

Lab2 – Result

<overall w/ bf setup>

```
std::stringstream oss;
oss << shannonCapacity / 1e6 << "Mbps"; // Convert to Mbps for DataRate string
utNet.Get(25)->GetObject<MockNetDevice>()->SetDataRate(DataRate(oss.str())); // Update user[0]'s data rate
utNet.Get(1)->GetObject<MockNetDevice>()->SetDataRate(DataRate("1Gbps")); // Set satellite[1]'s data rate to 1Gbps
```

<overall w/o bf setup>

```
utCh.SetGndDeviceAttribute("DataRate", StringValue("8kbps"));
```

<corresponding screenshots>

GS aka user at position at position `LeoLatLong source (20, 0);` `SAT[idx: 0]:`

```
===== w/ bf - Results =====
Q1: Euclidean Dis: 1200009.000000 m
Q2: PathLoss: 157.553298 dBm
Q3: RxPower: -56.813298 dBm
Q4: SNR: 53.186702 dB
Q5: DataRate: 35.336494 Mbps
Packet average end-to-end delay is 0.010160 s
===== END =====
```

```
===== w/o bf - Results =====
Q1: Euclidean Dis: 1200009.000000 m
Q2: PathLoss: 181.635698 dBm
Q3: RxPower: -80.895698 dBm
Q4: SNR: 29.104302 dB
Q5: DataRate: 19.340024 Mbps
Packet average end-to-end delay is 0.718011 s
===== END =====
```

GS at position `LeoLatLong source (6.06692, 73.0213); SAT[idx:1]:`

```
===== w/  bf - Results =====
Q1: Euclidean Dis: 1200009.000003 m
Q2: PathLoss: 157.555847 dBm
Q3: RxPower: -56.815847 dBm
Q4: SNR: 53.184153 dB
Q5: DataRate: 35.334800 Mbps
Packet average end-to-end delay is 0.010366 s
===== END =====
```

```
===== w/o bf - Results =====
Q1: Euclidean Dis: 1200009.000003 m
Q2: PathLoss: 181.635698 dBm
Q3: RxPower: -80.895698 dBm
Q4: SNR: 29.104302 dB
Q5: DataRate: 19.340024 Mbps
Packet average end-to-end delay is 0.718201 s
===== END =====
```

GS `LeoLatLong source (-16.0634, 142.29); SAT[idx:2]:`

```
===== w/  bf - Results =====
Q1: Euclidean Dis: 1200009.000114 m
Q2: PathLoss: 157.573122 dBm
Q3: RxPower: -56.833122 dBm
Q4: SNR: 53.166878 dB
Q5: DataRate: 35.323323 Mbps
Packet average end-to-end delay is 0.010160 s
===== END =====
```

```
===== w/o bf - Results =====
Q1: Euclidean Dis: 1200009.000114 m
Q2: PathLoss: 181.635698 dBm
Q3: RxPower: -80.895698 dBm
Q4: SNR: 29.104302 dB
Q5: DataRate: 19.340024 Mbps
Packet average end-to-end delay is 0.718011 s
===== END =====
```