

## ANEXO 2. CODIGOS DE PROGRAMACIÓN

### Codigo 1.

```
viewer = siteviewer("Buildings","UIS.osm","Basemap","topographic");
tx = txsite("Name","Small cell transmitter", ...
    "Latitude",7.141205, ...
    "Longitude",-73.1230, ...
    "AntennaHeight",5, ...
    "TransmitterPower",5, ...
    "TransmitterFrequency",6e9);
show(tx)
rtpm = propagationModel("raytracing", ...
    "Method","sbr", ...
    "MaxNumReflections",10, ...
    "BuildingsMaterial","perfect-reflector", ...
    "TerrainMaterial","perfect-reflector");
coverage(tx,rtpm, ...
    "SignalStrengths",-120:-5, ...
    "MaxRange",250, ...
    "Resolution",4, ...
    "Transparency",0.6)
rx = rxsite("Name","Small cell receiver", ...
    "Latitude",7.141068, ...
    "Longitude",-73.1209, ...
    "AntennaHeight",4);

los(tx,rx)
rtpm.MaxNumReflections = 10;
clearMap(viewer)
raytrace(tx,rx,rtpm)
```

### Codigo 2

Entre biblioteca y edificio de mantenimiento

```
viewer = siteviewer("Buildings","UIS.osm","Basemap","topographic");
tx = txsite("Name","Small cell transmitter", ...
    "Latitude",7.14096, ...
    "Longitude",-73.1209, ...
    "AntennaHeight",3, ...
    "TransmitterPower",12, ...
    "TransmitterFrequency",60e9);
show(tx)
rtpm = propagationModel("raytracing", ...
    "Method","sbr", ...
    "MaxNumReflections",0, ...
    "BuildingsMaterial","perfect-reflector", ...
    "TerrainMaterial","perfect-reflector");
coverage(tx,rtpm, ...
    "SignalStrengths",-120:-5, ...
    "MaxRange",250, ...
```

```

        "Resolution",3, ...
        "Transparency",0.6)
rx = rxsite("Name","Small cell receiver", ...
        "Latitude",7.13965, ...
        "Longitude",-73.117229, ...
        "AntennaHeight",2);

los(tx,rx)
rtpm.MaxNumReflections = 10;

```

### Codigo 3

```

viewer = siteviewer("Buildings","uis23.osm","Basemap","topographic");
tx = txsite("Name","Small cell transmitter", ...
        "Latitude",7.141132, ...
        "Longitude",-73.123064, ...
        "AntennaHeight",22, ...
        "TransmitterPower",5, ...
        "TransmitterFrequency",6e9);
show(tx)
rtpm = propagationModel("raytracing", ...
        "Method","sbr", ...
        "MaxNumReflections",10, ...
        "BuildingsMaterial","perfect-reflector", ...
        "TerrainMaterial","perfect-reflector");
coverage(tx,rtpm, ...
        "SignalStrengths",-120:-5, ...
        "MaxRange",250, ...
        "Resolution",3, ...
        "Transparency",0.6)
rx = rxsite("Name","Small cell receiver", ...
        "Latitude",7.13975, ...
        "Longitude",-73.1201, ...
        "AntennaHeight",18);

los(tx,rx)
rtpm.MaxNumReflections = 10;
clearMap(viewer)
raytrace(tx,rx,rtpm)

```

### Codigo 4

```

viewer = siteviewer("Buildings","UIS.osm","Basemap","topographic");
tx = txsite("Name","Small cell transmitter", ...
        "Latitude",7.14096, ...
        "Longitude",-73.1209, ...
        "AntennaHeight",5, ...
        "TransmitterPower",5, ...
        "TransmitterFrequency",5e9);
show(tx)
rtpm = propagationModel("raytracing", ...
        "Method","sbr", ...
        "MaxNumReflections",10, ...
        "BuildingsMaterial","perfect-reflector", ...

```

```

        "TerrainMaterial", "perfect-reflector");
coverage(tx, rtpm, ...
    "SignalStrengths", -120:-5, ...
    "MaxRange", 250, ...
    "Resolution", 3, ...
    "Transparency", 0.6)
rx = rxsite("Name", "Small cell receiver", ...
    "Latitude", 7.141968, ...
    "Longitude", -73.121265, ...
    "AntennaHeight", 4);

los(tx, rx)
rtpm.MaxNumReflections = 10;
clearMap(viewer)
raytrace(tx, rx, rtpm)

```

#### Codigo 5

```

viewer = siteviewer("Buildings", "UIS.osm", "Basemap", "topographic");
tx = txsite("Name", "Small cell transmitter", ...
    "Latitude", 7.141233, ...
    "Longitude", -73.122974, ...
    "AntennaHeight", 9, ...
    "TransmitterPower", 17, ...
    "TransmitterFrequency", 5e9);
show(tx)
rtpm = propagationModel("raytracing", ...
    "Method", "sbr", ...
    "MaxNumReflections", 0, ...
    "BuildingsMaterial", "perfect-reflector", ...
    "TerrainMaterial", "perfect-reflector");
coverage(tx, rtpm, ...
    "SignalStrengths", -120:-5, ...
    "MaxRange", 250, ...
    "Resolution", 3, ...
    "Transparency", 0.6)
rx = rxsite("Name", "Small cell receiver", ...
    "Latitude", 7.13965, ...
    "Longitude", -73.117229, ...
    "AntennaHeight", 5);

los(tx, rx)
rtpm.MaxNumReflections = 10;
clearMap(viewer)
raytrace(tx, rx, rtpm)

```

#### Codigo 6

```

viewer = siteviewer("Buildings", "UIS.osm", "Basemap", "topographic");
tx = txsite("Name", "Small cell transmitter", ...
    "Latitude", 7.139539, ...
    "Longitude", -73.120308, ...
    "AntennaHeight", 9, ...
    "TransmitterPower", 17, ...
    "TransmitterFrequency", 5e9);

```

```

show(tx)
rtpm = propagationModel("raytracing", ...
    "Method","sbr", ...
    "MaxNumReflections",0, ...
    "BuildingsMaterial","perfect-reflector", ...
    "TerrainMaterial","perfect-reflector");
coverage(tx,rtpm, ...
    "SignalStrengths",-120:-5, ...
    "MaxRange",250, ...
    "Resolution",3, ...
    "Transparency",0.6)
rx = rxsite("Name","Small cell receiver", ...
    "Latitude",7.13965, ...
    "Longitude",-73.117229, ...
    "AntennaHeight",5);

los(tx,rx)
rtpm.MaxNumReflections = 10;
clearMap(viewer)
raytrace(tx,rx,rtpm)

```

#### Codigo 7

```

viewer = siteviewer("Buildings","UIS.osm","Basemap","topographic");
tx = txsite("Name","Small cell transmitter", ...
    "Latitude",7.13965, ...
    "Longitude",-73.117229, ...
    "AntennaHeight",2, ...
    "TransmitterPower",20, ...
    "TransmitterFrequency",5e9);
show(tx)
rtpm = propagationModel("raytracing", ...
    "Method","sbr", ...
    "MaxNumReflections",0, ...
    "BuildingsMaterial","perfect-reflector", ...
    "TerrainMaterial","perfect-reflector");
coverage(tx,rtpm, ...
    "SignalStrengths",-120:-5, ...
    "MaxRange",250, ...
    "Resolution",3, ...
    "Transparency",0.6)
rx = rxsite("Name","Small cell receiver", ...
    "Latitude",7.139559, ...
    "Longitude",-73.120458, ...
    "AntennaHeight",2);

los(tx,rx)
rtpm.MaxNumReflections = 10;
clearMap(viewer)
raytrace(tx,rx,rtpm)

```

#### Código 8

```

viewer = siteviewer("Buildings","UIS.osm","Basemap","topographic");
tx = txsite("Name","Small cell transmitter", ...
    "Latitude",7.141233, ...
    "Longitude",-73.122974, ...
    "AntennaHeight",1, ...
    "TransmitterPower",16, ...
    "TransmitterFrequency",5e9);
show(tx)
rtpm = propagationModel("raytracing", ...
    "Method","sbr", ...
    "MaxNumReflections",10, ...
    "BuildingsMaterial","perfect-reflector", ...
    "TerrainMaterial","perfect-reflector");
coverage(tx,rtpm, ...
    "SignalStrengths",-120:-5, ...
    "MaxRange",250, ...
    "Resolution",4, ...
    "Transparency",0.6)
rx = rxsite("Name","Small cell receiver", ...
    "Latitude",7.13977, ...
    "Longitude",-73.1210, ...
    "AntennaHeight",3);

los(tx,rx)
rtpm.MaxNumReflections = 10;
clearMap(viewer)
raytrace(tx,rx,rtpm)

```