km	Worst Fresnel=0.2F1	Distance=7.56km
Free Space=102.9 dB	Obstruction=8.1 dB TR	Urban=2.5 dB	Forest=0.0 dB	Statistics=4.0 dB
PathLoss=117.5dB	E field=54.7dBμV/m	Rx level=-75.0dBm	Rx level=39.97μV	Rx Relative=-5.0dB

Transmitter Settings (Harauni):

- Role: Slave
- Tx system name: 27 METER ANTENNA
- Tx power: 10W (40 dBm)
- Line loss: 2.95 dB
- Antenna gain: 5 dBi (2.8 dBd)
- Radiated power: EIRP=16.03W, ERP=9.78W
- Antenna height (m): 27

Receiver Settings (Jaitipur):

- Role: Slave
- Rx system name: LOCO
- Required E Field: 59.67 dBμV/m
- Antenna gain: 3 dBi (0.8 dBd)
- Line loss: 2.56 dB
- Rx sensitivity: 70.7946μV (-70 dBm)
- Antenna height (m): 4.2

Net: NCR TCAS

Frequency (MHz): Minimum 416, Maximum 467

Radio Link

Edit View Swap

Elevation=126.0m Elev. angle=-0.307° Clearance=11.56m Fresnel=0.3F1 Distance=5.21km

PathLoss=111.8dB E field=60.3dBμV/m Rx level=-69.3dBm Rx level=76.56μV Rx Relative=0.7dB

26°40'34.5"N 080°42'24.9"E

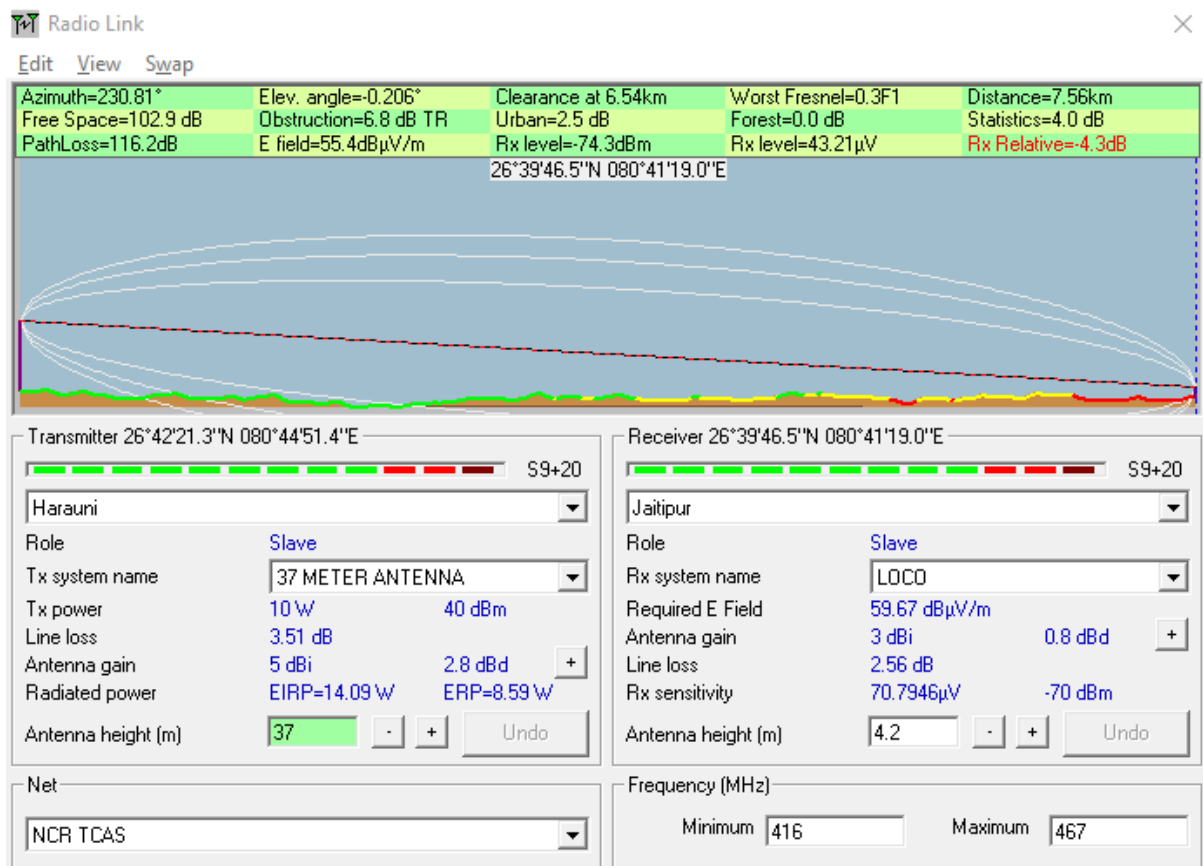
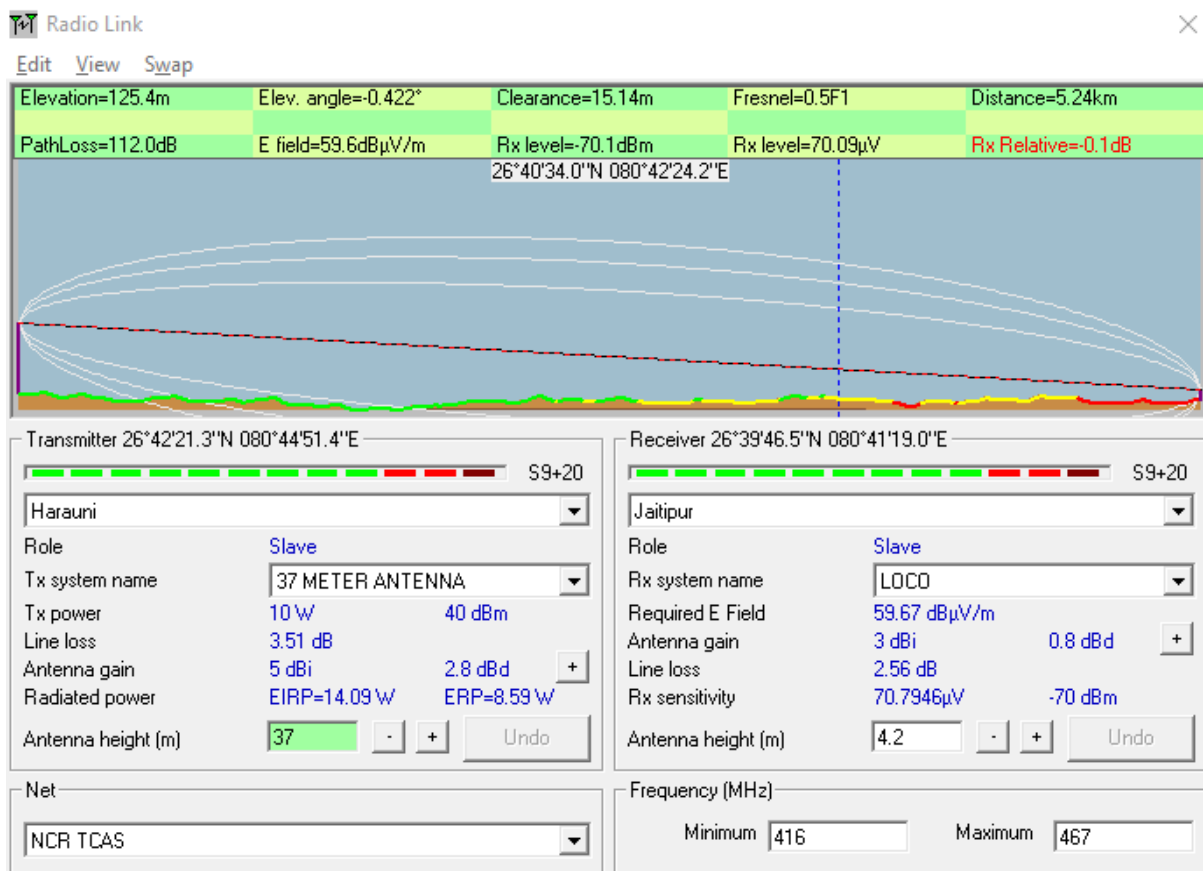
Transmitter 26°42'21.3"N 080°44'51.4"E

Receiver 26°39'46.5"N 080°41'19.0"E

Net: NCR TCAS

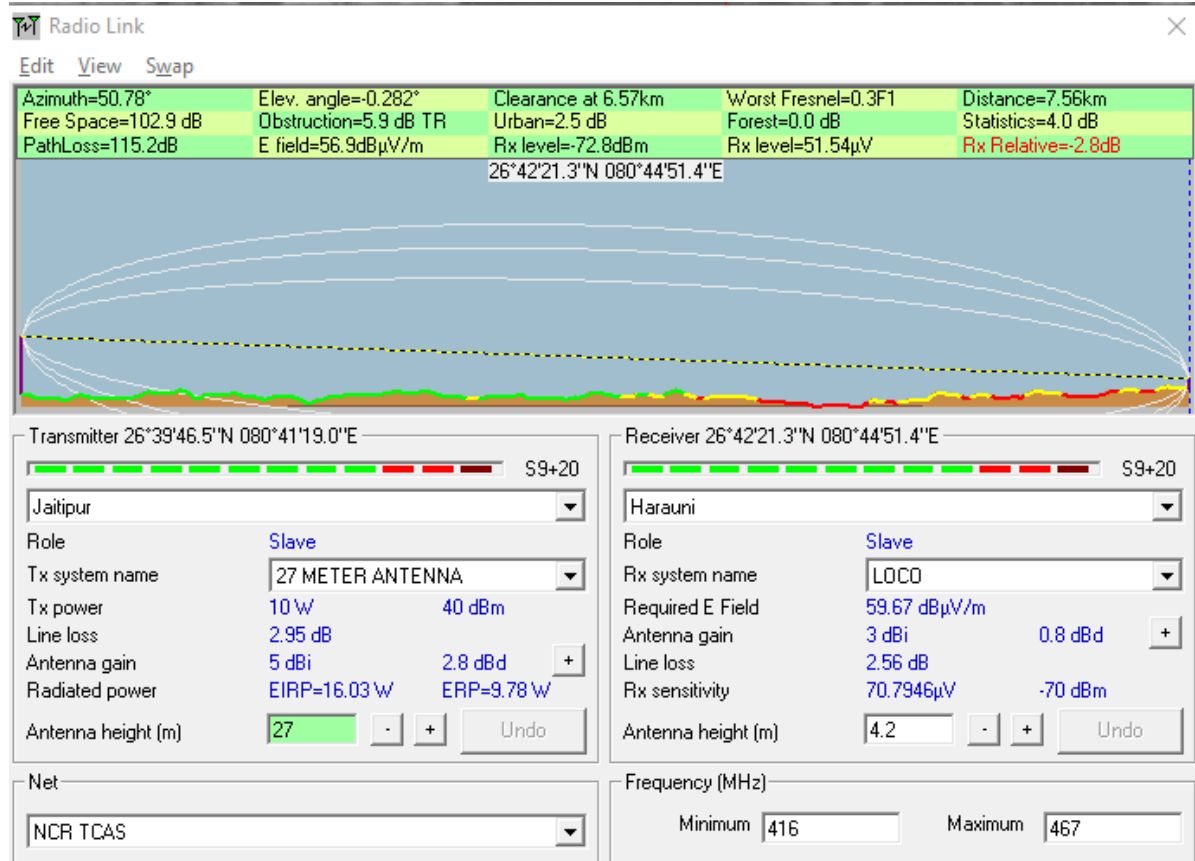
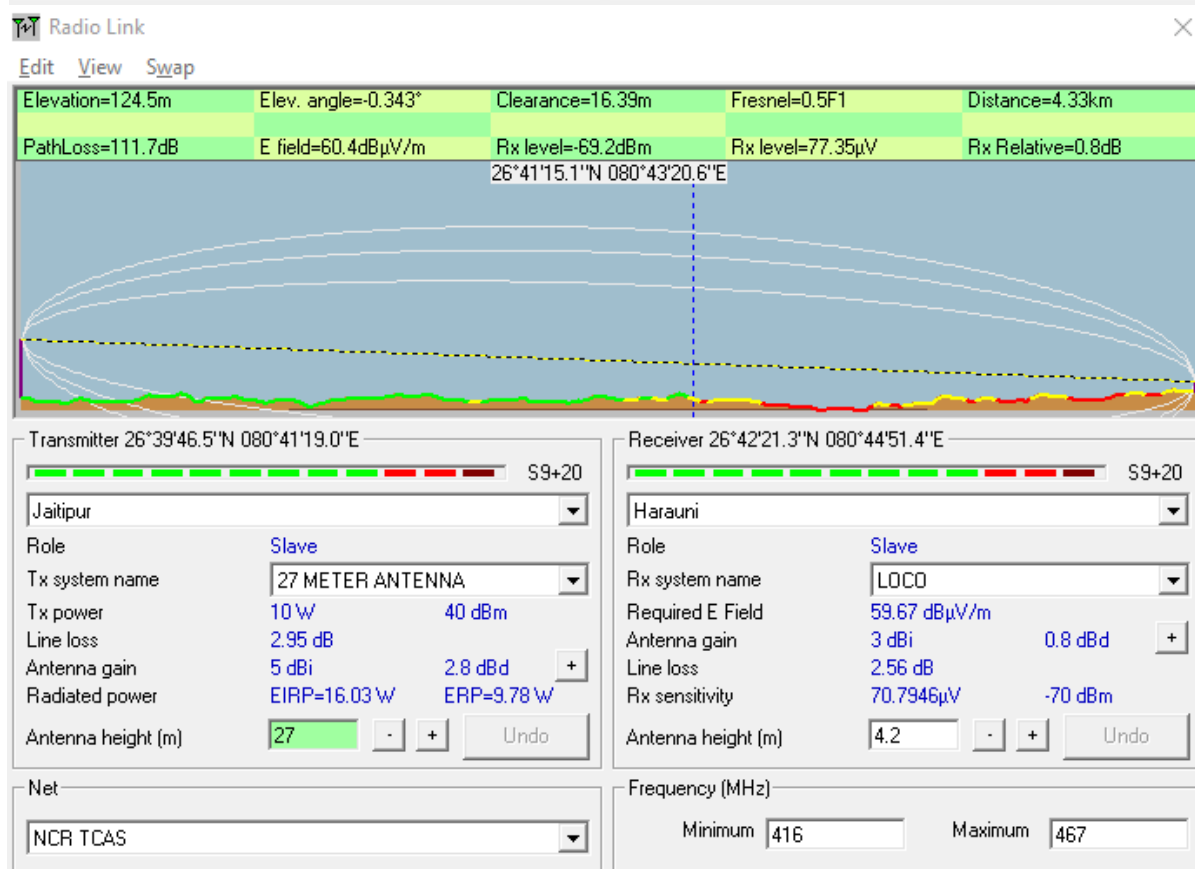
Frequency (MHz): Minimum 416 Maximum 467

Antenna at 37 Meter



Jaitpur to Harauni

Antenna at 27 Meters



Antenna at 37 Meters

Radio Link Analysis Summary:

Parameter	Value
Elevation	124.5m
Elev. angle	-0.475°
Clearance	20.66m
Fresnel	0.6F1
Distance	4.33km
Path Loss	111.1dB
E field	60.5dBμV/m
Rx level	-69.1dBm
Rx level	78.18μV
Rx Relative	-0.9dB

Transmitter Details (Jaitipur):

- Coordinates: 26°39'46.5"N 080°41'19.0"E
- Role: Slave
- Tx system name: 37 METER 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: 37 m

Receiver Details (Harauni):

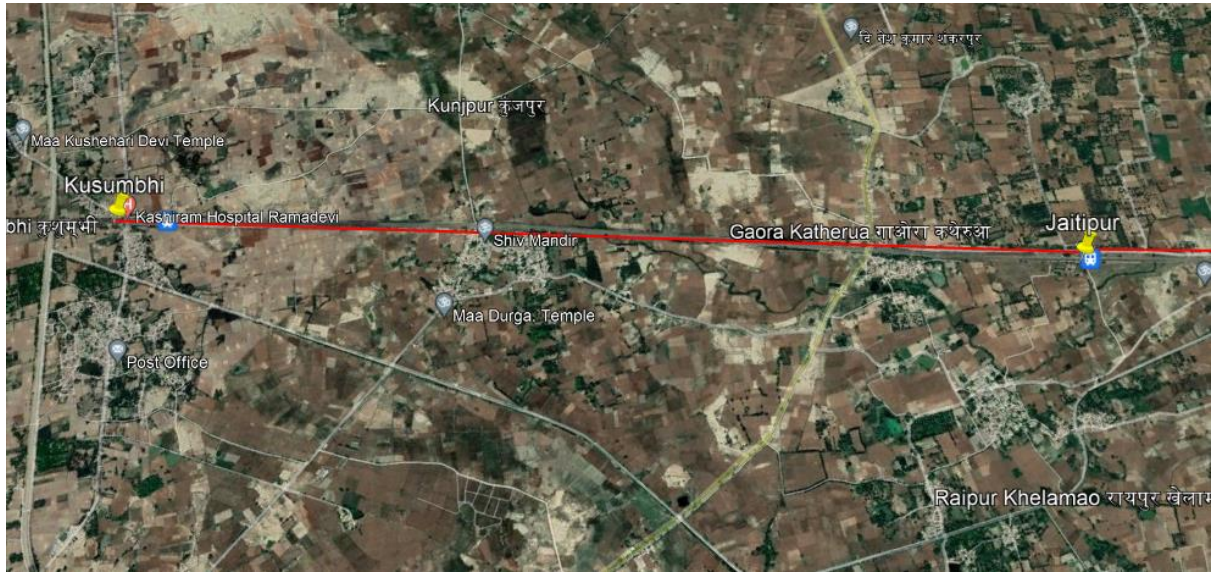
- Coordinates: 26°42'21.3"N 080°44'51.4"E
- Role: Slave
- Rx system name: LOCO
- Required E Field: 59.67 dBμV/m
- Antenna gain: 3 dBi (0.8 dBd)
- Line loss: 2.56 dB
- Rx sensitivity: 70.7946μV (-70 dBm)
- Antenna height: 4.2 m

Network Settings:

- Net: NCR TCAS
- Frequency (MHz): Minimum 416, Maximum 467

Jaitpur to Kusumbhi

City: 10%



Antenna at 27 Meter

Radio Link

Edit

View

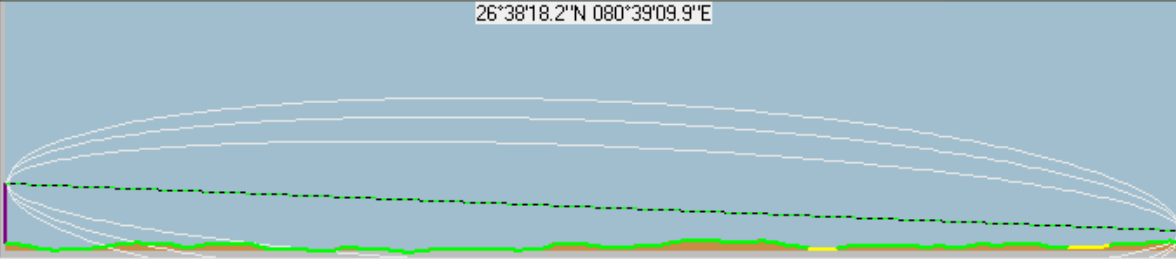
Swap

Azimuth=232.59°Elev. angle=-0.202°Clearance at 3.70kmWorst Fresnel=0.4F1Distance=4.48km

Free Space=98.3 dBObstruction=3.7 dB TRUrban=2.6 dBForest=0.0 dBStatistics=4.1 dB

PathLoss=108.6dB E field=63.5dBμV/mRx level=-66.1dBmRx level=110.31μVRx Relative=-3.9dB

26°38'18.2"N 080°39'09.9"E



Transmitter 26°39'46.5"N 080°41'19.0"E

S9+30

Jaitipur

RoleSlave

Tx system name27 METER ANTENNA

Tx power10 W40 dBm

Line loss2.95 dB

Antenna gain5 dBi2.8 dBd

Radiated powerEIRP=16.03 WEIRP=9.78 W

Antenna height (m)27

Receiver 26°38'18.2"N 080°39'09.9"E

S9+30

Kusumbhi

RoleSlave

Rx system nameLOCO

Required E Field59.67 dBμV/m

Antenna gain3 dBi0.8 dBd

Line loss2.56 dB

Rx sensitivity70.7946μV-70 dBm

Antenna height (m)4.2

Net

NCR TCAS

Frequency (MHz)

Minimum416Maximum467

Antenna at 37 Meter

Radio Link

Edit

View

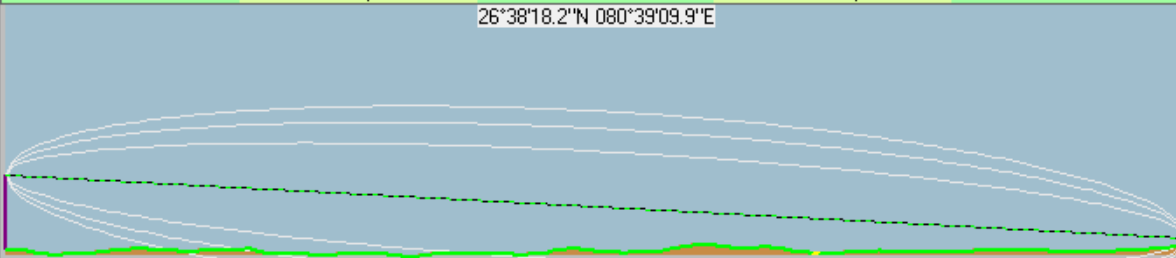
Swap

Azimuth=232.59°Elev. angle=-0.329°Clearance at 3.89kmWorst Fresnel=0.5F1Distance=4.48km

Free Space=98.3 dBObstruction=2.1 dB TRUrban=2.6 dBForest=0.0 dBStatistics=4.1 dB

PathLoss=107.1dB E field=64.5dBμV/mRx level=-65.2dBmRx level=123.41μVRx Relative=4.8dB

26°38'18.2"N 080°39'09.9"E



Transmitter 26°39'46.5"N 080°41'19.0"E

S9+30

Jaitipur

RoleSlave

Tx system name37 METER ANTENNA

Tx power10 W40 dBm

Line loss3.51 dB

Antenna gain5 dBi2.8 dBd

Radiated powerEIRP=14.09 WEIRP=8.59 W

Antenna height (m)37

Receiver 26°38'18.2"N 080°39'09.9"E

S9+30

Kusumbhi

RoleSlave

Rx system nameLOCO

Required E Field59.67 dBμV/m

Antenna gain3 dBi0.8 dBd

Line loss2.56 dB

Rx sensitivity70.7946μV-70 dBm

Antenna height (m)4.2

Net

NCR TCAS

Frequency (MHz)

Minimum416Maximum467

Kusumbhi to Jaitpur

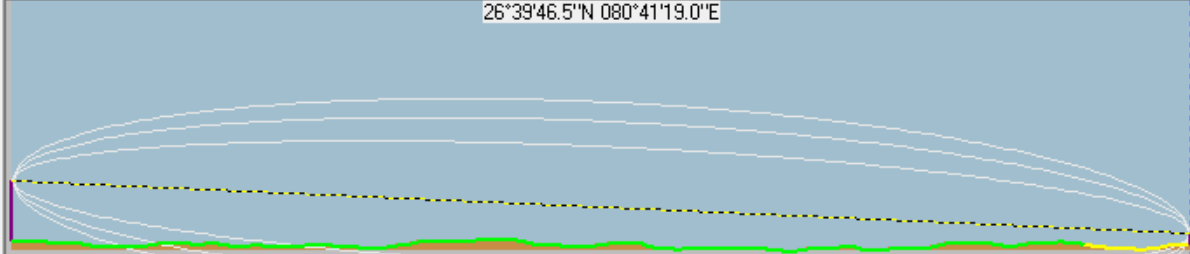
Antenna at 27 Meter

 Radio Link ✕

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

Azimuth=52.57°	Elev. angle=-0.420°	Clearance at 3.99km	Worst Fresnel=0.3F1	Distance=4.48km
Free Space=98.3 dB	Obstruction=5.7 dB TR	Urban=2.6 dB	Forest=0.0 dB	Statistics=4.1 dB
PathLoss=110.6dB	E field=61.5dBμV/m	Rx level=-68.1dBm	Rx level=87.72μV	Rx Relative=1.9dB

26°39'46.5"N 080°41'19.0"E



Transmitter 26°38'18.2"N 080°39'09.9"E

S9+20

Kusumbhi

Role Slave

Tx system name 27 METER 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=9.78 W

Antenna height (m) 27 - + Undo

Receiver 26°39'46.5"N 080°41'19.0"E

S9+20

Jaitpur

Role Slave

Rx system name LOCO

Required E Field 59.67 dBμV/m

Antenna gain 3 dBi 0.8 dBd +

Line loss 2.56 dB

Rx sensitivity 70.7946μV -70 dBm

Antenna height (m) 4.2 - + Undo

Net

NCR TCAS

Frequency (MHz)

Minimum 416 Maximum 467

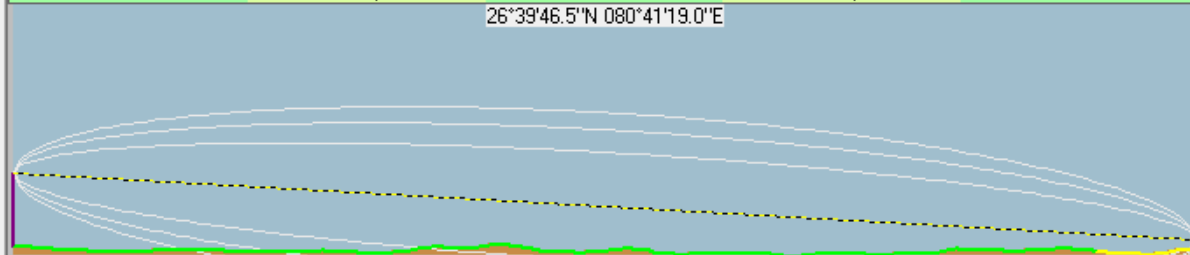
Antenna at 37 Meter

 Radio Link ✕

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

Azimuth=52.57°	Elev. angle=-0.548°	Clearance at 3.99km	Worst Fresnel=0.4F1	Distance=4.48km
Free Space=98.3 dB	Obstruction=4.3 dB TR	Urban=2.6 dB	Forest=0.0 dB	Statistics=4.1 dB
PathLoss=109.3dB	E field=62.3dBμV/m	Rx level=-67.3dBm	Rx level=96.21μV	Rx Relative=2.7dB

26°39'46.5"N 080°41'19.0"E



Transmitter 26°38'18.2"N 080°39'09.9"E

S9+30

Kusumbhi

Role Slave

Tx system name 37 METER 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 26°39'46.5"N 080°41'19.0"E

S9+30

Jaitpur

Role Slave

Rx system name LOCO

Required E Field 59.67 dBμV/m

Antenna gain 3 dBi 0.8 dBd +

Line loss 2.56 dB

Rx sensitivity 70.7946μV -70 dBm

Antenna height (m) 4.2 - + Undo

Net

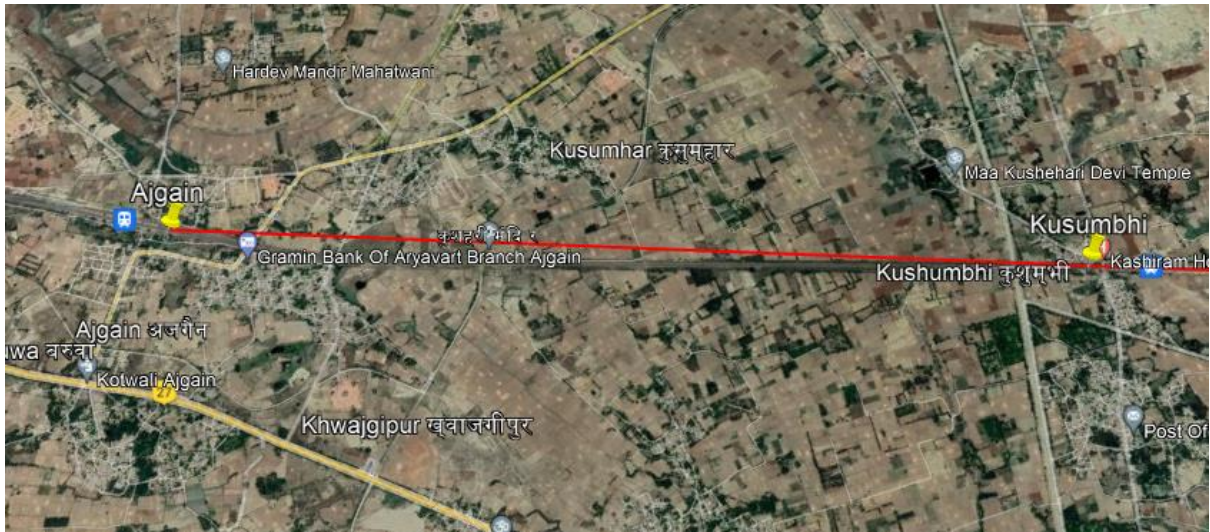
NCR TCAS

Frequency (MHz)

Minimum 416 Maximum 467

Kusumbhi to Aagain

City 5 %



Antenna at 27 Meter

Radio Link

Edit View Swap

Azimuth=232.35°	Elev. angle=-0.214°	Clearance at 3.34km	Worst Fresnel=0.6F1	Distance=3.68km
Free Space=96.6 dB	Obstruction=1.1 dB TR	Urban=1.3 dB	Forest=0.0 dB	Statistics=4.1 dB
PathLoss=103.1dB	E field=69.1dBμV/m	Rx level=-60.6dBm	Rx level=209.45μV	Rx Relative=9.4dB

26°37'05.3"N 080°37'24.2"E

Transmitter 26°38'18.2"N 080°39'09.9"E

S9+30

Kusumbhi

Role Slave

Tx system name 27 METER 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=9.78 W

Antenna height (m) 27 - + Undo

Receiver 26°37'05.3"N 080°37'24.2"E

S9+30

Aigain

Role Slave

Rx system name LOCO

Required E Field 59.67 dBμV/m

Antenna gain 3 dBi 0.8 dBd +

Line loss 2.56 dB

Rx sensitivity 70.7946μV -70 dBm

Antenna height (m) 4.2 - + Undo

Net

NCR TCAS

Frequency (MHz)

Minimum 416 Maximum 467

Antenna at 37 meters

Radio Link

Edit View Swap

Azimuth=232.35°	Elev. angle=-0.370°	Clearance at 3.34km	Worst Fresnel=0.6F1	Distance=3.68km
Free Space=96.6 dB	Obstruction=1.1 dB TR	Urban=1.3 dB	Forest=0.0 dB	Statistics=4.1 dB
PathLoss=100.9dB	E field=70.7dBμV/m	Rx level=-59.0dBm	Rx level=250.74μV	Rx Relative=11.0dB

26°37'05.3"N 080°37'24.2"E

Transmitter 26°38'18.2"N 080°39'09.9"E

S9+30

Kusumbhi

Role Slave

Tx system name 37 METER 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 26°37'05.3"N 080°37'24.2"E

S9+30

Aigain

Role Slave

Rx system name LOCO

Required E Field 59.67 dBμV/m

Antenna gain 3 dBi 0.8 dBd +

Line loss 2.56 dB

Rx sensitivity 70.7946μV -70 dBm

Antenna height (m) 4.2 - + Undo

Net

NCR TCAS

Frequency (MHz)

Minimum 416 Maximum 467

Ajgain to Ksumbhi

Antenna at 27 Meter

Radio Link

Edit View Swap

Azimuth=52.34°	Elev. angle=-0.527°	Clearance at 3.24km	Worst Fresnel=0.3F1	Distance=3.68km
Free Space=96.6 dB	Obstruction=5.4 dB TR	Urban=1.3 dB	Forest=0.0 dB	Statistics=4.1 dB
PathLoss=107.4dB	E field=64.7dBμV/m	Rx level=-64.9dBm	Rx level=126.96μV	Rx Relative=5.1dB

26°38'18.2"N 080°39'09.9"E

Transmitter 26°37'05.3"N 080°37'24.2"E

S9+30

Ajgain

Role Slave

Tx system name 27 METER 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=9.78 W

Antenna height (m) 27

Receiver 26°38'18.2"N 080°39'09.9"E

S9+30

Kusumbhi

Role Slave

Rx system name LOCO

Required E Field 59.67 dBμV/m

Antenna gain 3 dBi 0.8 dBd

Line loss 2.56 dB

Rx sensitivity 70.7946μV -70 dBm

Antenna height (m) 4.2

Net

NCR TCAS

Frequency (MHz)

Minimum 416 Maximum 467

Antenna at 37 Meter

Radio Link

Edit View Swap

Azimuth=52.34°	Elev. angle=-0.683°	Clearance at 3.24km	Worst Fresnel=0.4F1	Distance=3.68km
Free Space=96.6 dB	Obstruction=3.9 dB TR	Urban=1.3 dB	Forest=0.0 dB	Statistics=4.1 dB
PathLoss=105.9dB	E field=65.7dBμV/m	Rx level=-63.9dBm	Rx level=142.30μV	Rx Relative=6.1dB

26°38'18.2"N 080°39'09.9"E

Transmitter 26°37'05.3"N 080°37'24.2"E

S9+30

Ajgain

Role Slave

Tx system name 37 METER 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 26°38'18.2"N 080°39'09.9"E

S9+30

Kusumbhi

Role Slave

Rx system name LOCO

Required E Field 59.67 dBμV/m

Antenna gain 3 dBi 0.8 dBd

Line loss 2.56 dB

Rx sensitivity 70.7946μV -70 dBm

Antenna height (m) 4.2

Net

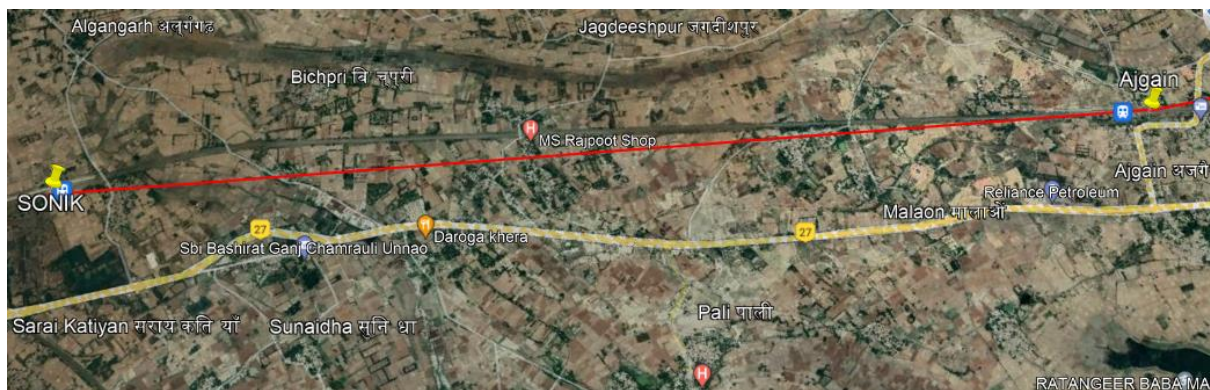
NCR TCAS

Frequency (MHz)

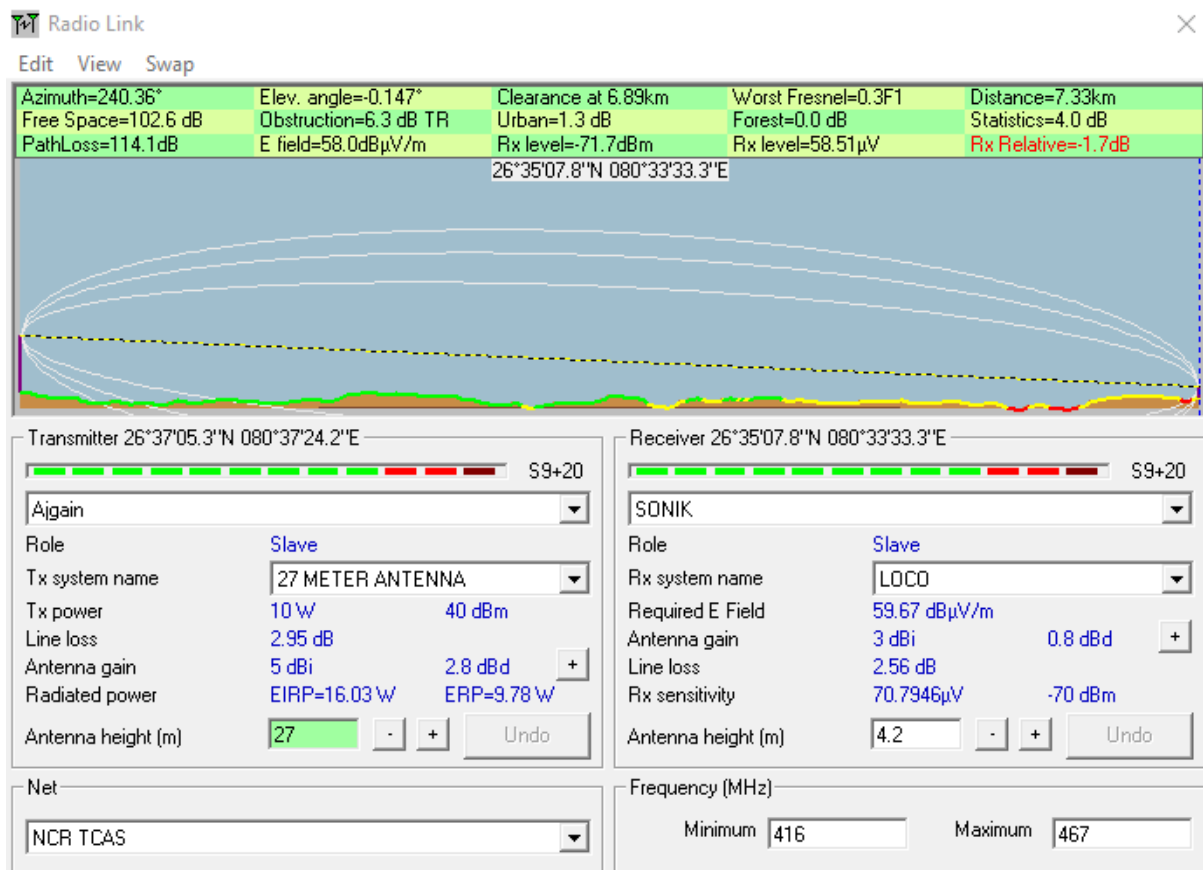
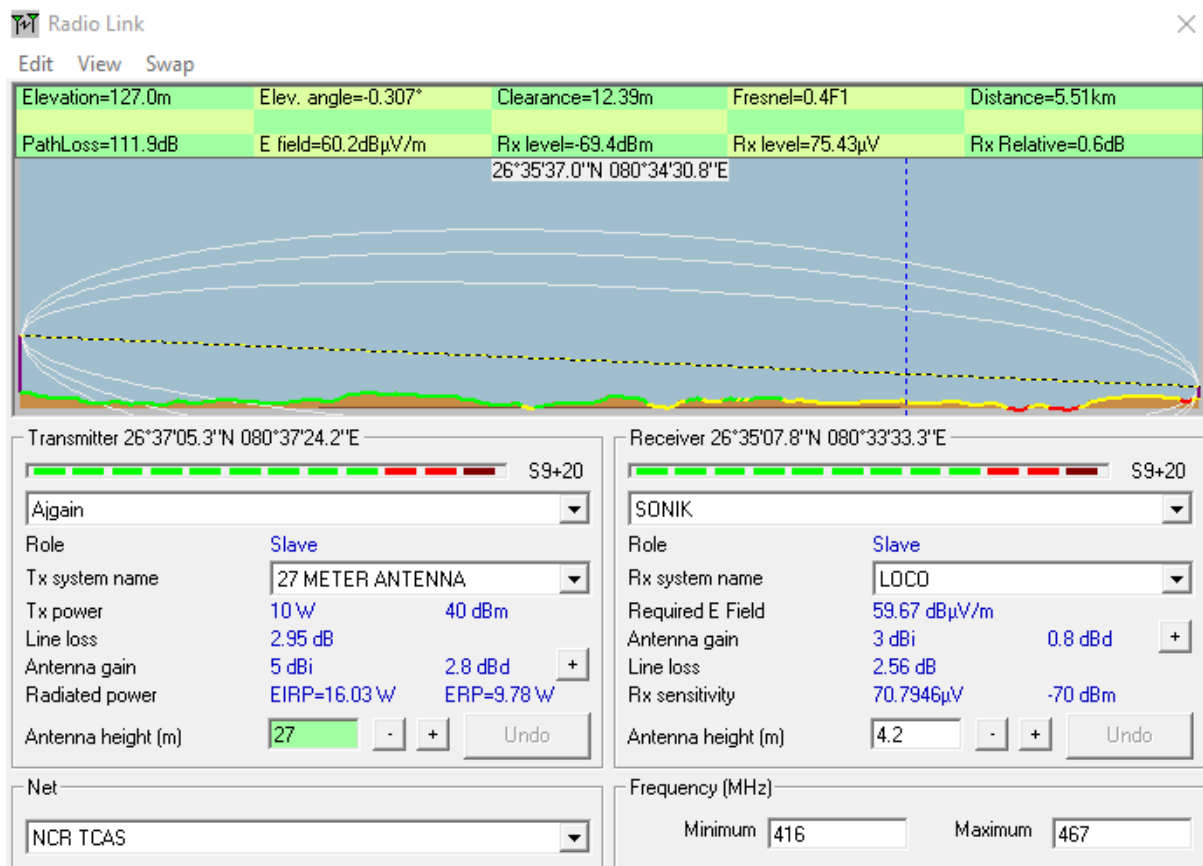
Minimum 416 Maximum 467

Ajgain to Sonik

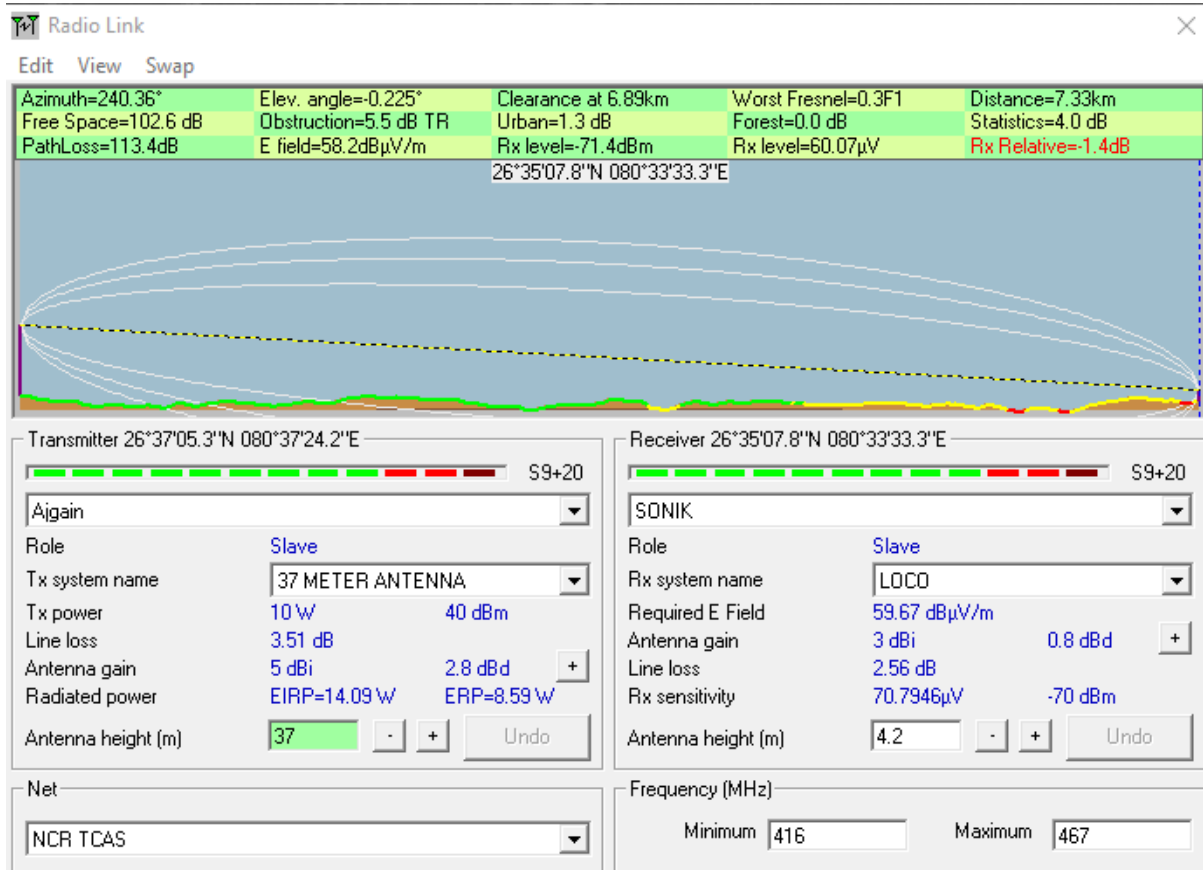
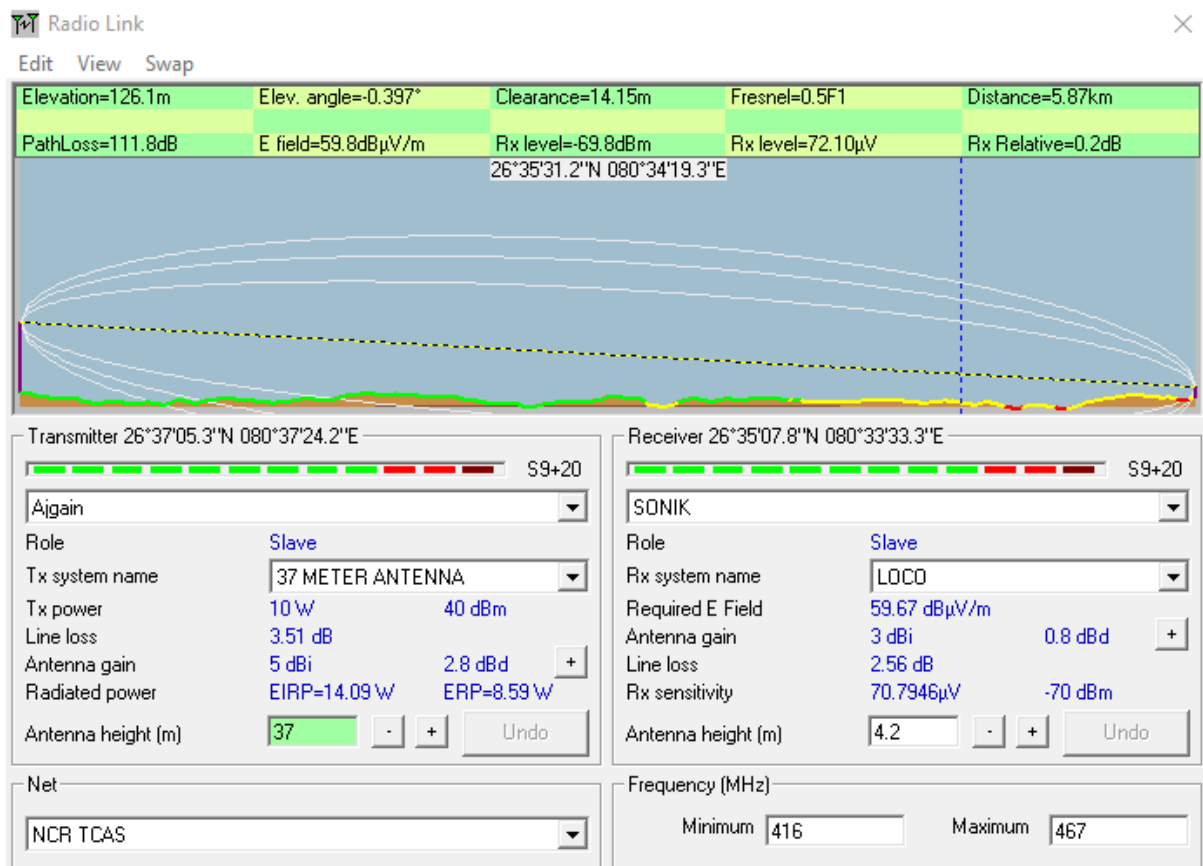
City 5%



Antenna at 27 Meter

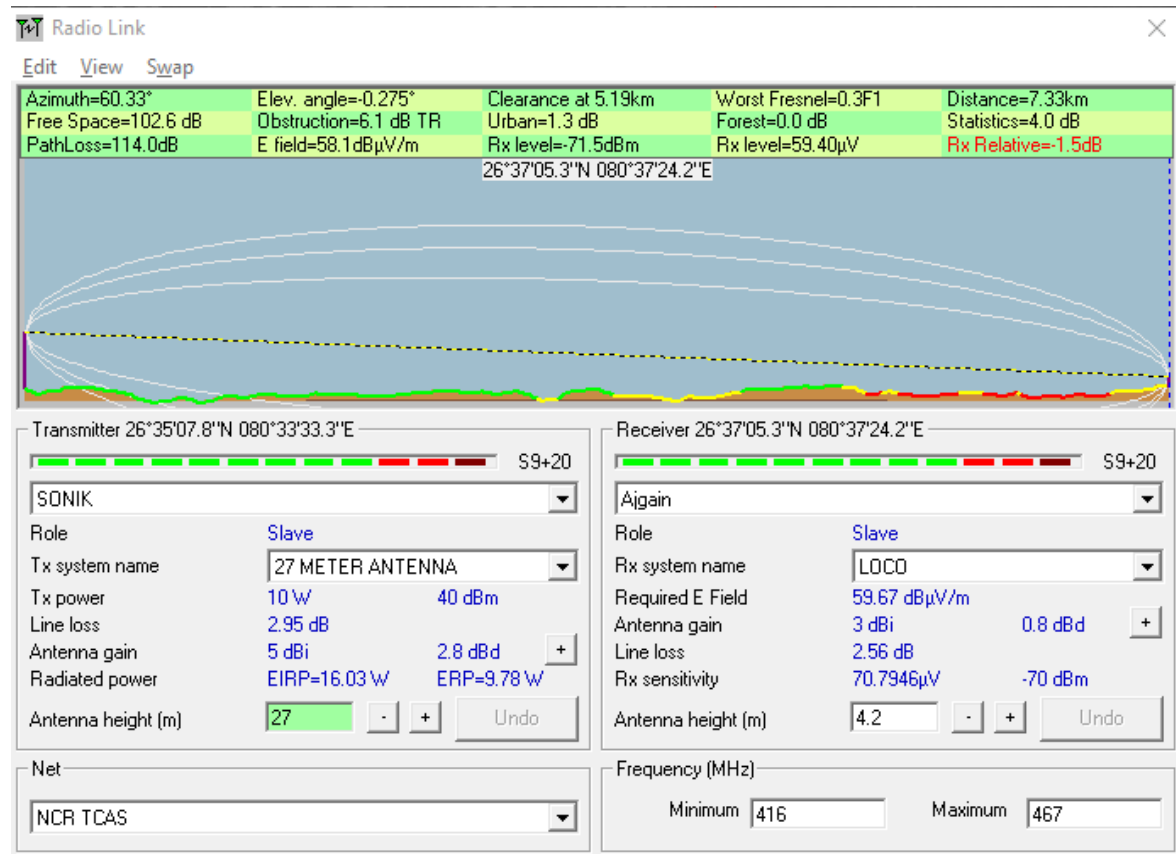
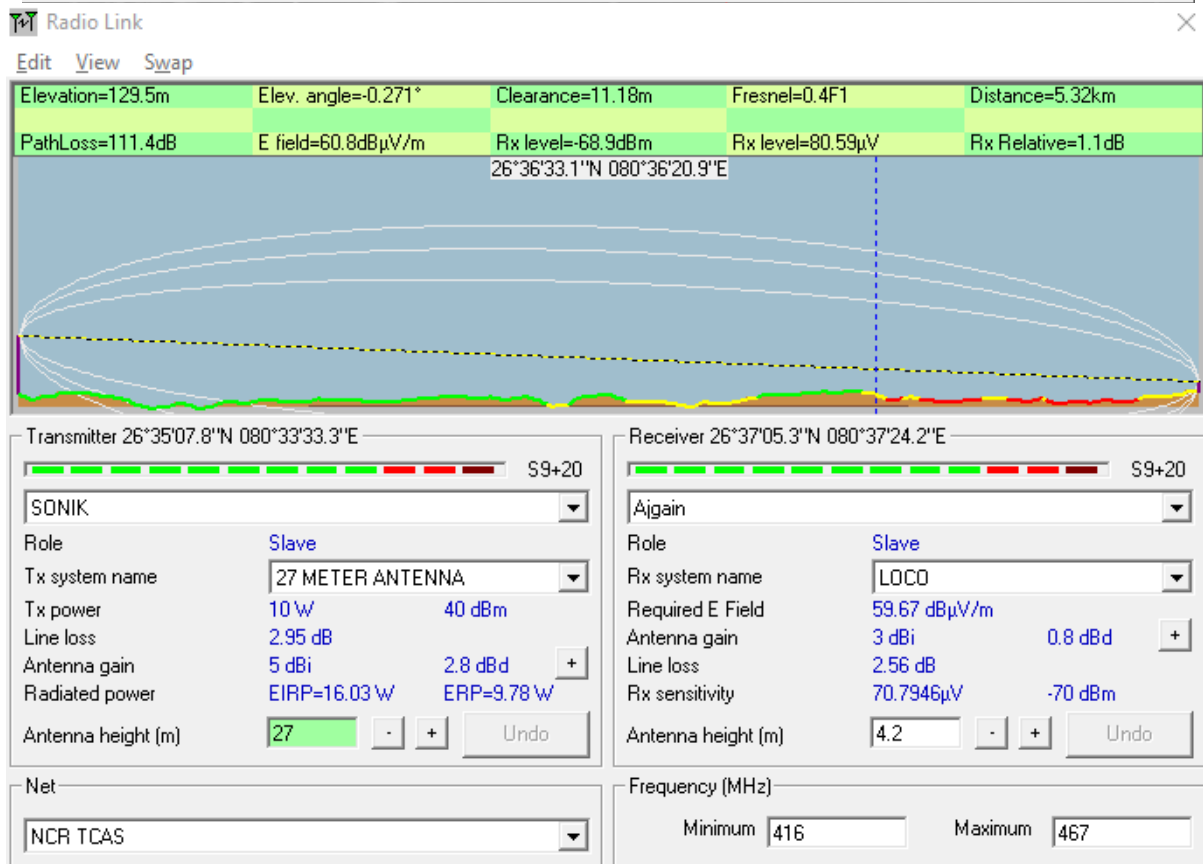


Antenna at 37 Meters



Sonik to Ajgain

Antenna at 27 Meters



Antenna at 37 Meters

Radio Link ✕

Edit View Swap

Azimuth=60.33°	Elev. angle=-0.353°	Clearance at 5.19km	Worst Fresnel=0.4F1	Distance=7.33km
Free Space=102.6 dB	Obstruction=4.2 dB TR	Urban=1.3 dB	Forest=0.0 dB	Statistics=4.0 dB
PathLoss=112.1dB	E field=59.5dBμV/m	Rx level=-70.2dBm	Rx level=69.52μV	Rx Relative=-0.2dB

26°37'05.3"N 080°37'24.2"E

Transmitter 26°35'07.8"N 080°33'33.3"E

S9+20

SONIK

Role Slave

Tx system name 37 METER 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 26°37'05.3"N 080°37'24.2"E

S9+20

Aigain

Role Slave

Rx system name LOCO

Required E Field 59.67 dBμV/m

Antenna gain 3 dBi 0.8 dBd +

Line loss 2.56 dB

Rx sensitivity 70.7946μV -70 dBm

Antenna height (m) 4.2 - + Undo

Net

NCR TCAS

Frequency (MHz)

Minimum 416 Maximum 467

Radio Link ✕

Edit View Swap

Elevation=129.5m	Elev. angle=-0.379°	Clearance=13.92m	Fresnel=0.4F1	Distance=5.32km
PathLoss=110.5dB	E field=61.1dBμV/m	Rx level=-68.5dBm	Rx level=83.80μV	Rx Relative=1.5dB

26°36'33.1"N 080°36'20.9"E

Transmitter 26°35'07.8"N 080°33'33.3"E

S9+20

SONIK

Role Slave

Tx system name 37 METER 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 26°37'05.3"N 080°37'24.2"E

S9+20

Aigain

Role Slave

Rx system name LOCO

Required E Field 59.67 dBμV/m

Antenna gain 3 dBi 0.8 dBd +

Line loss 2.56 dB

Rx sensitivity 70.7946μV -70 dBm

Antenna height (m) 4.2 - + Undo

Net

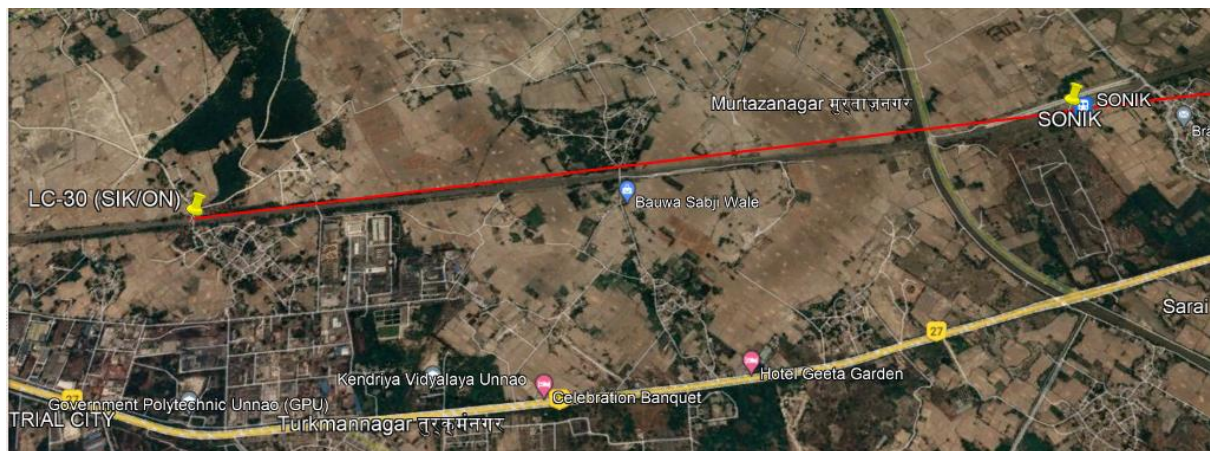
NCR TCAS

Frequency (MHz)

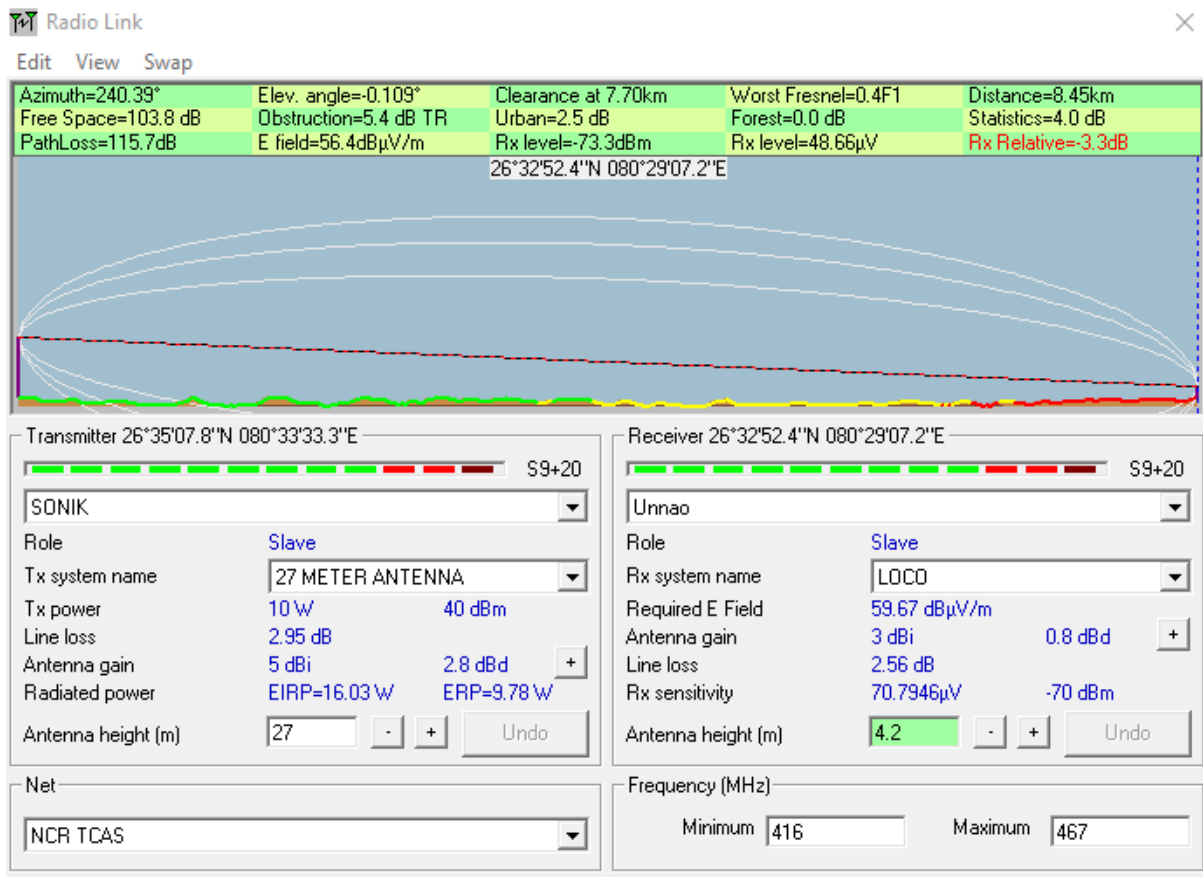
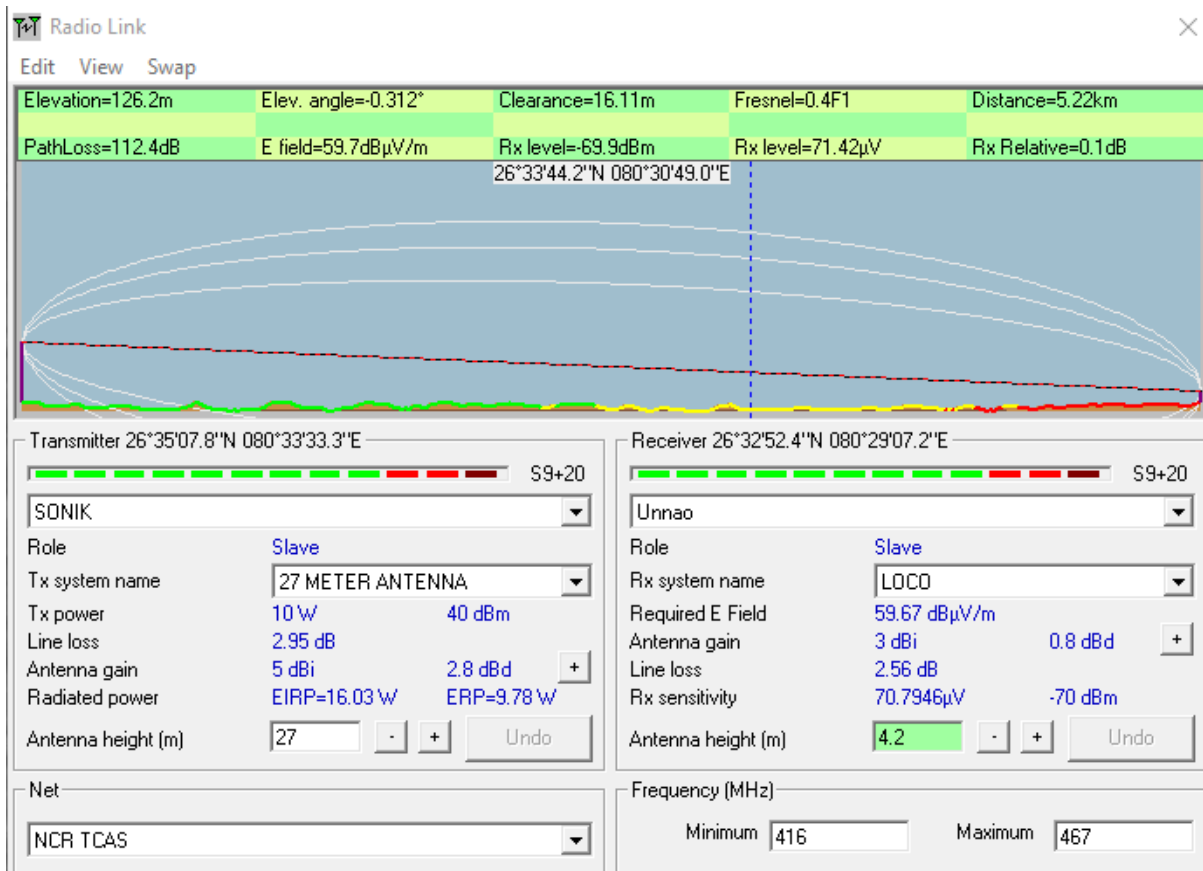
Minimum 416 Maximum 467

Sonik to Unnao

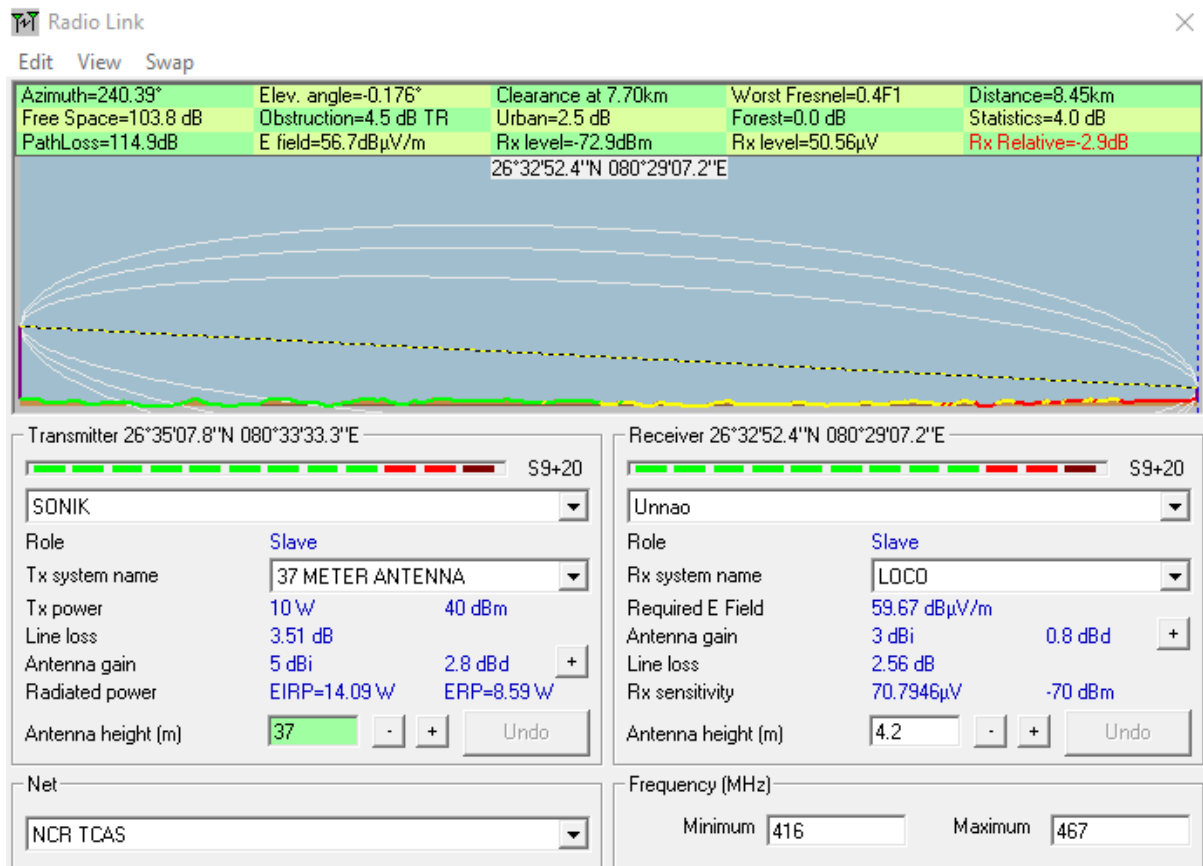
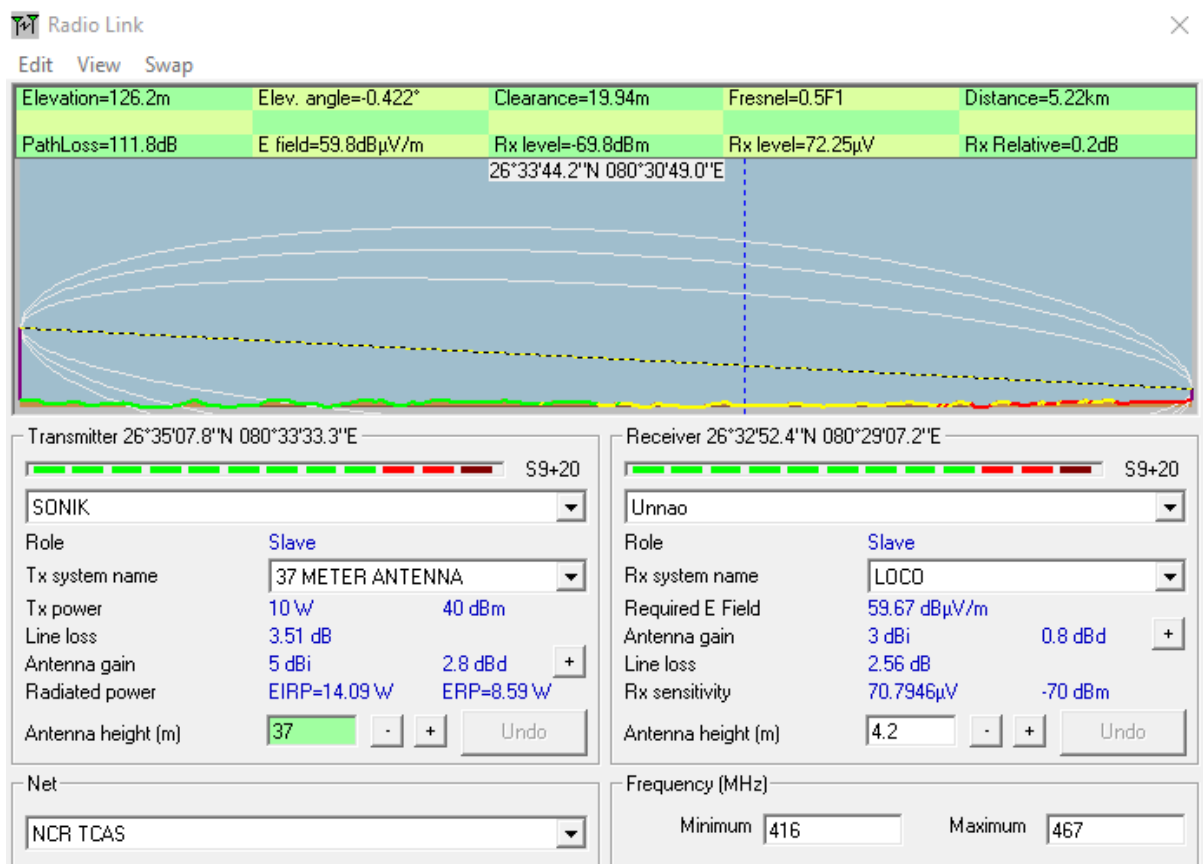
City 10 %



Antenna at 27 Meters

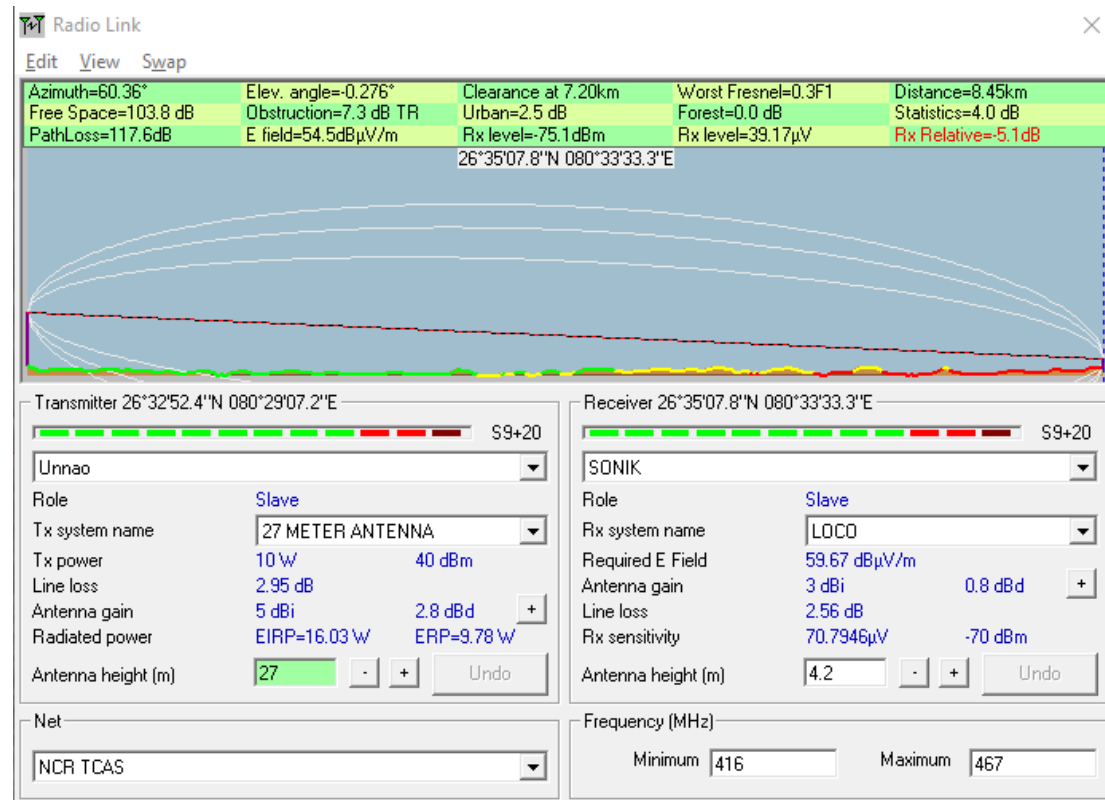
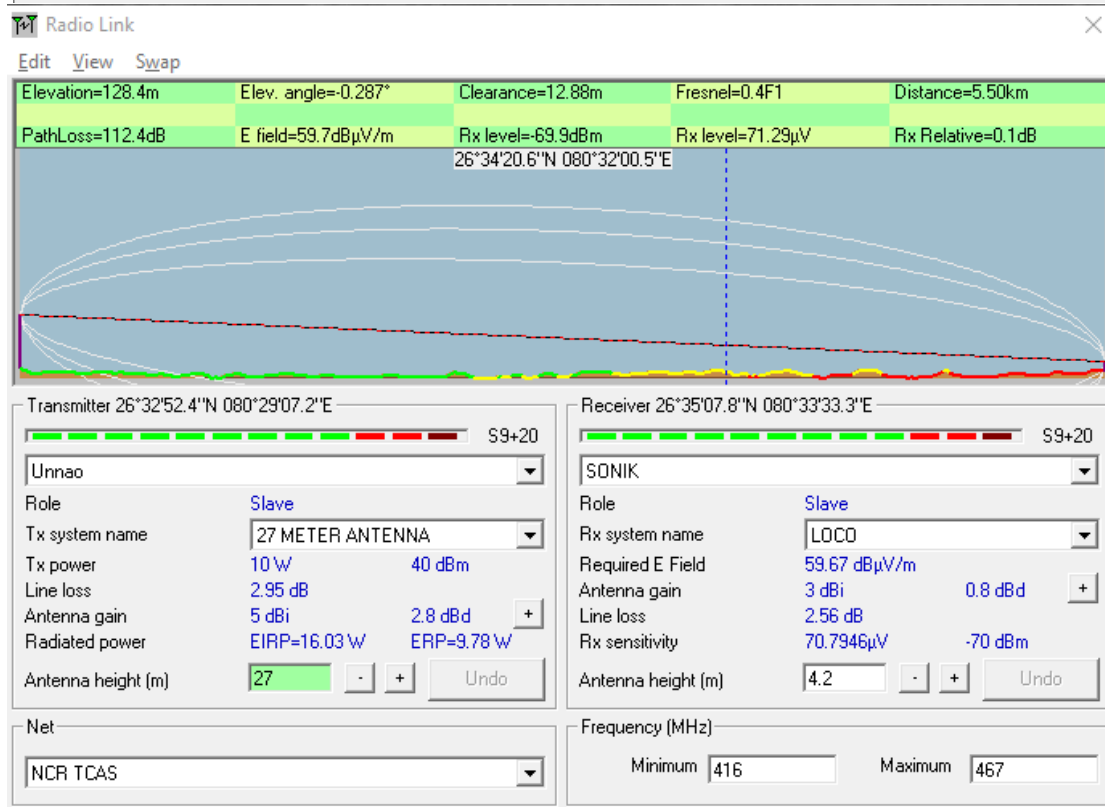


Antenna at 37 meters

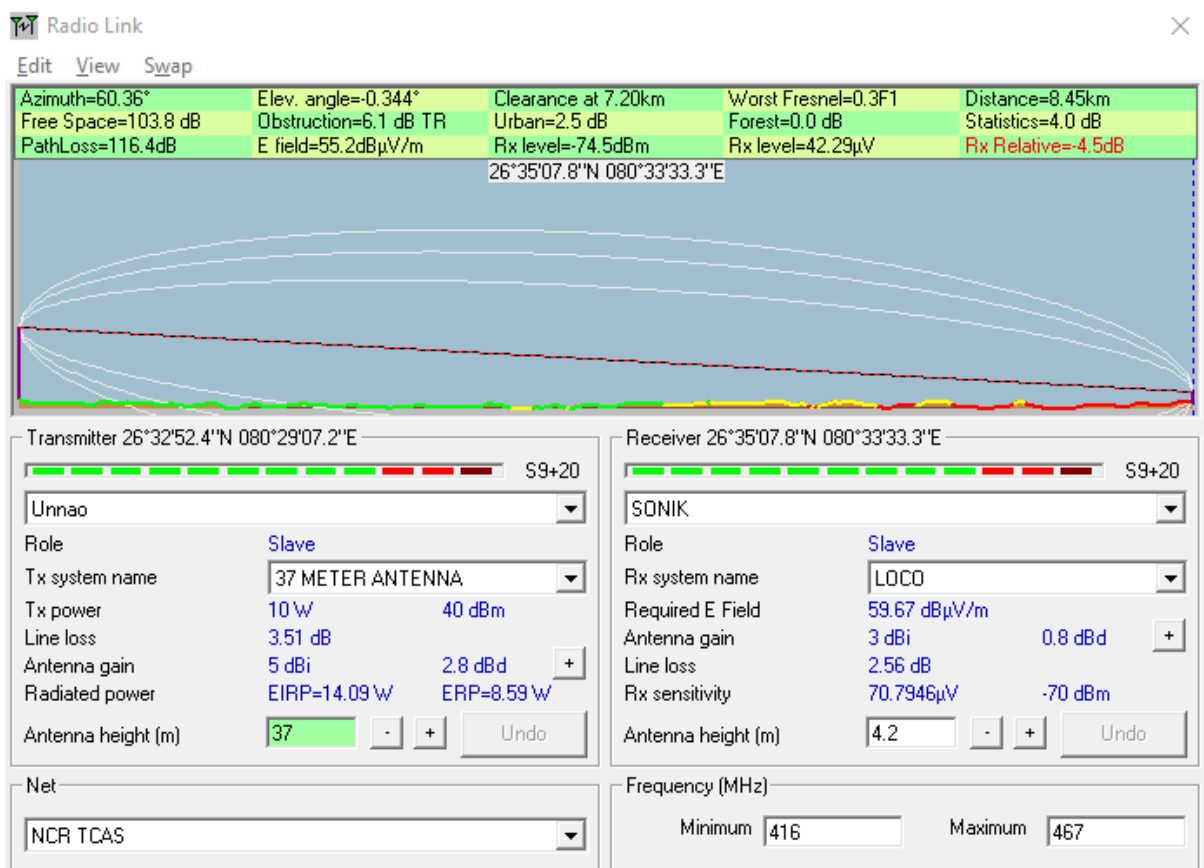
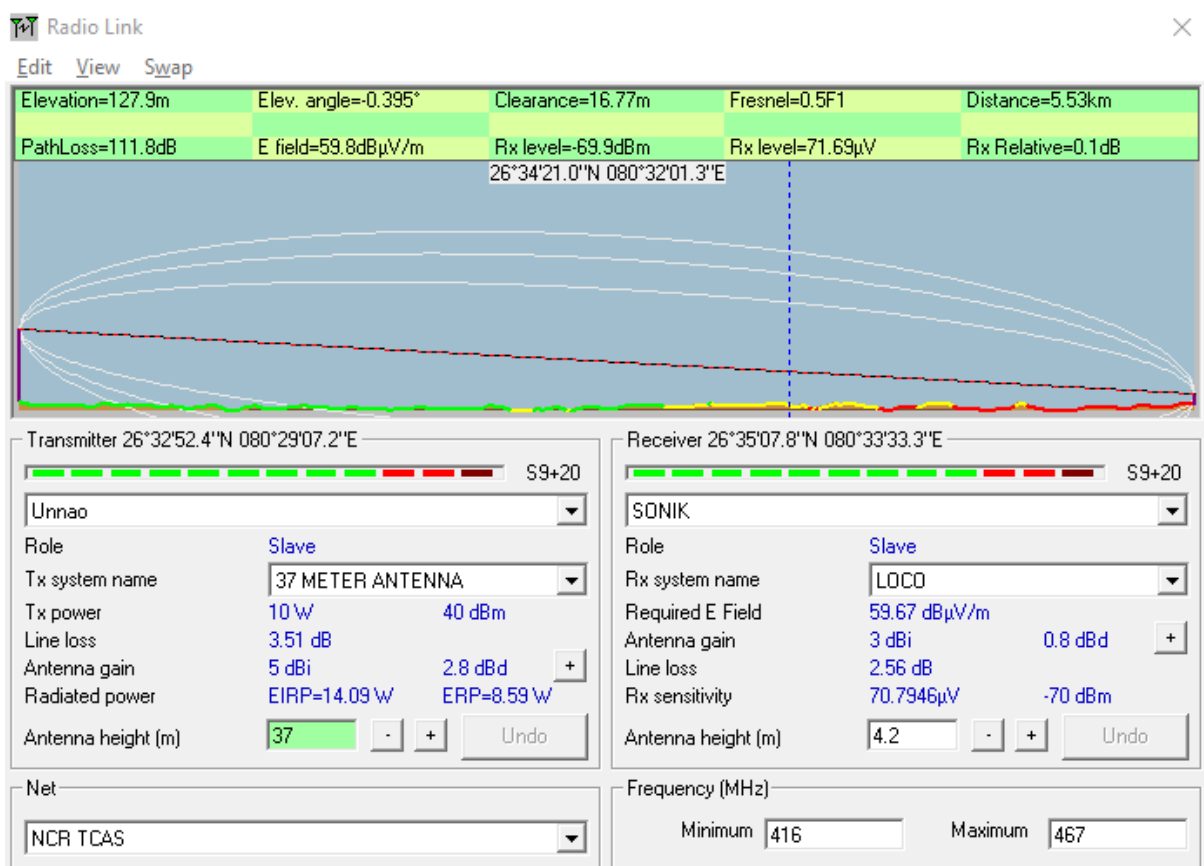


Unnao to Sonik

Antenna at 27 Meters

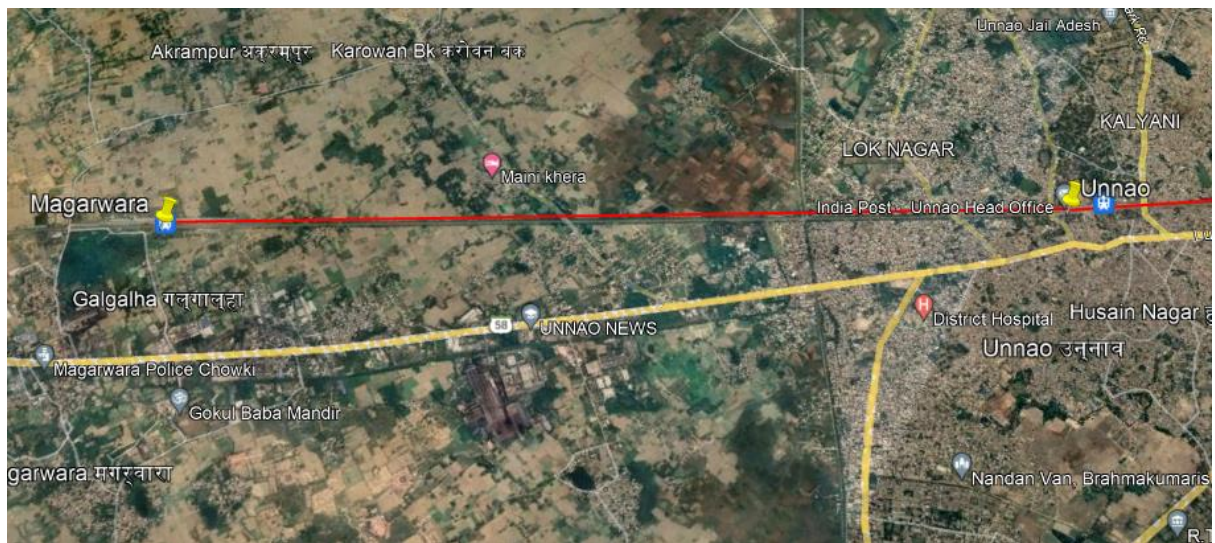


Antenna at 37 Meters



Unnao to Magarwara

City 5 %



Antenna at 27 Meters

Radio Link ✕

Edit View Swap

Azimuth=244.08°	Elev. angle=-0.176°	Clearance at 4.93km	Worst Fresnel=0.3F1	Distance=5.97km
Free Space=100.8 dB	Obstruction=6.6 dB TR	Urban=2.5 dB	Forest=0.0 dB	Statistics=4.0 dB
PathLoss=114.0dB	E field=58.2dBμV/m	Rx level=-71.5dBm	Rx level=59.55μV	Rx Relative=-1.5dB

26°31'27.8"N 080°25'52.7"E

Transmitter 26°32'52.4"N 080°29'07.2"E

S9+20

Unnao

Role Slave

Tx system name 27 METER 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=9.78 W

Antenna height (m) 27 - + Undo

Net

NCR TCAS

Receiver 26°31'27.8"N 080°25'52.7"E

S9+20

Magarwara

Role Slave

Rx system name LOCO

Required E Field 59.67 dBμV/m

Antenna gain 3 dBi 0.8 dBd +

Line loss 2.56 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=128.0m	Elev. angle=-0.344°	Clearance=12.25m	Fresnel=0.5F1	Distance=4.54km
PathLoss=112.0dB	E field=60.2dBμV/m	Rx level=-69.5dBm	Rx level=74.97μV	Rx Relative=0.5dB

26°31'48.1"N 080°26'39.4"E

Transmitter 26°32'52.4"N 080°29'07.2"E

S9+20

Unnao

Role Slave

Tx system name 27 METER 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=9.78 W

Antenna height (m) 27 - + Undo

Net

NCR TCAS

Receiver 26°31'27.8"N 080°25'52.7"E

S9+20

Magarwara

Role Slave

Rx system name LOCO

Required E Field 59.67 dBμV/m

Antenna gain 3 dBi 0.8 dBd +

Line loss 2.56 dB

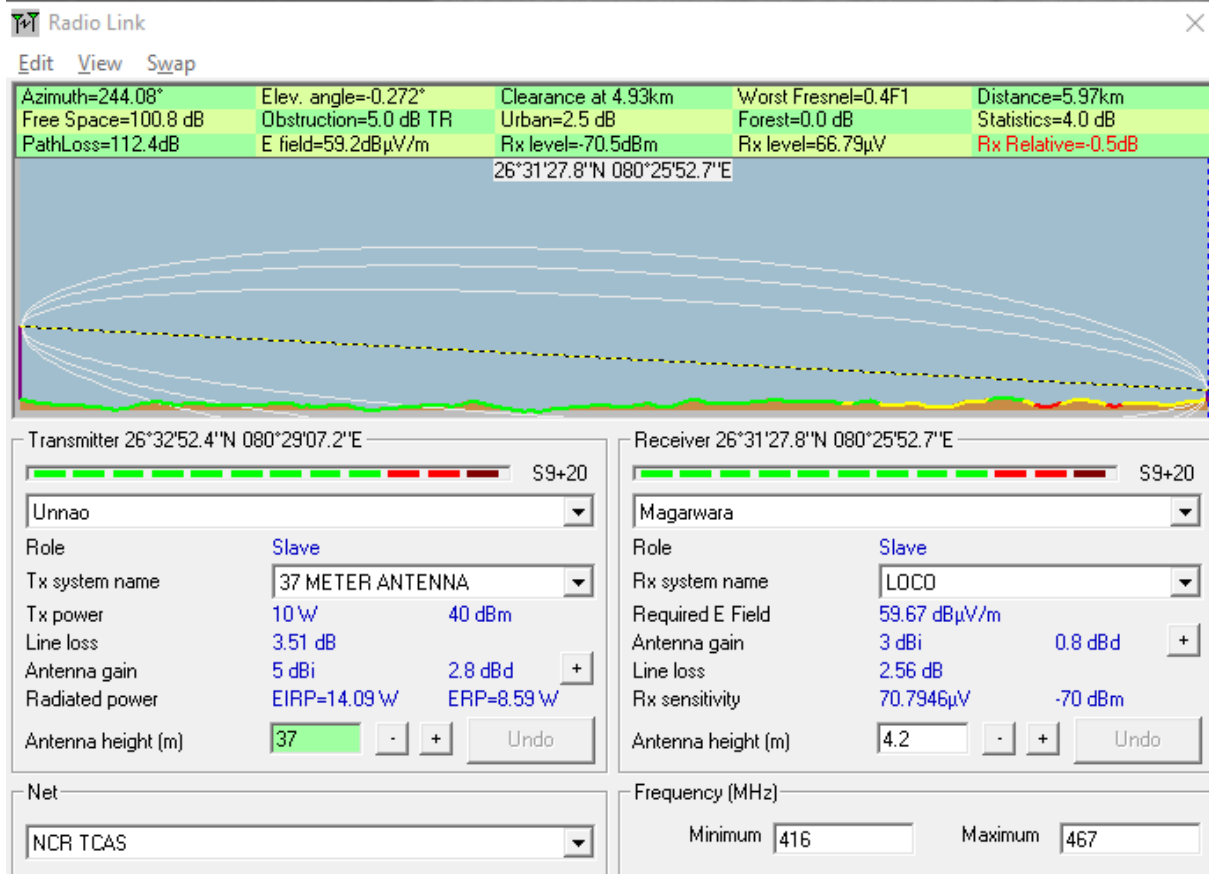
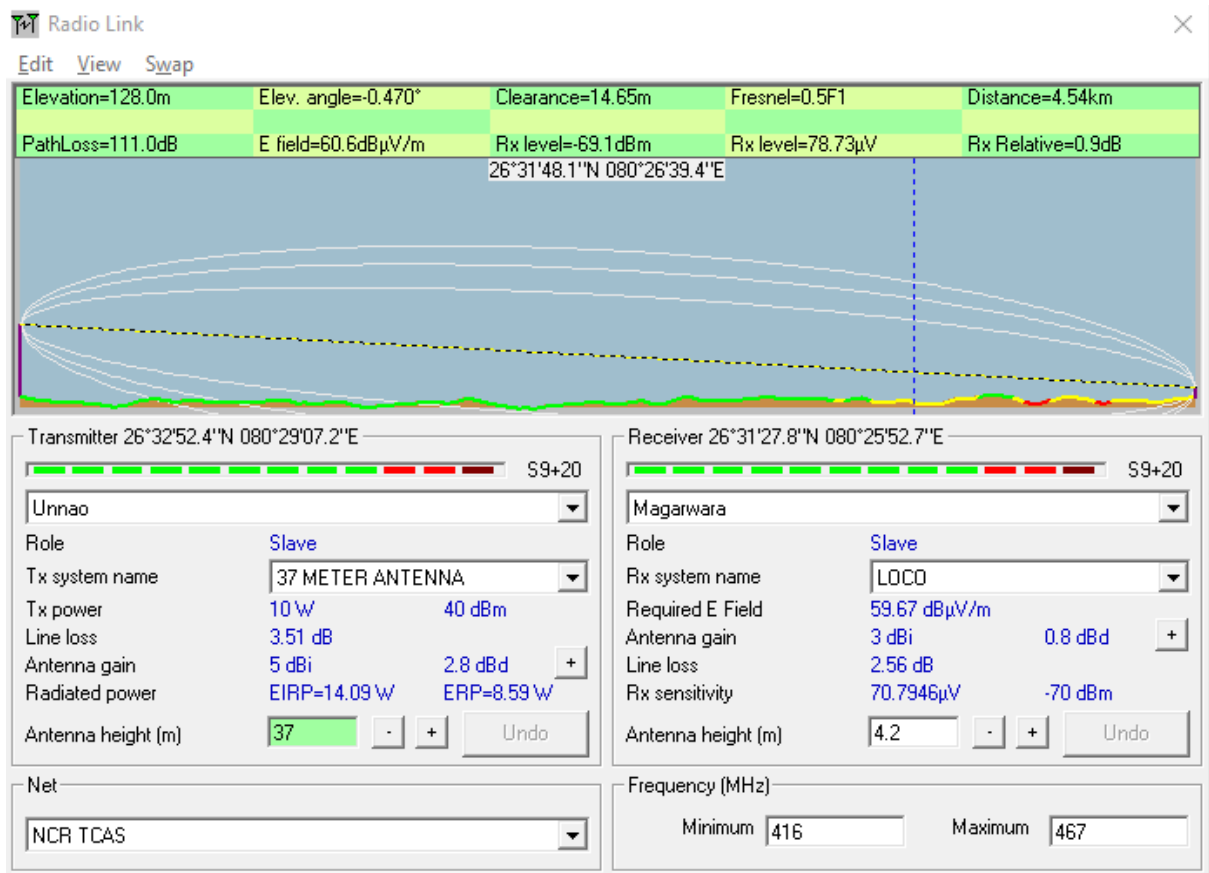
Rx sensitivity 70.7946μV -70 dBm

Antenna height (m) 4.2 - + Undo

Frequency (MHz)

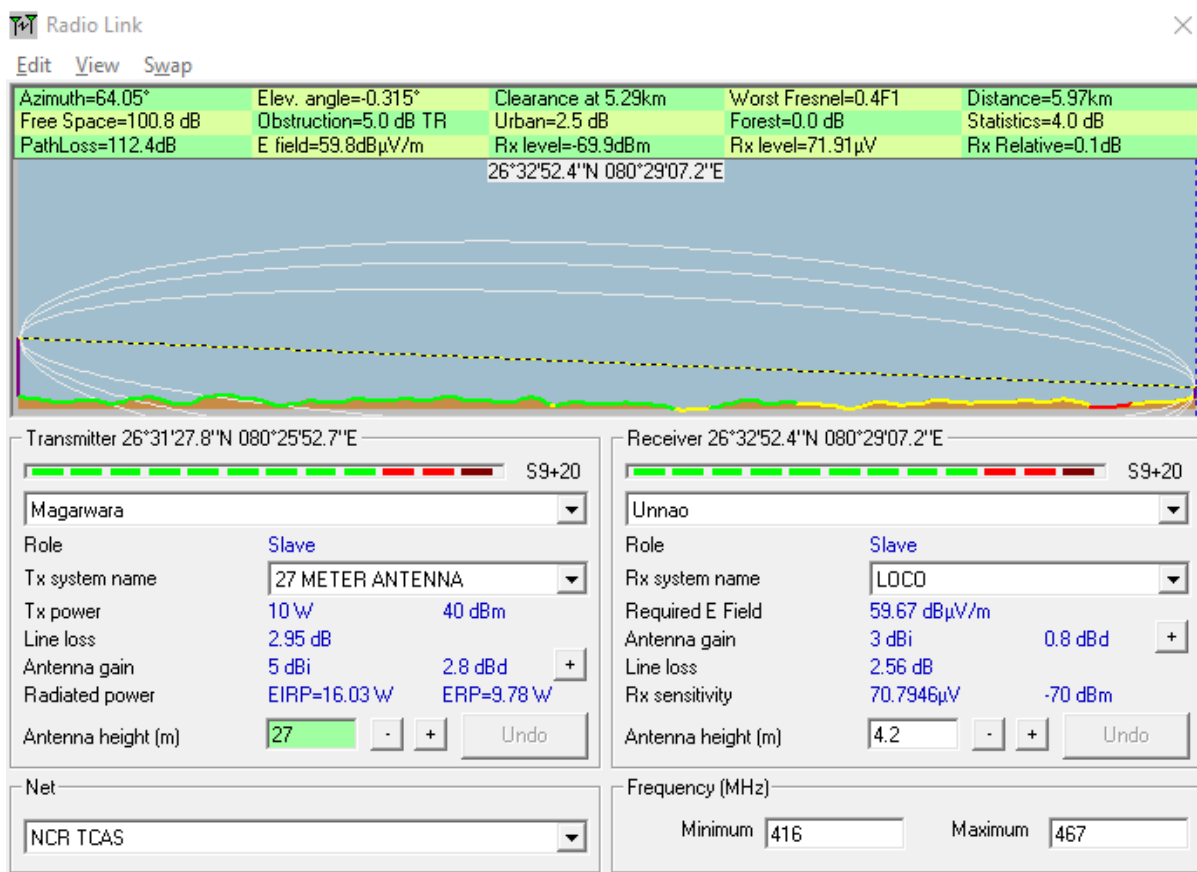
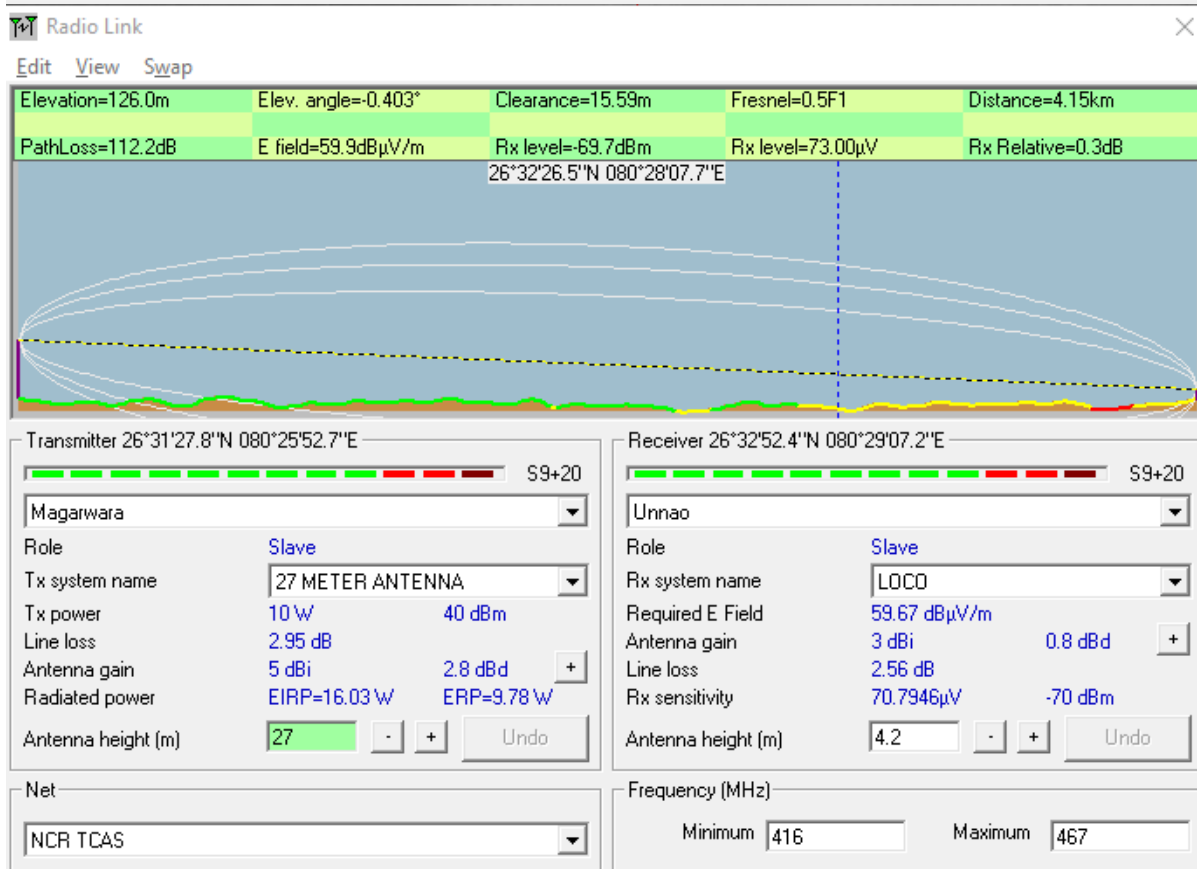
Minimum 416 Maximum 467

Antenna at 37 meters



Magarwara to Unnao

Antenna at 27 meters



Antenna at 37 Meters

Radio Link

Edit View Swap

Azimuth=64.05°	Elev. angle=-0.411°	Clearance at 5.29km	Worst Fresnel=0.4F1	Distance=5.97km
Free Space=100.8 dB	Obstruction=3.8 dB TR	Urban=2.5 dB	Forest=0.0 dB	Statistics=4.0 dB
PathLoss=111.2dB	E field=60.4dBμV/m	Rx level=-69.2dBm	Rx level=77.26μV	Rx Relative=0.8dB

26°32'52.4"N 080°29'07.2"E

Transmitter 26°31'27.8"N 080°25'52.7"E

S9+20

Magarwara

Role Slave

Tx system name 37 METER 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

Net

NCR TCAS

Receiver 26°32'52.4"N 080°29'07.2"E

S9+20

Unnao

Role Slave

Rx system name LOCO

Required E Field 59.67 dBμV/m

Antenna gain 3 dBi 0.8 dBd +

Line loss 2.56 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=129.0m	Elev. angle=-0.415°	Clearance=10.63m	Fresnel=0.5F1	Distance=5.08km
PathLoss=109.8dB	E field=61.8dBμV/m	Rx level=-67.8dBm	Rx level=90.76μV	Rx Relative=2.2dB

26°32'39.8"N 080°28'38.3"E

Transmitter 26°31'27.8"N 080°25'52.7"E

S9+30

Magarwara

Role Slave

Tx system name 37 METER 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

Net

NCR TCAS

Receiver 26°32'52.4"N 080°29'07.2"E

S9+30

Unnao

Role Slave

Rx system name LOCO

Required E Field 59.67 dBμV/m

Antenna gain 3 dBi 0.8 dBd +

Line loss 2.56 dB

Rx sensitivity 70.7946μV -70 dBm

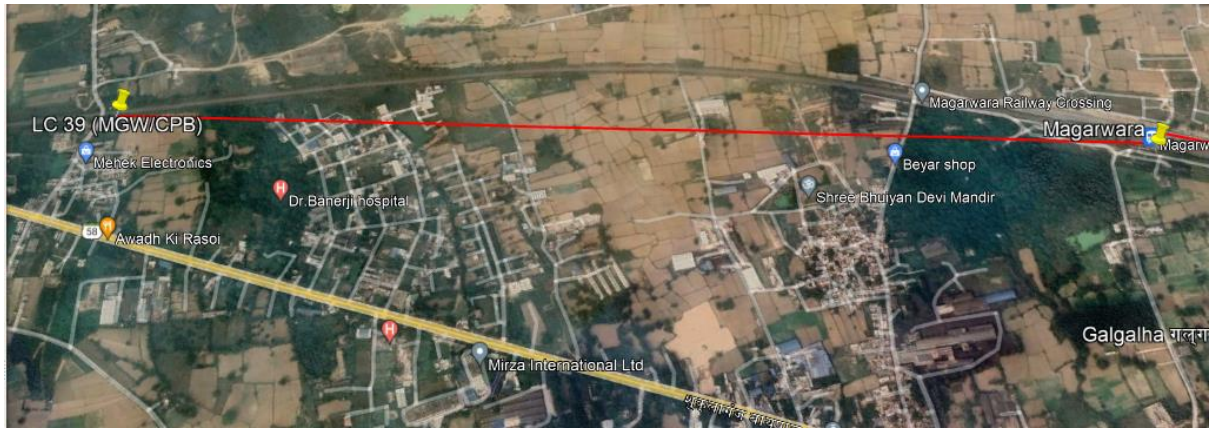
Antenna height (m) 4.2 - + Undo

Frequency (MHz)

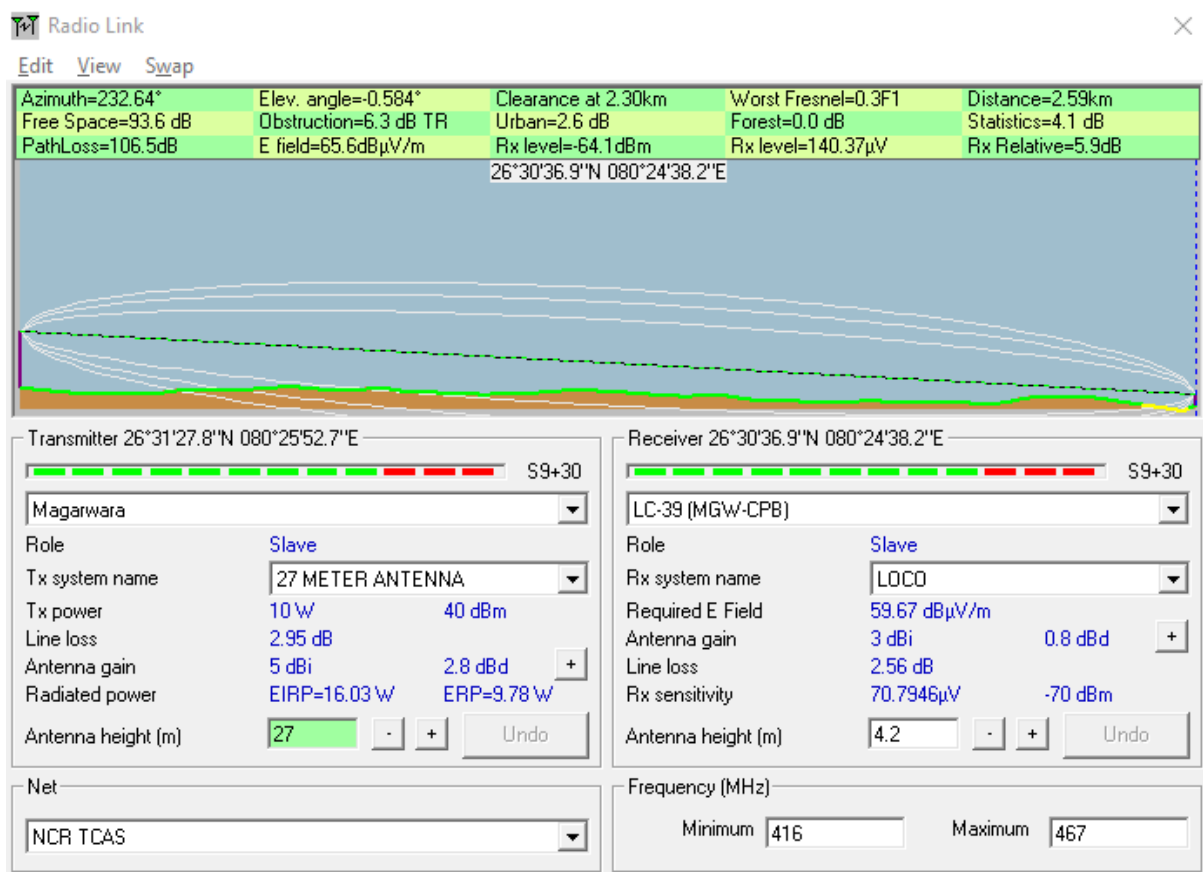
Minimum 416 Maximum 467

Magarwara to LC-39

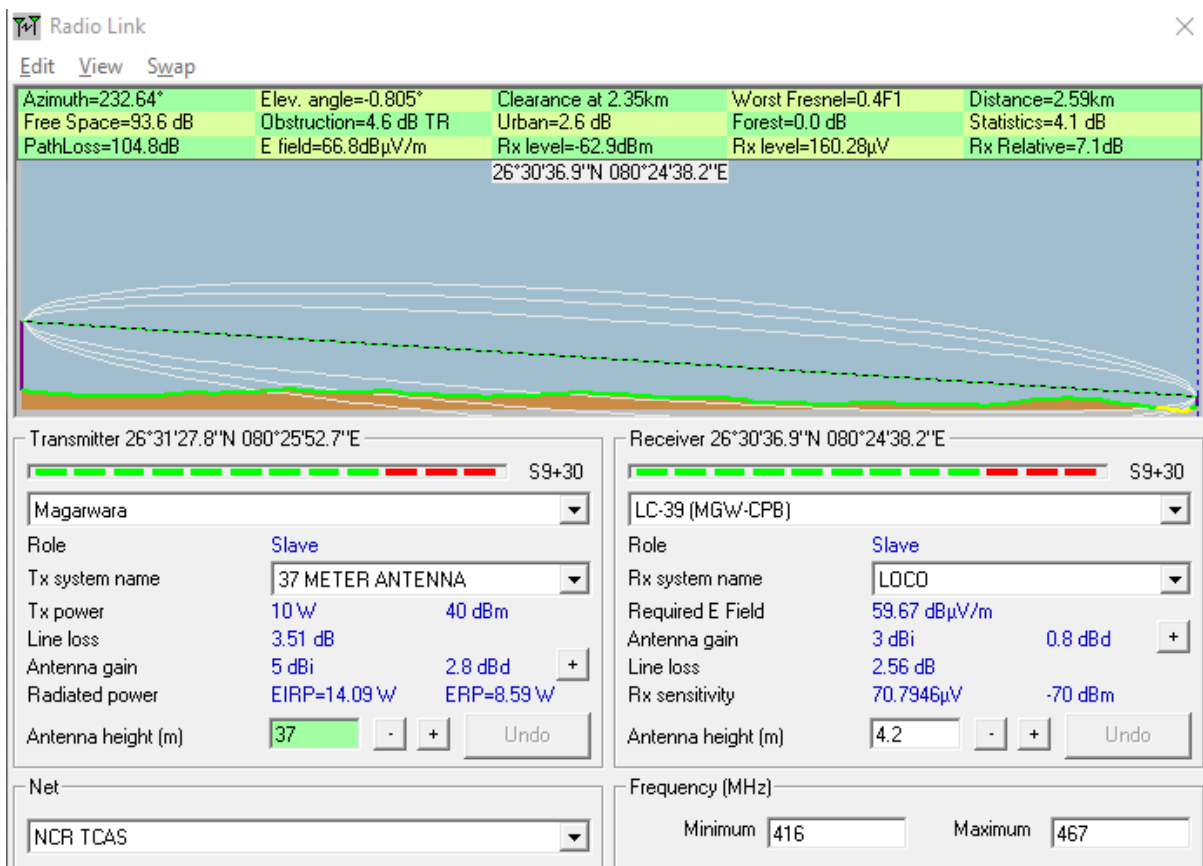
City 10 %



Antenna at 27 Meters



Antenna at 37 meters



LC-39 to Magarwara

Antenna at 27 Meters

Radio Link

Edit View Swap

Azimuth=52.63°	Elev. angle=-0.448°	Clearance at 2.01km	Worst Fresnel=0.4F1	Distance=2.59km
Free Space=93.6 dB	Obstruction=4.6 dB TR	Urban=2.6 dB	Forest=0.0 dB	Statistics=4.1 dB
PathLoss=104.8dB	E field=67.3dBμV/m	Rx level=-62.4dBm	Rx level=170.71μV	Rx Relative=7.6dB

26°31'27.8"N 080°25'52.7"E

Transmitter 26°30'36.9"N 080°24'38.2"E

S9+30

LC-39 (MGW-CPB)

Role Slave

Tx system name 27 METER 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=9.78 W

Antenna height (m) 27 - + Undo

Receiver 26°31'27.8"N 080°25'52.7"E

S9+30

Magarwara

Role Slave

Rx system name LOCO

Required E Field 59.67 dBμV/m

Antenna gain 3 dBi 0.8 dBd +

Line loss 2.56 dB

Rx sensitivity 70.7946μV -70 dBm

Antenna height (m) 4.2 - + Undo

Net

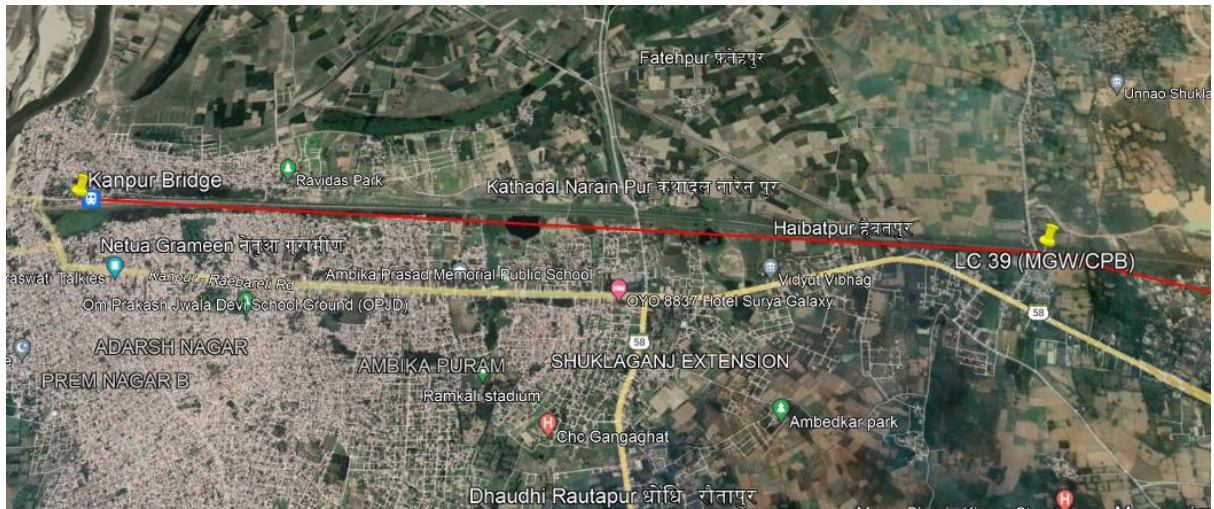
NCR TCAS

Frequency (MHz)

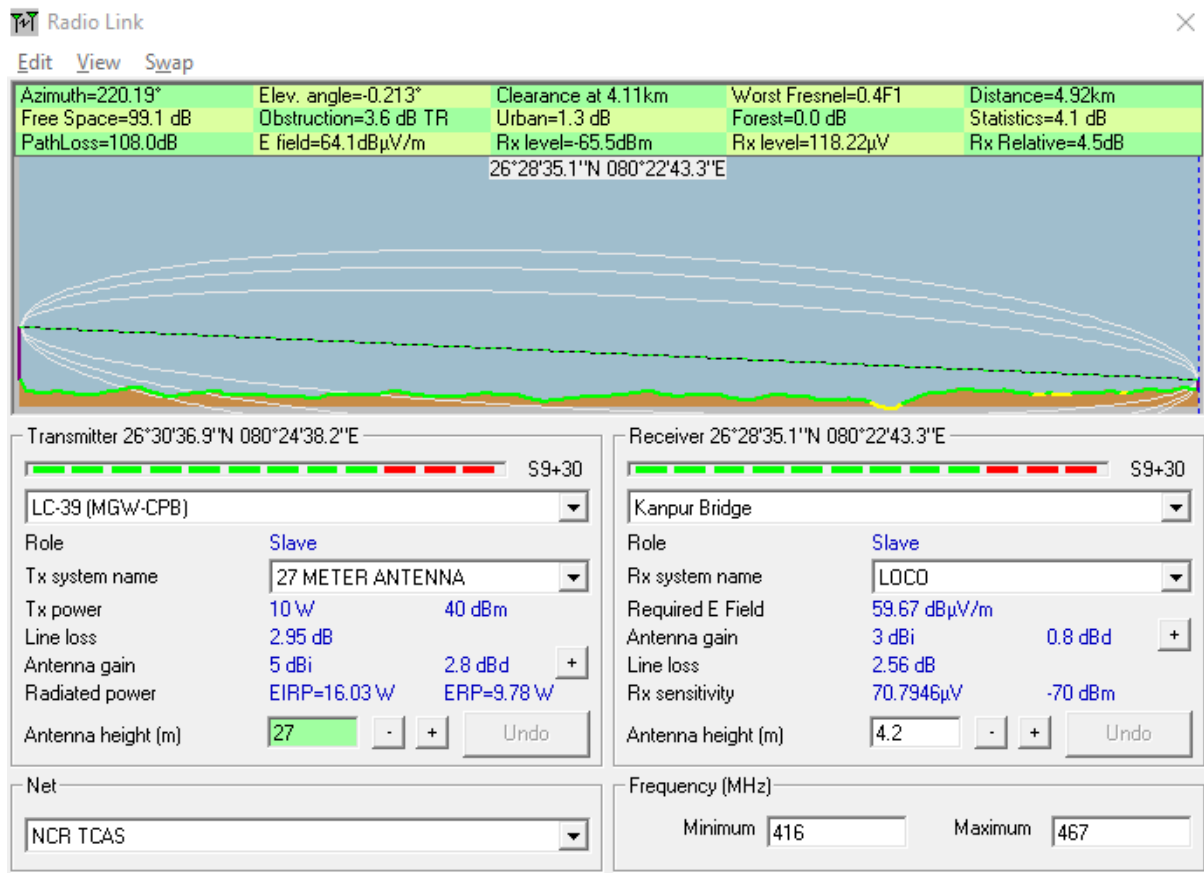
Minimum 416 Maximum 467

LC-39 to Kanpur Bridge

City 5 %

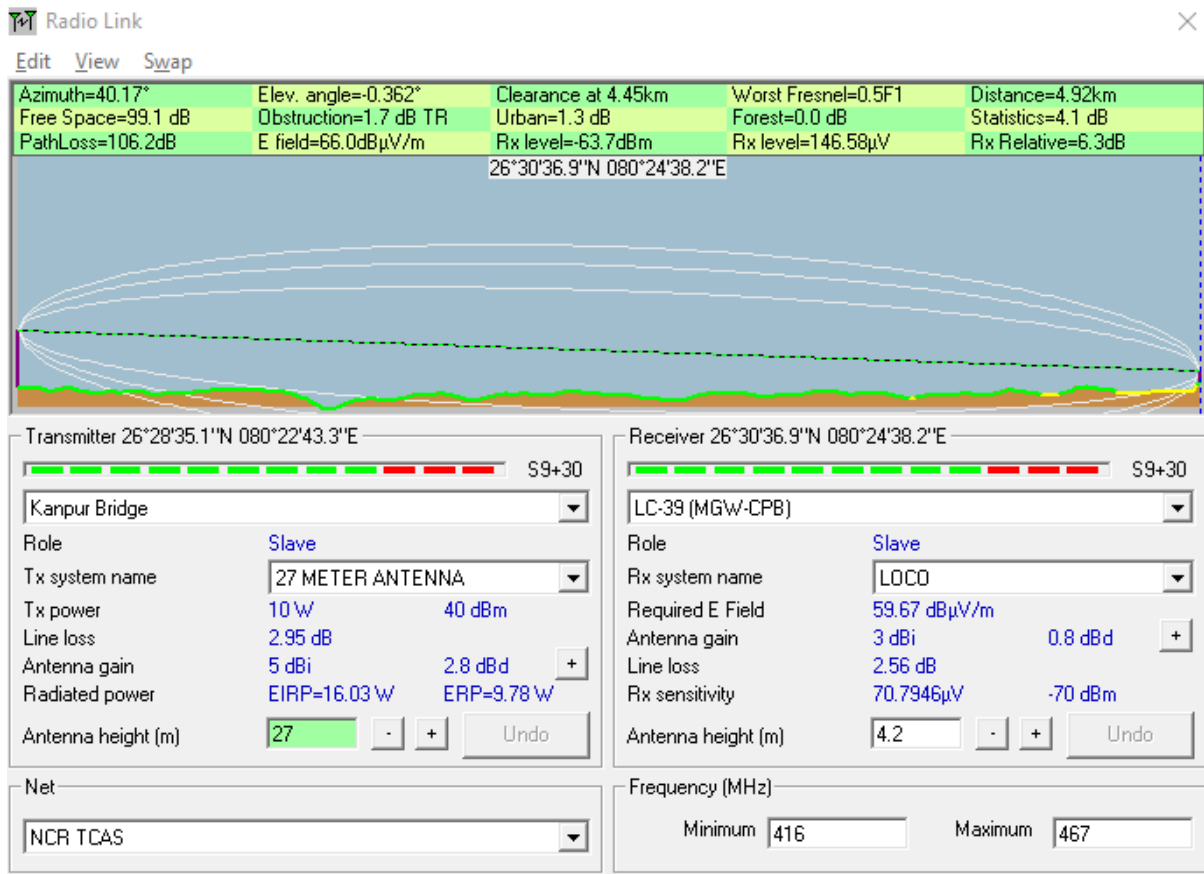


Antenna at 27 Meters



Kanpur bridge to LC-39

Antenna at 27 Meters



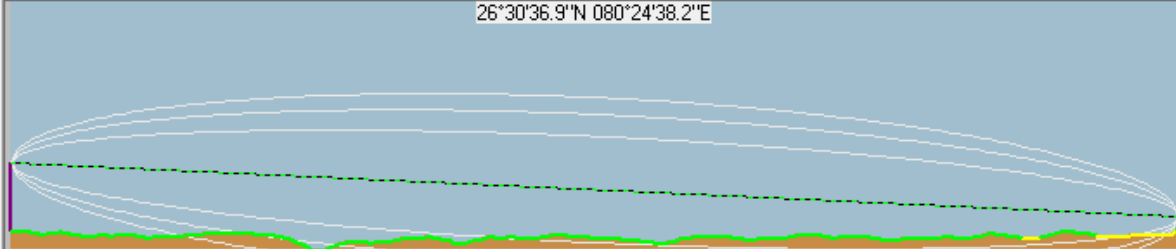
Antenna at 37 Meters

Radio Link

Edit View Swap

Azimuth=40.17°	Elev. angle=-0.478°	Clearance at 4.45km	Worst Fresnel=0.6F1	Distance=4.92km
Free Space=99.1 dB	Obstruction=0.7 dB TR	Urban=1.3 dB	Forest=0.0 dB	Statistics=4.1 dB
PathLoss=105.1dB	E field=66.5dBμV/m	Rx level=-63.2dBm	Rx level=154.76μV	Rx Relative=6.8dB

26°30'36.9"N 080°24'38.2"E



Transmitter 26°28'35.1"N 080°22'43.3"E

S9+30

Kanpur Bridge

Role Slave

Tx system name 37 METER 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 26°30'36.9"N 080°24'38.2"E

S9+30

LC-39 (MGW-CPB)

Role Slave

Rx system name LOCO

Required E Field 59.67 dBμV/m

Antenna gain 3 dBi 0.8 dBd +

Line loss 2.56 dB

Rx sensitivity 70.7946μV -70 dBm

Antenna height (m) 4.2 - + Undo

Net

NCR TCAS

Frequency (MHz)

Minimum 416 Maximum 467

Lucknow to Kanpur

S/n	Station Name	Exist ing Tower Height (M)	Propo sed/New Tower (M)	Trac k Distance (km)	RF link distance (Km)	Over lap (Km)	Radio Signal Stren gth(d Bm)	Remark
1	Lucknow to Manak Nagar	Lucknow to Manak Nagar	40		3.72	1.09		Overlapping < 2 Km. Hence required new tower in between stations
		Antenna at 27 meter			2.39		-69.6	
		Antenna at 37 meter			2.39		-68.5	
		Manak Nagar to Lucknow	40		3.72			
		Antenna at 27 meter			2.42		-69.4	
		Antenna at 37 meter			2.42		-69	
1.1	Lucknow to LC (LKO-Manak)	Lucknow to LC (LKO-Manak)	40		2.49	2.49		Overlapping > 2 Km. Hence no tower required in between stations
		Antenna at 27 meter			2.49		-62.4	
		Antenna at 37 meter			2.49		-59.8	
		LC (LKO-Manak) to Lucknow		30/40	2.49			
		Antenna at 27 meter			2.49		-65	
		Antenna at 37 meter			2.49		-63.5	
1.2	LC (LKO-Manak) to Manak Nagar	LC (LKO-Manak) to Manak Nagar		30/40	2.12	2.12		Overlapping > 2 Km. Hence no tower required in between stations
		Antenna at 27 meter			2.12		-61.2	
		Antenna at 37 meter			2.12		-57.6	
		Manak Nagar to LC (LKO-Manak)	40		2.12			
		Antenna at 27 meter			2.12		-64.8	
		Antenna at 37 meter			2.12		-63.6	
2	Manak Nagar to Amausi	Manak Nagar to Amausi	40		6.34	2.24		Overlapping > 2 Km. Hence no tower required in between stations
		Antenna at 27 meter			3.78		-69.8	
		Antenna at 37 meter			5.97		-69.3	
		Amausi to Manak Nagar	40		6.34			
		Antenna at 27 meter			4.8		-69.5	
		Antenna at 37 meter			4.82		-69.8	
3	Amausi to Pipersand	Amausi to Pipersand	40		5.88	5.07		Overlapping > 2 Km. Hence no tower required in between stations
		Antenna at 27 meter			5.07		-69.6	
		Antenna at 37 meter			5.07		-69.5	
		Pipersand to Amausi	40		5.88			
		Antenna at 27 meter			5.59		-70	

		Antenna at 37 meter				5.88		-67.7	
4	Pipersand to Harauni	Pipersand to Harauni	40			6.27	4.86		Overlapping > 2 Km. Hence no tower required in between stations
		Antenna at 27 meter				5.8		-69.3	
		Antenna at 37 meter				5.8		-68.7	
		Harauni to Pipersand	40			6.27			
		Antenna at 27 meter				5.33		-69	
		Antenna at 37 meter				5.33		-68.9	
5	Harauni to Jaitpur	Harauni to Jaitpur	40			7.56	2.01		Overlapping < 2 Km. Hence required new tower in between stations
		Antenna at 27 meter				5.21		-69.3	
		Antenna at 37 meter				5.24		-70.1	
		Jaitpur to Harauni	40			7.56			
		Antenna at 27 meter				4.33		-69.2	
		Antenna at 37 meter				4.33		-69.1	
6	Jaitpur to Kusumbhi	Jaitpur to Kusumbhi	40			4.48	4.48		Overlapping > 2 Km. Hence no tower required in between stations
		Antenna at 27 meter				4.48		-66.1	
		Antenna at 37 meter				4.48		-65.2	
		Kusumbhito Jaitpur	40			4.48			
		Antenna at 27 meter				4.48		-68.1	
		Antenna at 37 meter				4.48		-67.3	
8	Kusumbhi to Ajgain	Kusumbhi to Ajgain	40			3.68	3.68		Overlapping > 2 Km. Hence no tower required in between stations
		Antenna at 27 meter				3.68		-60.6	
		Antenna at 37 meter				3.68		-59	
		Ajgain to Kusumbhi	40			3.68			
		Antenna at 27 meter				3.68		-64.9	
		Antenna at 37 meter				3.68		-63.9	
9	Ajgain to Sonik	Ajgain to Sonik	40			7.33	3.50		Overlapping > 2 Km. Hence no tower required in between stations
		Antenna at 27 meter				5.51		69.4	
		Antenna at 37 meter				5.87		-69.8	
		Sonik to Ajgain	40			7.33			
		Antenna at 27 meter				5.32		-68.9	
		Antenna at 37 meter				5.32		-68.5	
10	Sonik to Unnao	Sonik to Unnao	40			8.45	2.27		Overlapping > 2 Km. Hence no tower required in between stations
		Antenna at 27 meter				5.22		-69.9	
		Antenna at 37 meter				5.22		-69.8	
		Unnao to Sonik	40			8.45			
		Antenna at 27 meter				5.5		-69.9	
		Antenna at 37 meter				5.53		-69.9	
11	Unnao to Magarwara	Unnao to Magarwara	40			5.97	2.72		Overlapping > 2 Km. Hence no tower required in between stations
		Antenna at 27 meter				4.54		-69.5	
		Antenna at 37 meter				4.54		-69.1	
		Magarwara to	40			5.97			

		Unnao							
		Antenna at 27 meter				4.15		-69.7	
		Antenna at 37 meter				5.08		-67.8	
12	Magarwara to LC-39	Magarwara to LC-39	40			2.59			
		Antenna at 27 meter				2.59		-64.1	
		Antenna at 37 meter				2.59		-62.9	
		LC-39 to Magarwara	30			2.59			
		Antenna at 27 meter				2.59		-62.4	
13	LC-39 to Kanpur Bridge	LC-39 to Kanpur Bridge	30			4.92			
		Antenna at 27 meter				4.92		-65.5	
		Kanpur Bridgeto LC-39	40			4.92			
		Antenna at 27 meter				4.92		-63.7	
		Antenna at 37 meter				4.92		-63.2	