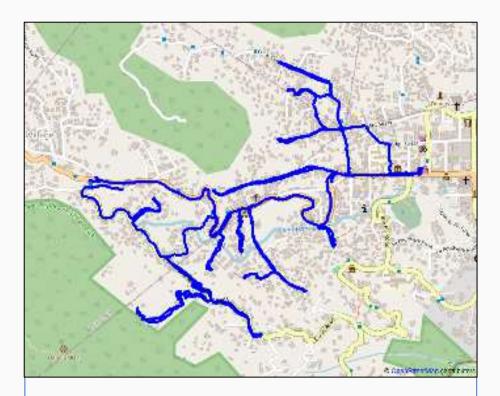




# **DRIVE TEST ROUTE**

Phase-1 Dates- 04<sup>th</sup> Oct 2024



Route Name: Mahe

District Name: Saint Loius

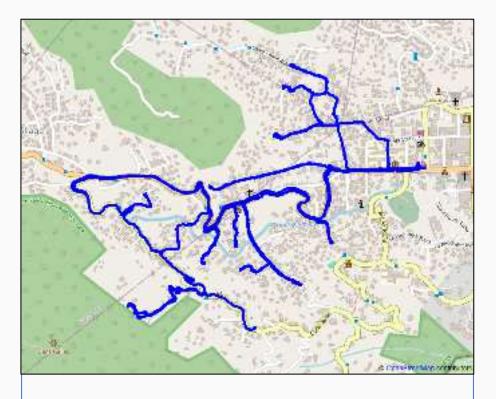
Region: Central

Island: Mahé

Drive Test Distance: 12.64 kms

Drive Test Duration: 00 hours,57 minutes,23 seconds

Phase-2 Dates- 18<sup>th</sup> to 21<sup>st</sup> Oct 2024



Route Name: Mahe

District Name: Saint Loius

Region: Central

Island: Mahé

Drive Test Distance: 13.84 kms

Drive Test Duration: 01 hours,11 minutes,27 seconds



### **VOICE EXECUTIVE SUMMARY**

### Phase-1

### **Short Call Findings:**

- The Call Setup Success Rate for Airtel is (100.00%), while for Operator CWS it is (95.71%).
- The Call Setup Time for Airtel is (6.15s), while for Operator CWS it is (7.59s)

### **Long Call Findings:**

- The Call Retainability for Airtel is (94.74%), while for CWS it is (100.00%).
- The MOS quality observed for Airtel is (3.15), and for CWS, it is (3.41).

### Phase-2

### **Short Call Findings:**

- The Call Setup Success Rate for Airtel is (100.00%), while for Operator CWS it is (98.84%).
- The Call Setup Time for Airtel is (5.95s), while for Operator CWS it is (7.55s)

### **Long Call Findings:**

- The Call Retainability for Airtel is (100.00%), while for CWS it is (100.00%).
- The MOS quality observed for Airtel is (3.04), and for CWS, it is (3.33).



### **4G PREFERRED DATA TEST – EXECUTIVE SUMMARY**

### Phase-1

### **4G Preferred Data Findings:**

- Airtel SFTP DL is (11.90 Mbps), while SFTP UL is (6.95 Mbps), CWS SFTP DL is (4.93 Mbps), while
   SFTP UL is (2.96 Mbps)
- Airtel HTTP DL is (16.47 Mbps), HTTP Capacity DL is (33.62 Mbps), HTTP UL is (9.53 Mbps), and
   HTTP Capacity UL is (21.06 Mbps).
- CWS HTTP DL is (5.75 Mbps), HTTP Capacity DL is (15.85 Mbps), HTTP UL is (5.05 Mbps), and HTTP Capacity UL is (11.50 Mbps).
- On live web page testing for browsing, <u>www.shein.com</u> took (7.99s), <u>www.nbs.gov.sc</u> took
   (18.59s), and www.sbc.sc took (17.70s) on Airtel.
- On live web page testing for browsing, <a href="www.shein.com">www.shein.com</a> took (8.10s), <a href="www.nbs.gov.sc">www.nbs.gov.sc</a> took (15.27s), and <a href="www.sbc.sc">www.sbc.sc</a> took (23.17s) on CWS.
- On static browsing, Kepler Webpage took (4.33s), and Kepler Mobile took (2.15s) on Airtel.
- On static browsing, Kepler Webpage took (4.95s), and Kepler Mobile took (2.66s) on CWS.
- YouTube average resolution in Airtel is (1047.50) pixels.
- YouTube average resolution in CWS is (1042.80) pixels.
- Airtel scored 57.19% in Carrier Aggregation (CA).
- CWS scored 47.25% in Carrier Aggregation (CA).

#### Phase-2

### **4G Preferred Data Findings:**

- Airtel SFTP DL is (13.08 Mbps), while SFTP UL is (5.78 Mbps), CWS SFTP DL is (4.81 Mbps), while
   SFTP UL is (2.54 Mbps)
- Airtel HTTP DL is (17.22 Mbps), HTTP Capacity DL is (21.78 Mbps), HTTP UL is (9.05 Mbps), and
   HTTP Capacity UL is (15.34 Mbps).
- CWS HTTP DL is (4.58 Mbps), HTTP Capacity DL is (9.49 Mbps), HTTP UL is (4.83 Mbps), and HTTP Capacity UL is (13.55 Mbps).
- On live web page testing for browsing, <u>www.shein.com</u> took (6.48s), <u>www.nbs.gov.sc</u> took
   (18.30s), and <u>www.sbc.sc</u> took (18.11s) on Airtel.
- On live web page testing for browsing, <u>www.shein.com</u> took (8.53s), <u>www.nbs.gov.sc</u> took
   (17.97s), and <u>www.sbc.sc</u> took (15.34s) on CWS.
- On static browsing, Kepler Webpage took (3.78s), and Kepler Mobile took (1.80s) on Airtel.
- On static browsing, Kepler Webpage took (5.83s), and Kepler Mobile took (2.82s) on CWS.
- YouTube average resolution in Airtel is (1080.00) pixels.
- YouTube average resolution in CWS is (992.57) pixels.
- Airtel scored 59.92% in Carrier Aggregation (CA).
- CWS scored 43.51% in Carrier Aggregation (CA).



### **3G PREFERRED DATA TEST - EXECUTIVE SUMMARY**

### Phase-1

### **3G Preferred Data Test Findings:**

- Airtel SFTP DL is (4.12 Mbps), while SFTP UL is (1.61 Mbps), CWS SFTP DL is (4.04 Mbps), while
   SFTP UL is (1.21 Mbps)
- Airtel HTTP DL is (4.30 Mbps), HTTP Capacity DL is (5.04 Mbps), HTTP UL is (2.43 Mbps), and HTTP
  Capacity UL is (4.10 Mbps).
- CWS HTTP DL is (3.60 Mbps), HTTP Capacity DL is (6.09 Mbps), HTTP UL is (1.47 Mbps), and HTTP Capacity UL is (3.53 Mbps).
- On live web page testing for browsing, <u>www.shein.com</u> took (16.74s), <u>www.nbs.gov.sc</u> took
   (14.18s), and <u>www.sbc.sc</u> took (21.51s) on Airtel.
- On live web page testing for browsing, <a href="www.shein.com">www.shein.com</a> took (16.10s), <a href="www.nbs.gov.sc">www.nbs.gov.sc</a> took (13.73s), and <a href="www.sbc.sc">www.sbc.sc</a> took (16.11s) on CWS.
- On static browsing, Kepler Webpage took (5.17s), and Kepler Mobile took (1.87s) on Airtel.
- On static browsing, Kepler Webpage took (5.31s), and Kepler Mobile took (2.81s) on CWS.
- YouTube average resolution in Airtel is (909.06) pixels.
- YouTube average resolution in CWS is (949.57) pixels.

#### Phase-2

#### **3G Preferred Data Test Findings:**

- Airtel SFTP DL is (4.16 Mbps), while SFTP UL is (1.58 Mbps), CWS SFTP DL is (3.03 Mbps), while SFTP UL is (0.91 Mbps)
- Airtel HTTP DL is (4.48 Mbps), HTTP Capacity DL is (4.23 Mbps), HTTP UL is (2.01 Mbps), and HTTP Capacity UL is (4.15 Mbps).
- CWS HTTP DL is (2.72 Mbps), HTTP Capacity DL is (7.22 Mbps), HTTP UL is (1.72 Mbps), and HTTP
  Capacity UL is (4.05 Mbps).
- On live web page testing for browsing, <a href="www.shein.com">www.shein.com</a> took (10.88s), <a href="www.nbs.gov.sc">www.nbs.gov.sc</a> took (11.44s), and <a href="www.sbc.sc">www.sbc.sc</a> took (14.02s) on Airtel.
- On live web page testing for browsing, <u>www.shein.com</u> took (8.64s), <u>www.nbs.gov.sc</u> took (8.46s), and <u>www.sbc.sc</u> took (14.70s) on CWS.
- On static browsing, Kepler Webpage took (4.04s), and Kepler Mobile took (2.30s) on Airtel.
- On static browsing, Kepler Webpage took (5.71s), and Kepler Mobile took (3.74s) on CWS.
- YouTube average resolution in Airtel is (996.95) pixels.
- YouTube average resolution in CWS is (1046.73) pixels.



# **TESTING METHODOLOGY**

| Short Call                  |            |  |  |  |  |  |
|-----------------------------|------------|--|--|--|--|--|
| Call Duration               | 10 Seconds |  |  |  |  |  |
| Setup and Release phase     | 30 seconds |  |  |  |  |  |
| Minimum pause between calls | 30 seconds |  |  |  |  |  |

| Long Call               |             |  |  |  |  |  |
|-------------------------|-------------|--|--|--|--|--|
| Call Duration           | 120 Seconds |  |  |  |  |  |
| Setup and Release phase | 30 seconds  |  |  |  |  |  |
| Minimum between calls   | 30 seconds  |  |  |  |  |  |

| DATA     | Test Type and Timeout           | Technology 3G Preferred                      | Technology 4G Preferred                      |
|----------|---------------------------------|--|--|
|          |                                 | n. ICMP PAYLOAD PING 800 BYTES               | 133387 131 13131133                          |
| 1        | FILE TRANSFER DOWNLOAD          | FTP DL (3MB)                                 | FTP DL (5MB)                                 |
| <b>T</b> |                                 | , ,  | , ,  |
|          | 135s                            | wait 10s                                     | wait 10s                                     |
| 2        | FILE TRANSFER UPLOAD            | FTP UL (1MB)                                 | FTP UL (3MB)                                 |
|          | 135s                            | wait 10s                                     | wait 10s                                     |
| 3        | FILE TRANSFER DOWNLOAD          | HTTP Get (3MB)                               | HTTP Get (5MB)                               |
|          | 135s                            | wait 10s                                     | wait 10s                                     |
| 4        | FILE TRANSFER UPLOAD            | HTTP Put (1MB)                               | HTTP Put (3MB)                               |
|          | 135s                            | wait 10s                                     | wait 10s                                     |
| 5        | ICMP PING 32 BYTES              | Ping (32 bytes) *5                           | Ping (32 bytes) *5                           |
|          |                                 | wait 10s                                     | wait 10s                                     |
| 6        | YOUTUBE STREAMING               | Video: YouTube 60sec                         | Video: YouTube 60sec                         |
|          | 95 seconds                      | wait 10s                                     | wait 10s                                     |
| 7        | KEPLER WEB BROWSING             | HTTPS Browsing: Kepler                       | HTTPS Browsing: Kepler                       |
|          | 45s                             | wait 10s                                     | wait 10s                                     |
| 8        | LIVE WEB BROWSING               | www.shein.com, www.nbs.gov.sc,<br>www.sbc.sc | www.shein.com, www.nbs.gov.sc,<br>www.sbc.sc |
|          | 45s                             | wait 10s                                     | wait 10s                                     |
| 9        | KEPLER MOBILE WEB BROWSING      | HTTPS Browsing: Kepler Mobile                | HTTPS Browsing: Kepler Mobile                |
|          | 45s                             | wait 10s                                     | wait 10s                                     |
| 10       | ICMP PING 32 BYTES              | Ping (32 bytes) 5 www.google.com             | Ping (32 bytes) 5 www.google.com             |
|          |                                 | wait 10s                                     | wait 10s                                     |
| 11       | FILE TRANSFER-CAPACITY DOWNLOAD | HTTP Get (500MB) Multiple files              | HTTP Get (500MB) Multiple files              |
|          | 10s fixed duration              | wait 10s                                     | wait 10s                                     |
| 12       | FILE TRANSFER-CAPACITY UPLOAD   | HTTP Put (500MB)-Multiple Files              | HTTP Put (500MB)-Multiple Files              |
|          | 10s fixed duration              | wait 10s                                     | wait 10s                                     |



# **VOICE TEST KPI STATISTICS (Short Call)**

### Phase-1

| Short Call Statistics |            |            |  |  |  |  |  |
|-----------------------|------------|------------|--|--|--|--|--|
| Short Call Scenario   | Operator 1 | Operator 2 |  |  |  |  |  |
| Voice KPIs            | Airtel     | cws        |  |  |  |  |  |
| Call Attempt          | 72         | 70         |  |  |  |  |  |
| Call Failed           | 0          | 3          |  |  |  |  |  |
| Call Connected        | 72         | 67         |  |  |  |  |  |
| CSSR[%]               | 100.00     | 95.71      |  |  |  |  |  |
| USCSR[%]              | 0.00       | 4.29       |  |  |  |  |  |
| CST [s] Alerting      | 6.15       | 7.59       |  |  |  |  |  |
| CST [s]Connected      | 6.39       | 7.80       |  |  |  |  |  |
|                       |            |            |  |  |  |  |  |

CS calls CST (until Connect/Connect Acknowledge)

CSFB calls CST (until Connect/Connect Acknowledge)

CSSR= Call Setup Success rate
USCSR=Unsuccessful call setup ratio
CST=Call setup time
Call Setup Success Ratio >97%
CRR= Call retainability ratio
DCR=Dropped-call rate
MOS=Mean Opinion Score
Drop Call Ratio<2

#N/A

2

| 6.39  |                   | 7.80           |  |   |   |  |
|---|-------------------|----------------|--|---|---|--|
| Call Setup Time (s)                             |                   |                |  |   | ank   |  |
| Call Setup Time (s)                             |                   |                | cws  | Airtel  | cws   |  |
| Overall CST (until ringing/alerting)            |                   |                | 7.59   | 1   | 2   |  |
| ng)   |                   | 6.09           | #N/A   | 1   | #N/A  |  |
| CSFB calls CST (until ringing/alerting)         |                   |                | 7.59   | 1   | 2   |  |
|   |                   |                |  |   |   |  |
| Overall CST (until Connect/Connect Acknowledge) |                   |                | 7.80   | 1   | 2   |  |
|   | me (s) ng) rting) | me (s) ng) ng) | Oper Airtel  ag) 6.15  ag) 6.09  rting) 6.15 | Operators  Airtel CWS  ag) 6.15 7.59  ag) 6.09 #N/A  rting) 6.15 7.59 | Operators         Ra           Airtel         CWS         Airtel           ag)         6.15         7.59         1           ag)         6.09         #N/A         1           rting)         6.15         7.59         1 |  |

6.43

6.39

#N/A

7.80

| Short Call Statistics |            |            |  |  |  |  |  |
|-----------------------|------------|------------|--|--|--|--|--|
| Short Call Scenario   | Operator 1 | Operator 2 |  |  |  |  |  |
| Voice KPIs            | Airtel     | cws        |  |  |  |  |  |
| Call Attempt          | 87         | 86         |  |  |  |  |  |
| Call Failed           | 0          | 1          |  |  |  |  |  |
| Call Connected        | 87         | 85         |  |  |  |  |  |
| CSSR[%]               | 100.00     | 98.84      |  |  |  |  |  |
| USCSR[%]              | 0.00       | 1.16       |  |  |  |  |  |
| CST [s] Alerting      | 5.95       | 7.55       |  |  |  |  |  |
| CST [s]Connected      | 6.23       | 7.79       |  |  |  |  |  |

| Call Setup Time (s)                                |        | Operators |        | Rank |  |
|--|--------|-----------|--------|------|--|
| Call Setup Tille (S)                               | Airtel | cws       | Airtel | cws  |  |
| Overall CST (until ringing/alerting)               | 5.95   | 7.55      | 1      | 2    |  |
| CS calls CST (until ringing/alerting)              | 6.03   | #N/A      | 1      | #N/A |  |
| CSFB calls CST (until ringing/alerting)            |        | 7.55      | 1      | 2    |  |
|  |        |           |        |      |  |
| Overall CST (until Connect/Connect Acknowledge)    | 6.23   | 7.79      | 1      | 2    |  |
| CS calls CST (until Connect/Connect Acknowledge)   | 6.40   | #N/A      | 1      | #N/A |  |
| CSFB calls CST (until Connect/Connect Acknowledge) | 6.21   | 7.79      | 1      | 2    |  |



# **VOICE TEST KPI STATISTICS (Long Call)**

### Phase-1

### Phase-2

| Long Call Statistics |                     |                |      |            |               |  |  |
|----------------------|---------------------|----------------|------|------------|---------------|--|--|
| Long Call Sc         | Operato             | Operator 1     |      | Operator 2 |               |  |  |
| Voice KF             | Pls                 | Airtel         |      |            | cws           |  |  |
| Call Conne           | cted                | 19             |      |            | 20            |  |  |
| Call Drop            | ped                 | 1              |      |            | 0             |  |  |
| Call Compl           | eted                | 18             |      |            | 20            |  |  |
| CRR[%                | CRR[%]              |                |      |            | 100.00        |  |  |
| DCR[%                | DCR[%]              |                | 5.26 |            | 0.00          |  |  |
| MOS                  |                     | 3.15           |      | 3.41       |               |  |  |
|                      | Airtel short call   | CWS short call |      |            | CWS long call |  |  |
| CSFB Calls           | 67                  | 70             | 1    | 8          | 20            |  |  |
| CS Calls             | 5                   | 0 1            |      | 0          |               |  |  |
| Hando                | Handover Statistics |                |      | МО         | CWS MO        |  |  |
| Handover Attempt     |                     |                | 2    | 3          | 67            |  |  |
| Hand                 | over Failure        |                | 1    | _          | 0             |  |  |
| Hando                | over Success        |                | 2    | 2          | 67            |  |  |
| H                    | IOSR %              |                | 95.  | 65         | 100.00        |  |  |

| Long Call Statistics |                   |                |      |           |               |  |  |
|----------------------|-------------------|----------------|------|-----------|---------------|--|--|
| Long Call Sc         | Operato           | or 1           | Ol   | perator 2 |               |  |  |
| Voice KF             | Pls               | Airte          | 1    | cws       |               |  |  |
| Call Conne           | cted              | 24             |      |           | 23            |  |  |
| Call Drop            | ped               | 0              |      |           | 0             |  |  |
| Call Compl           | eted              | 24             | 24   |           | 23            |  |  |
| CRR[%                | ]                 | 100.00         |      | 100.00    |               |  |  |
| DCR[%                | ]                 | 0.00           |      | 0.00      |               |  |  |
| MOS                  |                   | 3.04           | 3.04 |           | 3.33          |  |  |
|                      | Airtel short call | CWS short call |      |           | CWS long call |  |  |
| CSFB Calls           | 79                | 86             | 23   |           | 21            |  |  |
| CS Calls             | 8                 | 0              | 1    |           | 2             |  |  |

**Airtel MO** 

13

0

13

100.00

**CWS MO** 

56

0

56

100.00

**Handover Statistics** 

**Handover Attempt** 

**Handover Failure** 

**Handover Success** 

HOSR %



# **DATA TEST KPI STATISTICS(4G Preferred)**

|               |                                     | Phase-1   |        |                     |                  |           | Pha    | se-2                |                  |
|---------------|-------------------------------------|-----------|--------|---------------------|------------------|-----------|--------|---------------------|------------------|
|               | DATA Scenario                       | Airtel 4G | CWS 4G | Airtel 4G<br>(Rank) | CWS 4G<br>(Rank) | Airtel 4G | CWS 4G | Airtel 4G<br>(Rank) | CWS 4G<br>(Rank) |
|               | SFTP DL (Mbps)                      | 11.90     | 4.93   | 1                   | 2                | 13.08     | 4.81   | 1                   | 2                |
| <b>E</b>      | SFTP UL(Mbps)                       | 6.95      | 2.96   | 1                   | 2                | 5.78      | 2.54   | 1                   | 2                |
| ANSFI         | HTTP DL(Mbps)                       | 16.47     | 5.75   | 1                   | 2                | 17.22     | 4.58   | 1                   | 2                |
| FILE TRANSFER | HTTP UL(Mbps)                       | 9.53      | 5.05   | 1                   | 2                | 9.05      | 4.83   | 1                   | 2                |
| 臣             | HTTP Capacity DL(Mbps)              | 33.62     | 15.85  | 1                   | 2                | 21.78     | 9.49   | 1                   | 2                |
|               | HTTP Capacity UL(Mbps)              | 21.06     | 11.50  | 1                   | 2                | 15.34     | 13.55  | 1                   | 2                |
|               | Overall Browser DL Time (s)         | 10.11     | 10.54  | 1                   | 2                | 10.19     | 10.22  | 1                   | 2                |
|               | Kepler Webpage DL Time (s)          | 4.33      | 4.95   | 1                   | 2                | 3.78      | 5.83   | 1                   | 2                |
| BROWSER       | Mobile Kepler Webpage DL Time (s)   | 2.15      | 2.66   | 1                   | 2                | 1.80      | 2.82   | 1                   | 2                |
| BROV          | www.shein.com Webpage DL Time (s)   | 7.99      | 8.10   | 1                   | 2                | 6.48      | 8.53   | 1                   | 2                |
|               | www.nbs.gov.sc Webpage DL Time (s)  | 18.59     | 15.27  | 2                   | 1                | 18.30     | 17.97  | 2                   | 1                |
|               | www.sbc.sc Webpage DL Time (s)      | 17.70     | 23.17  | 1                   | 2                | 18.11     | 15.34  | 2                   | 1                |
| LATENCY       | Avg Latency (ms)                    | 268.01    | 198.47 | 2                   | 1                | 264.36    | 245.77 | 2                   | 1                |
| LATE          | Median Latency (ms)                 | 133       | 203    | 1                   | 2                | 218       | 201    | 2                   | 1                |
| 3E            | YouTube Access Time (s)             | 9.39      | 1.77   | 2                   | 1                | 5.29      | 2.57   | 2                   | 1                |
| YOUTUBE       | YouTube Average Resolution (pixels) | 1047.5    | 1042.8 | 1                   | 2                | 1080.00   | 992.57 | 1                   | 2                |
| \<br>\        | YouTube Success Ratio [%]           | 91.67     | 100.00 | 2                   | 1                | 100.00    | 100.00 | 1                   | 1                |



# 4G PREFERRED THROUGHPUT FILE ACCESS

### Phase-1

| Test Type        | Status  | Airtel 4G | CWS 4G | Airtel 4G (%) | CWS 4G (%) |
|------------------|---------|-----------|--------|---------------|------------|
| CETT DI          | Success | 12        | 12     | 100.00        | 100.00     |
| SFTP DL          | Failure | 0         | 0      | 0.00          | 0.00       |
| SFTP UL          | Success | 12        | 12     | 100.00        | 100.00     |
| SFIPUL           | Failure | 0         | 0      | 0.00          | 0.00       |
| HTTP DL          | Success | 11        | 12     | 91.67         | 100.00     |
| HITPDL           | Failure | 1         | 0      | 8.33          | 0.00       |
|                  | Success | 11        | 12     | 84.62         | 100.00     |
| HTTP UL          | Failure | 2         | 0      | 15.38         | 0.00       |
| UTTD Consoity DI | Success | 9         | 9      | 100.00        | 100.00     |
| HTTP Capacity DL | Failure | 0         | 0      | 0.00          | 0.00       |
|                  | Success | 9         | 8      | 100.00        | 88.89      |
| HTTP Capacity UL | Failure | 0         | 1      | 0.00          | 11.11      |

| Test Type        | Status  | Airtel 4G | CWS 4G | Airtel 4G (%) | CWS 4G (%) |
|------------------|---------|-----------|--------|---------------|------------|
| CETT DI          | Success | 14        | 12     | 100.00        | 92.31      |
| SFTP DL          | Failure | 0         | 1      | 0.00          | 7.69       |
| SFTP UL          | Success | 15        | 13     | 100.00        | 100.00     |
| SFIPUL           | Failure | 0         | 0      | 0.00          | 0.00       |
| HTTP DL          | Success | 14        | 13     | 93.33         | 100.00     |
|                  | Failure | 1         | 0      | 6.67          | 0.00       |
|                  | Success | 14        | 12     | 93.33         | 100.00     |
| HTTP UL          | Failure | 1         | 0      | 6.67          | 0.00       |
| HTTP Capacity DL | Success | 12        | 10     | 100.00        | 100.00     |
| HTTP Capacity DL | Failure | 0         | 0      | 0.00          | 0.00       |
| HTTP Capacity UL | Success | 11        | 9      | 100.00        | 90.00      |
| HITT Capacity OL | Failure | 0         | 1      | 0.00          | 10.00      |



# 4G PREFERRED BROWSING FILE ACCESS

### Phase-1

| Web Page       | Status  | Airtel 4G | CWS 4G | Airtel 4G (%) | CWS 4G (%) |
|----------------|---------|-----------|--------|---------------|------------|
| Kanlari        | Success | 8         | 9      | 80.00         | 100.00     |
| Kepler         | Failure | 2         | 0      | 20.00         | 0.00       |
| Mahila Kanlar  | Success | 9         | 9      | 100.00        | 100.00     |
| Mobile Kepler  | Failure | 0         | 0      | 0.00          | 0.00       |
|                | Success | 9         | 9      | 90.00         | 100.00     |
| www.shein.com  | Failure | 1         | 0      | 10.00         | 0.00       |
|                | Success | 9         | 9      | 100.00        | 100.00     |
| www.nbs.gov.sc | Failure | 0         | 0      | 0.00          | 0.00       |
|                | Success | 8         | 8      | 88.89         | 88.89      |
| www.sbc.sc     | Failure | 1         | 1      | 11.11         | 11.11      |

| Web Page          | Status  | Airtel 4G | CWS 4G | Airtel 4G (%) | CWS 4G (%) |
|-------------------|---------|-----------|--------|---------------|------------|
| Kowley            | Success | 8         | 11     | 61.54         | 100.00     |
| Kepler            | Failure | 5         | 0      | 38.46         | 0.00       |
| Succe             |         | 12        | 8      | 100.00        | 80.00      |
| Mobile Kepler     | Failure | 0         | 2      | 0.00          | 20.00      |
| www.shein.com     | Success | 13        | 11     | 100.00        | 100.00     |
| www.siieiii.coiii | Failure | 0         | 0      | 0.00          | 0.00       |
| ununu nha gov sa  | Success | 13        | 11     | 100.00        | 100.00     |
| www.nbs.gov.sc    | Failure | 0         | 0      | 0.00          | 0.00       |
| www.sbc.sc        | Success | 12        | 8      | 92.31         | 80.00      |
|                   | Failure | 1         | 2      | 7.69          | 20.00      |



# **4G PREFERRED LATENCY**

### Phase-1

|                 | Latency KPIs   | Airtel 4G | CWS 4G |
|-----------------|--|-----------|--------|
|                 | Sample Count [32 bytes]                              | 20        | 21     |
|                 | Average Latency [ms]                                 | 294.40    | 202.24 |
|                 | Median Latency [ms]                                  | 130       | 202    |
| Overall Latency | Ping session status: Successful                      | 20        | 21     |
|                 | Ping session status: Failed [Socket error]           | 0         | 0      |
|                 | Ping session status: Failed [Protocol error timeout] | 0         | 0      |
|                 | Packet Loss<1%                                       | 0.00      | 0.00   |
|                 | Average Latency [ms]                                 | 508.00    | 170.67 |
|                 | Median Latency [ms]                                  | 419       | 161    |
|                 | Ping session status: Successful                      | 9         | 9      |
| www.google.com  | Ping session status: Failed [Socket error]           | 0         | 0      |
|                 | Ping session status: Failed [Protocol error timeout] | 0         | 0      |
|                 | Packet Loss<1%                                       | 0.00      | 0.00   |
|                 | Average Latency [ms]                                 | 119.64    | 225.92 |
|                 | Median Latency [ms]                                  | 120       | 223    |
| 102.133.176.104 | Ping session status: Successful                      | 11        | 12     |
| 102.133.170.104 | Ping session status: Failed [Socket error]           | 0         | 0      |
|                 | Ping session status: Failed [Protocol error timeout] | 0         | 0      |
|                 | Packet Loss<1%                                       | 0.00      | 0.00   |

|                 | Latency KPIs   | Airtel 4G | CWS 4G |
|-----------------|--|-----------|--------|
|                 | Sample Count [32 bytes]                              | 25        | 22     |
|                 | Average Latency [ms]                                 | 269.64    | 225.73 |
|                 | Median Latency [ms]                                  | 341       | 195    |
| Overall Latency | Ping session status: Successful                      | 25        | 22     |
|                 | Ping session status: Failed [Socket error]           | 0         | 0      |
|                 | Ping session status: Failed [Protocol error timeout] | 0         | 0      |
|                 | Packet Loss<1%                                       | 0.00      | 0.00   |
|                 | Average Latency [ms]                                 | 410.50    | 186.70 |
|                 | Median Latency [ms]                                  | 404       | 167    |
| www.google.com  | Ping session status: Successful                      | 12        | 10     |
| www.googie.com  | Ping session status: Failed [Socket error]           | 0         | 0      |
|                 | Ping session status: Failed [Protocol error timeout] | 0         | 0      |
|                 | Packet Loss<1%                                       | 0.00      | 0.00   |
|                 | Average Latency [ms]                                 | 139.62    | 258.25 |
|                 | Median Latency [ms]                                  | 118       | 255    |
| 102.133.176.104 | Ping session status: Successful                      | 13        | 12     |
| 102.133.170.104 | Ping session status: Failed [Socket error]           | 0         | 0      |
|                 | Ping session status: Failed [Protocol error timeout] | 0         | 0      |
|                 | Packet Loss<1%                                       | 0.00      | 0.00   |



# **4G PREFERRED YOUTUBE COMPARISON**

### Phase-1

| LTE YOUTUBE Success Ratio           |           |         |  |  |  |  |
|-------------------------------------|-----------|---------|--|--|--|--|
| KPIs                                | Airtel 4G | CWS 4G  |  |  |  |  |
| Attempt(Count)                      | 12        | 11      |  |  |  |  |
| Success(Count)                      | 11        | 11      |  |  |  |  |
| Failure(Count)                      | 1         | 0       |  |  |  |  |
| YouTube Access Time (s)             | 9.39      | 1.77    |  |  |  |  |
| YouTube Average Resolution (pixels) | 1047.50   | 1042.80 |  |  |  |  |
| YouTube Success Ratio [%]           | 91.67     | 100.00  |  |  |  |  |

| LTE YOUTUBE Success Ratio           |           |        |  |  |  |
|-------------------------------------|-----------|--------|--|--|--|
| KPIs                                | Airtel 4G | CWS 4G |  |  |  |
| Attempt(Count)                      | 14        | 12     |  |  |  |
| Success(Count)                      | 14        | 12     |  |  |  |
| Failure(Count)                      | 0         | 0      |  |  |  |
| YouTube Access Time (s)             | 5.29      | 2.57   |  |  |  |
| YouTube Average Resolution (pixels) | 1080.00   | 992.57 |  |  |  |
| YouTube Success Ratio [%]           | 100.00    | 100.00 |  |  |  |



# **DATA TEST KPI STATISTICS (3G Preferred)**

|               |                                     | Phase-1   |        |                     |                  | Pha       | se-2    |                     |                  |
|---------------|-------------------------------------|-----------|--------|---------------------|------------------|-----------|---------|---------------------|------------------|
|               | DATA Scenario                       | Airtel 3G | CWS 3G | Airtel 3G<br>(Rank) | CWS 3G<br>(Rank) | Airtel 3G | CWS 3G  | Airtel 3G<br>(Rank) | CWS 3G<br>(Rank) |
|               | SFTP DL (Mbps)                      | 4.12      | 4.04   | 1                   | 2                | 4.16      | 3.03    | 1                   | 2                |
| <b>E</b>      | SFTP UL(Mbps)                       | 1.61      | 1.21   | 1                   | 2                | 1.58      | 0.91    | 1                   | 2                |
| ANSFI         | HTTP DL(Mbps)                       | 4.30      | 3.60   | 1                   | 2                | 4.48      | 2.72    | 1                   | 2                |
| FILE TRANSFER | HTTP UL(Mbps)                       | 2.43      | 1.47   | 1                   | 2                | 2.01      | 1.72    | 1                   | 2                |
| 臣             | HTTP Capacity DL(Mbps)              | 5.04      | 6.09   | 2                   | 1                | 4.23      | 7.22    | 2                   | 1                |
|               | HTTP Capacity UL(Mbps)              | 4.10      | 3.53   | 1                   | 2                | 4.15      | 4.05    | 1                   | 2                |
|               | Overall Browser DL Time (s)         | 12.11     | 11.29  | 2                   | 1                | 8.37      | 8.25    | 2                   | 1                |
|               | Kepler Webpage DL Time (s)          | 5.17      | 5.31   | 1                   | 2                | 4.04      | 5.71    | 1                   | 2                |
| BROWSER       | Mobile Kepler Webpage DL Time (s)   | 1.87      | 2.81   | 1                   | 2                | 2.30      | 3.74    | 1                   | 2                |
| BROV          | www.shein.com Webpage DL Time (s)   | 16.74     | 16.10  | 2                   | 1                | 10.88     | 8.64    | 2                   | 1                |
|               | www.nbs.gov.sc Webpage DL Time (s)  | 14.18     | 13.73  | 2                   | 1                | 11.44     | 8.46    | 2                   | 1                |
|               | www.sbc.sc Webpage DL Time (s)      | 21.51     | 16.11  | 2                   | 1                | 14.02     | 14.70   | 1                   | 2                |
| NCY           | Avg Latency (ms)                    | 266.79    | 214.61 | 2                   | 1                | 287.40    | 185.95  | 2                   | 1                |
| LATENCY       | Median Latency (ms)                 | 210       | 201    | 2                   | 1                | 393.5     | 196     | 2                   | 1                |
| 3E            | YouTube Access Time (s)             | 4.40      | 2.02   | 2                   | 1                | 4.38      | 2.18    | 2                   | 1                |
| YOUTUBE       | YouTube Average Resolution (pixels) | 909.06    | 949.57 | 2                   | 1                | 996.95    | 1046.73 | 2                   | 1                |
| <u> </u>      | YouTube Success Ratio [%]           | 80.00     | 70.00  | 1                   | 2                | 100.00    | 91.67   | 1                   | 2                |



# **3G PREFERRED THROUGHPUT FILE ACCESS**

### Phase-1

| Test Type          | Status  | Airtel 3G | CWS 3G | Airtel 3G (%) | CWS 3G (%) |
|--------------------|---------|-----------|--------|---------------|------------|
| SFTP DL            | Success | 8         | 8      | 100.00        | 100.00     |
| SFIPDL             | Failure | 0         | 0      | 0.00          | 0.00       |
| SFTP UL            | Success | 8         | 9      | 100.00        | 90.00      |
| SFIPUL             | Failure | 0         | 1      | 0.00          | 10.00      |
| HTTP DL            | Success | 8         | 9      | 100.00        | 100.00     |
| HIIPDL             | Failure | 0         | 0      | 0.00          | 0.00       |
| HTTP UL            | Success | 8         | 8      | 80.00         | 80.00      |
| HITPOL             | Failure | 2         | 2      | 20.00         | 20.00      |
| LITTE Connecity DI | Success | 5         | 7      | 100.00        | 100.00     |
| HTTP Capacity DL   | Failure | 0         | 0      | 0.00          | 0.00       |
| UTTD Constitution  | Success | 5         | 7      | 83.33         | 100.00     |
| HTTP Capacity UL   | Failure | 1         | 0      | 16.67         | 0.00       |

| Test Type          | Status  | Airtel 3G | CWS 3G | Airtel 3G (%) | CWS 3G (%) |
|--------------------|---------|-----------|--------|---------------|------------|
| SFTP DL            | Success | 14        | 12     | 100.00        | 100.00     |
| 2FIP DE            | Failure | 0         | 0      | 0.00          | 0.00       |
| SFTP UL            | Success | 12        | 12     | 92.31         | 100.00     |
| SFIP OL            | Failure | 1         | 0      | 7.69          | 0.00       |
| HTTP DL            | Success | 12        | 11     | 100.00        | 100.00     |
| HITPUL             | Failure | 0         | 0      | 0.00          | 0.00       |
| HTTP UL            | Success | 12        | 10     | 100.00        | 83.33      |
| HITPOL             | Failure | 0         | 2      | 0.00          | 16.67      |
| HTTD Connectity DI | Success | 10        | 9      | 100.00        | 100.00     |
| HTTP Capacity DL   | Failure | 0         | 0      | 0.00          | 0.00       |
|                    | Success | 10        | 8      | 100.00        | 100.00     |
| HTTP Capacity UL   | Failure | 0         | 0      | 0.00          | 0.00       |



# **3G PREFERRED BROWSING FILE ACCESS**

### Phase-1

| Web Page       | Status  | Airtel 3G | CWS 3G | Airtel 3G(%) | CWS 3G (%) |
|----------------|---------|-----------|--------|--------------|------------|
| Kowley         | Success | 6         | 4      | 100.00       | 50.00      |
| Kepler         | Failure | 0         | 4      | 0.00         | 50.00      |
| Mobile Kepler  | Success | 6         | 6      | 100.00       | 85.71      |
| Wobile Replet  | Failure | 0         | 1      | 0.00         | 14.29      |
|                | Success | 7         | 7      | 100.00       | 87.50      |
| www.shein.com  | Failure | 0         | 1      | 0.00         | 12.50      |
|                | Success | 7         | 7      | 100.00       | 87.50      |
| www.nbs.gov.sc | Failure | 0         | 1      | 0.00         | 12.50      |
| www.sbc.sc     | Success | 6         | 5      | 85.71        | 71.43      |
|                | Failure | 1         | 2      | 14.29        | 28.57      |

| Web Page       | Status  | Airtel 3G | CWS 3G | Airtel 3G(%) | CWS 3G (%) |
|----------------|---------|-----------|--------|--------------|------------|
| Kardar         | Success | 11        | 7      | 91.67        | 87.50      |
| Kepler         | Failure | 1         | 1      | 8.33         | 12.50      |
|                | Success | 10        | 7      | 100.00       | 87.50      |
| Mobile Kepler  | Failure | 0         | 1      | 0.00         | 12.50      |
| www.shein.com  | Success | 12        | 7      | 100.00       | 87.50      |
| www.snein.com  | Failure | 0         | 1      | 0.00         | 12.50      |
|                | Success | 9         | 7      | 100.00       | 87.50      |
| www.nbs.gov.sc | Failure | 0         | 1      | 0.00         | 12.50      |
| www.sbc.sc     | Success | 9         | 7      | 90.00        | 87.50      |
|                | Failure | 1         | 1      | 10.00        | 12.50      |



# **3G PREFERRED LATENCY**

## Phase-1

|                 | Latency KPIs   | Airtel 3G | CWS 3G |
|-----------------|--|-----------|--------|
|                 | Sample Count [32 bytes]                              | 10        | 17     |
|                 | Average Latency [ms]                                 | 306.60    | 209.82 |
|                 | Median Latency [ms]                                  | 355       | 211    |
| Overall Latency | Ping session status: Successful                      | 10        | 17     |
|                 | Ping session status: Failed [Socket error]           | 0         | 0      |
|                 | Ping session status: Failed [Protocol error timeout] | 3         | 0      |
|                 | Packet Loss<1%                                       | 23.08     | 0.00   |
|                 | Average Latency [ms]                                 | 418.60    | 166.86 |
|                 | Median Latency [ms]                                  | 416       | 151    |
|                 | Ping session status: Successful                      | 5         | 7      |
| www.google.com  | Ping session status: Failed [Socket error]           | 0         | 0      |
|                 | Ping session status: Failed [Protocol error timeout] | 0         | 0      |
|                 | Packet Loss<1%                                       | 0.00      | 0.00   |
|                 | Average Latency [ms]                                 | 194.60    | 239.90 |
|                 | Median Latency [ms]                                  | 176       | 220    |
| 102.133.176.104 | Ping session status: Successful                      | 5         | 10     |
| 102.133.176.104 | Ping session status: Failed [Socket error]           | 0         | 0      |
|                 | Ping session status: Failed [Protocol error timeout] | 3         | 0      |
|                 | Packet Loss<1%                                       | 37.50     | 0.00   |

|                 | Latency KPIs   | Airtel 3G | CWS 3G |
|-----------------|--|-----------|--------|
| Overall Latency | Sample Count [32 bytes]                              | 17        | 20     |
|                 | Average Latency [ms]                                 | 306.41    | 185.30 |
|                 | Median Latency [ms]                                  | 405       | 196    |
|                 | Ping session status: Successful                      | 17        | 20     |
|                 | Ping session status: Failed [Socket error]           | 0         | 0      |
|                 | Ping session status: Failed [Protocol error timeout] | 5         | 1      |
|                 | Packet Loss<1%                                       | 22.73     | 4.76   |
| www.google.com  | Average Latency [ms]                                 | 417.70    | 162.44 |
|                 | Median Latency [ms]                                  | 418       | 154    |
|                 | Ping session status: Successful                      | 10        | 9      |
|                 | Ping session status: Failed [Socket error]           | 0         | 0      |
|                 | Ping session status: Failed [Protocol error timeout] | 0         | 0      |
|                 | Packet Loss<1%                                       | 0.00      | 0.00   |
| 102.133.176.104 | Average Latency [ms]                                 | 147.43    | 204.00 |
|                 | Median Latency [ms]                                  | 136       | 200    |
|                 | Ping session status: Successful                      | 7         | 11     |
|                 | Ping session status: Failed [Socket error]           | 0         | 0      |
|                 | Ping session status: Failed [Protocol error timeout] | 5         | 1      |
|                 | Packet Loss<1%                                       | 41.67     | 8.33   |



# **3G PREFERRED YOUTUBE COMPARISON**

### Phase-1

| UMTS YOUTUBE Success Ratio          |           |        |  |  |
|-------------------------------------|-----------|--------|--|--|
| KPIs                                | Airtel 3G | CWS 3G |  |  |
| Attempt(Count)                      | 10        | 10     |  |  |
| Success(Count)                      | 8         | 7      |  |  |
| Failure(Count)                      | 2         | 3      |  |  |
| YouTube Access Time (s)             | 4.40      | 2.02   |  |  |
| YouTube Average Resolution (pixels) | 909.06    | 949.57 |  |  |
| YouTube Success Ratio [%]           | 80.00     | 70.00  |  |  |

| UMTS YOUTUBE Success Ratio          |           |         |  |  |
|-------------------------------------|-----------|---------|--|--|
| KPIs                                | Airtel 3G | CWS 3G  |  |  |
| Attempt(Count)                      | 12        | 12      |  |  |
| Success(Count)                      | 12        | 11      |  |  |
| Failure(Count)                      | 0         | 1       |  |  |
| YouTube Access Time (s)             | 4.38      | 2.18    |  |  |
| YouTube Average Resolution (pixels) | 996.95    | 1046.73 |  |  |
| YouTube Success Ratio [%]           | 100.00    | 91.67   |  |  |

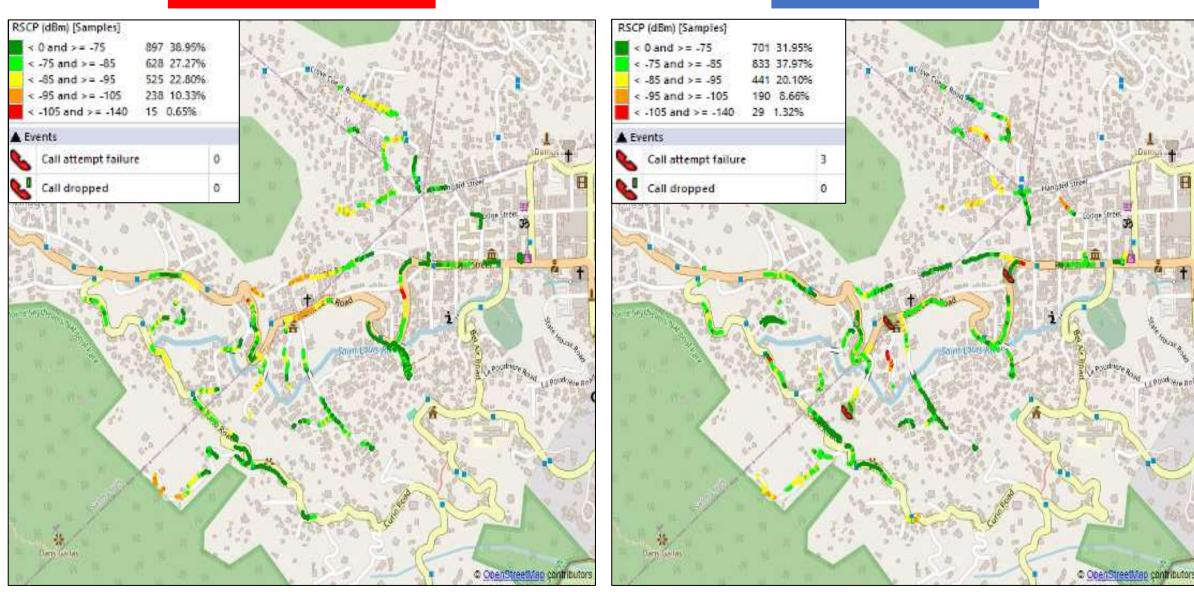


# **Voice Call Events**



## Phase-1 SHORT CALL FAILURE EVENTS LOCATION vs RSCP

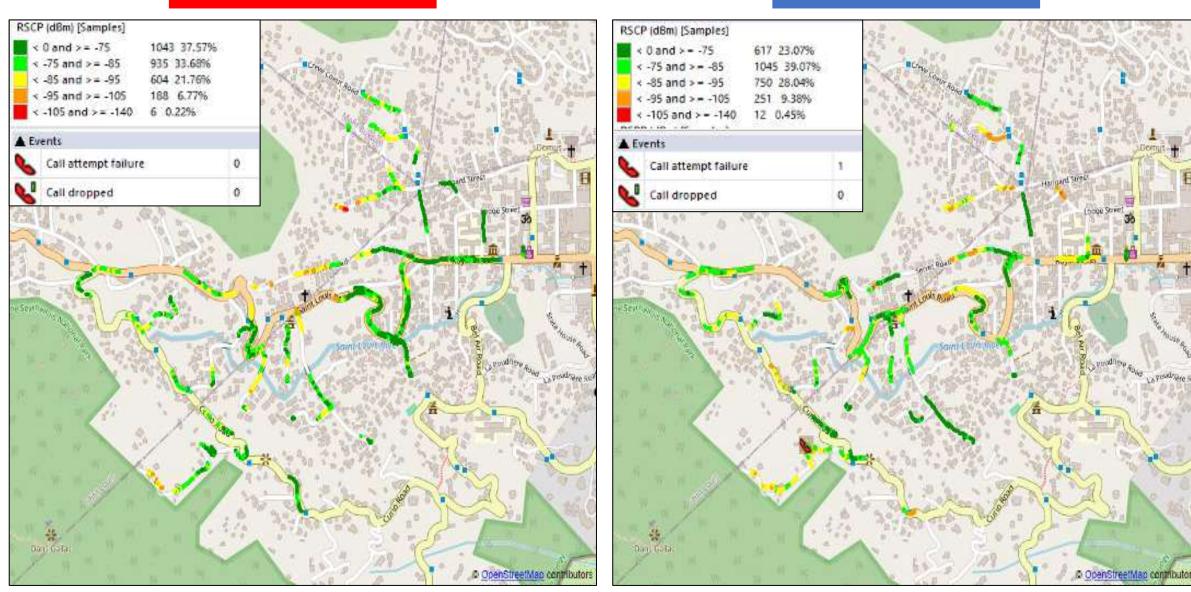






## Phase-2 SHORT CALL FAILURE EVENTS LOCATION vs RSCP



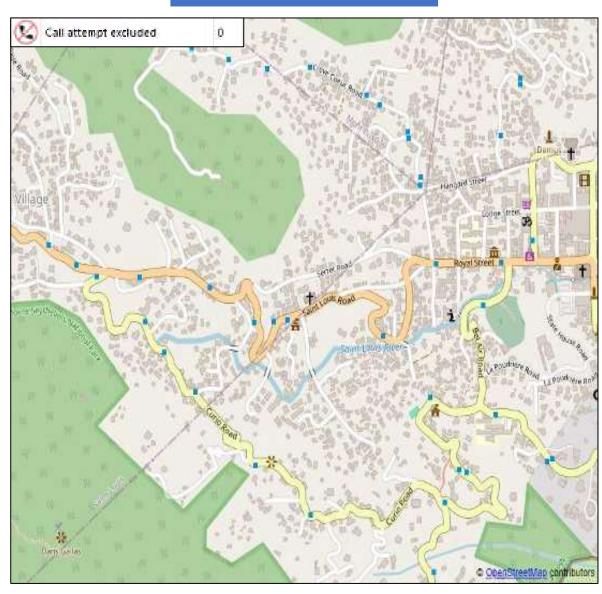




# **Phase-1 SHORT CALL EXCLUDED EVENTS**

### **Airtel SC MO**



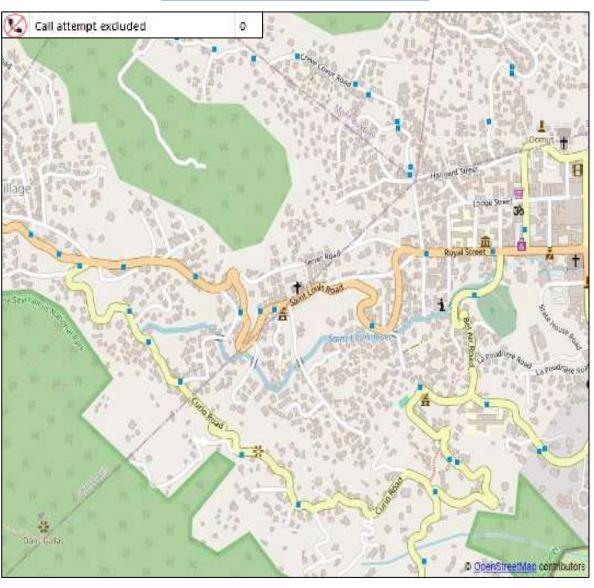




# **Phase-2 SHORT CALL EXCLUDED EVENTS**

### Airtel SC MO

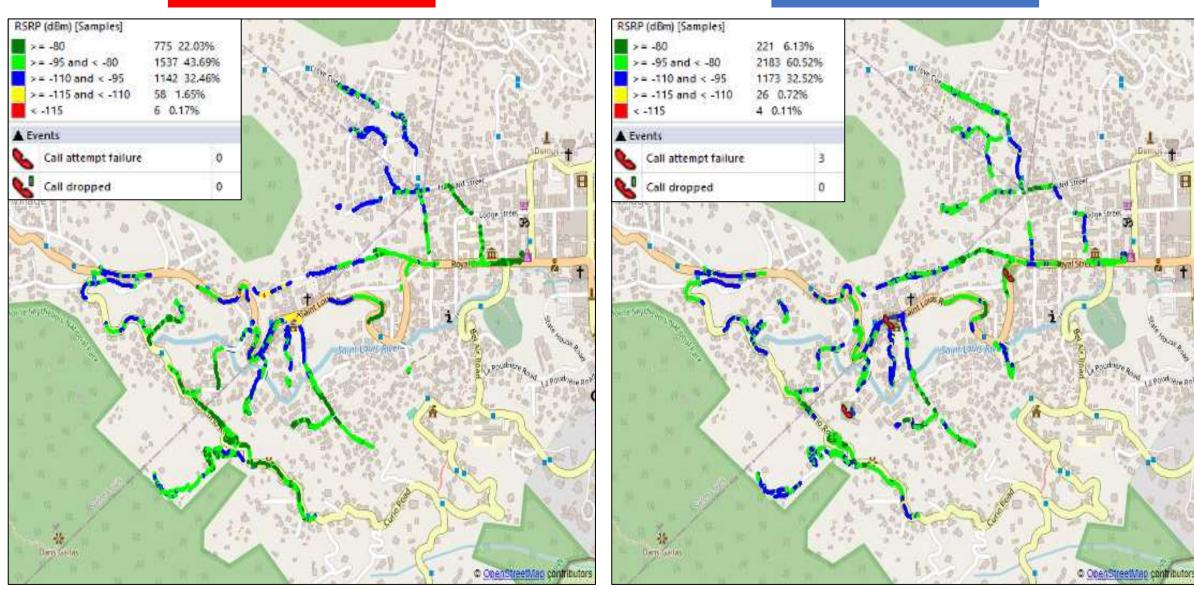






## Phase-1 SHORT CALL FAILURE EVENTS LOCATION vs RSRP

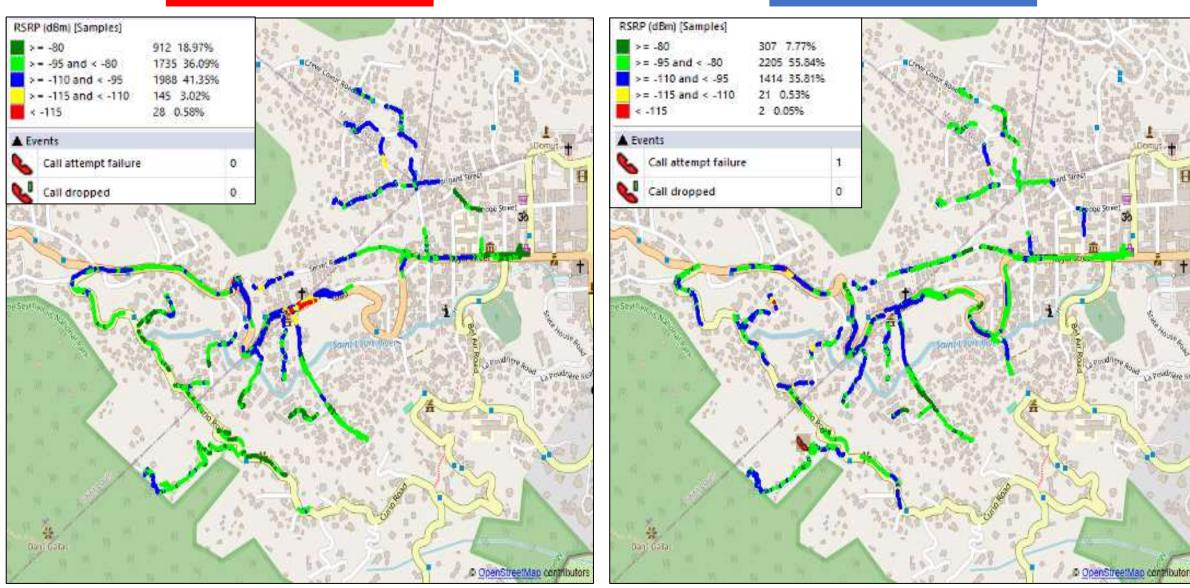






## Phase-2 SHORT CALL FAILURE EVENTS LOCATION vs RSRP

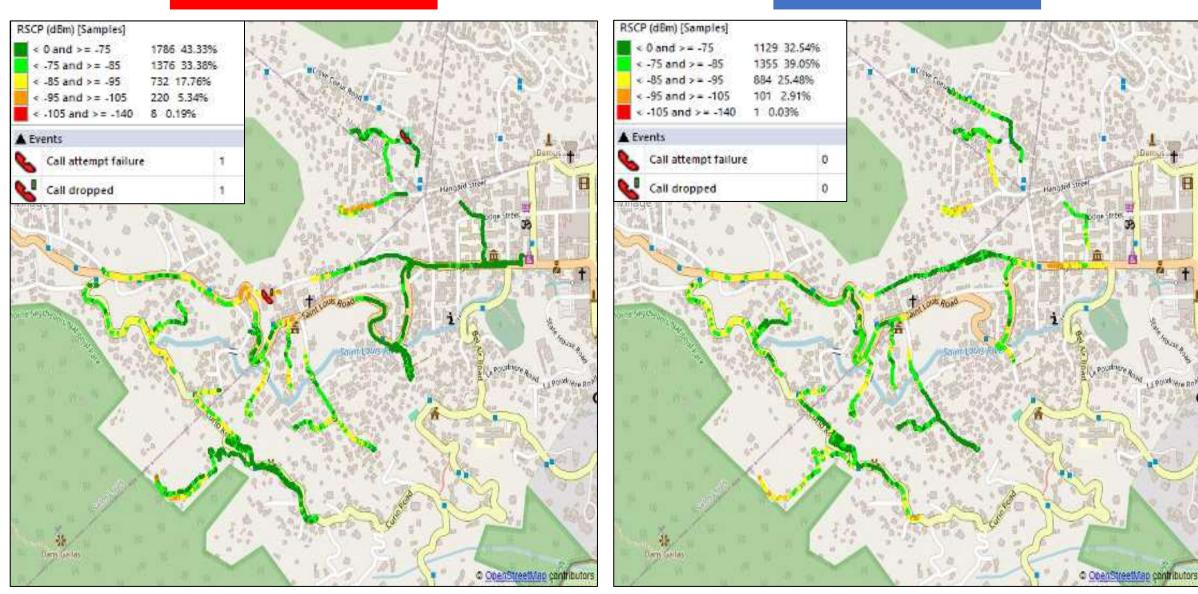






### Phase-1 LONG CALL FAILURE EVENTS LOCATION vs RSCP

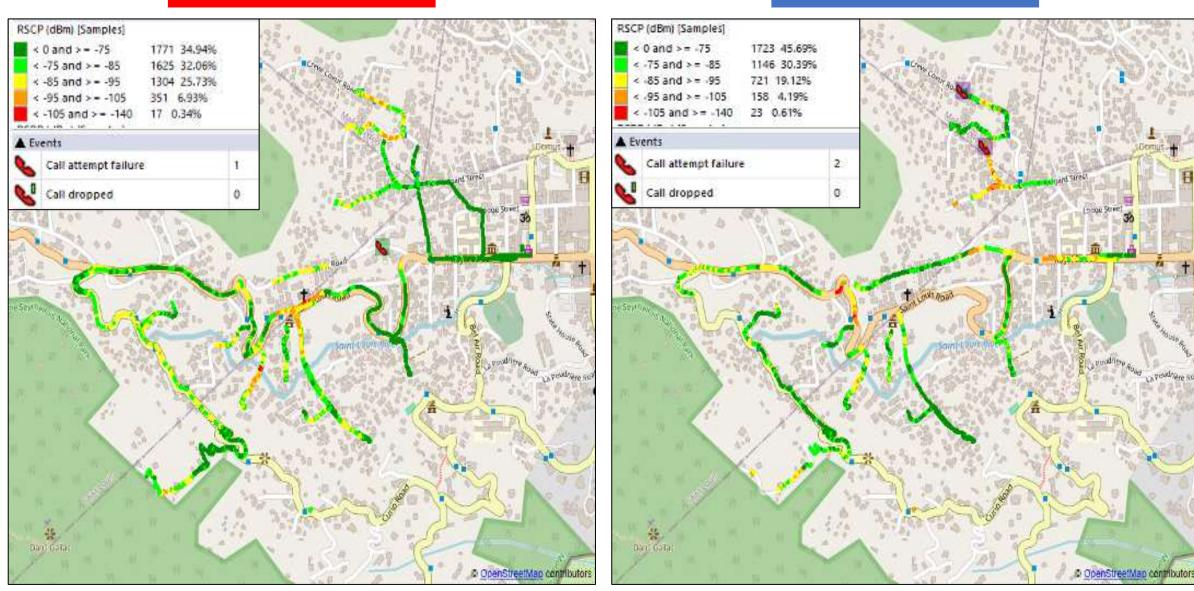
### **Airtel LC MO**





### Phase-2 LONG CALL FAILURE EVENTS LOCATION vs RSCP

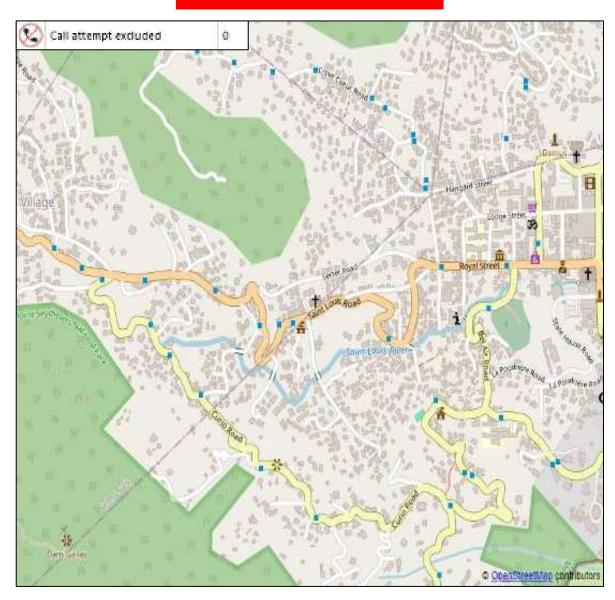
### **Airtel LC MO**

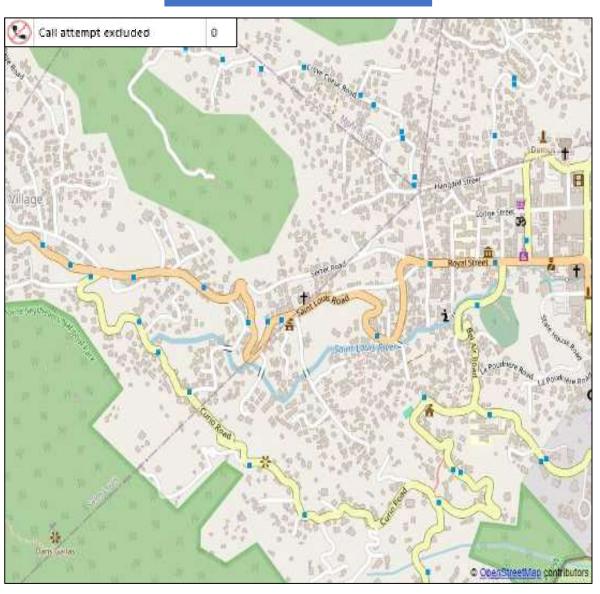




# **Phase-1 LONG CALL EXCLUDED EVENTS**

### **Airtel LC MO**

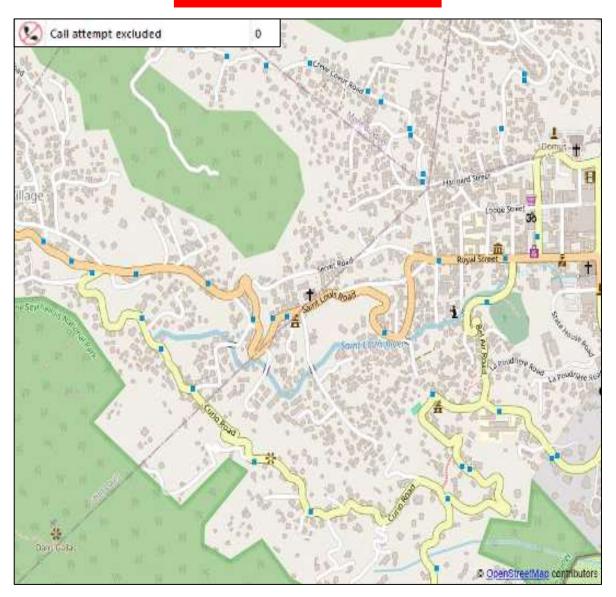






## **Phase-2 LONG CALL EXCLUDED EVENTS**

### **Airtel LC MO**

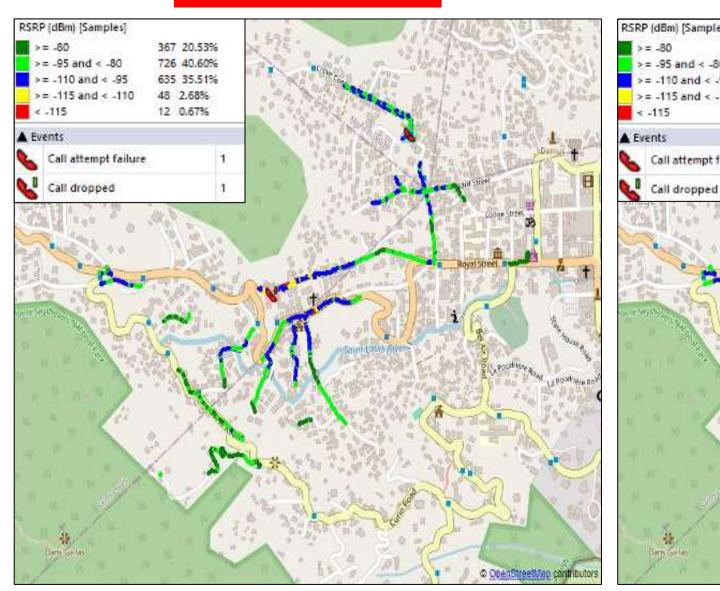


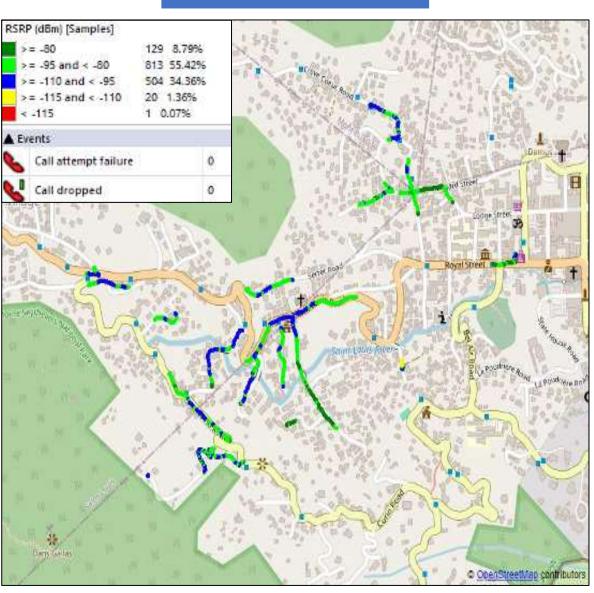




## Phase-1 LONG CALL FAILURE EVENTS LOCATION vs RSRP

### **Airtel LC MO**

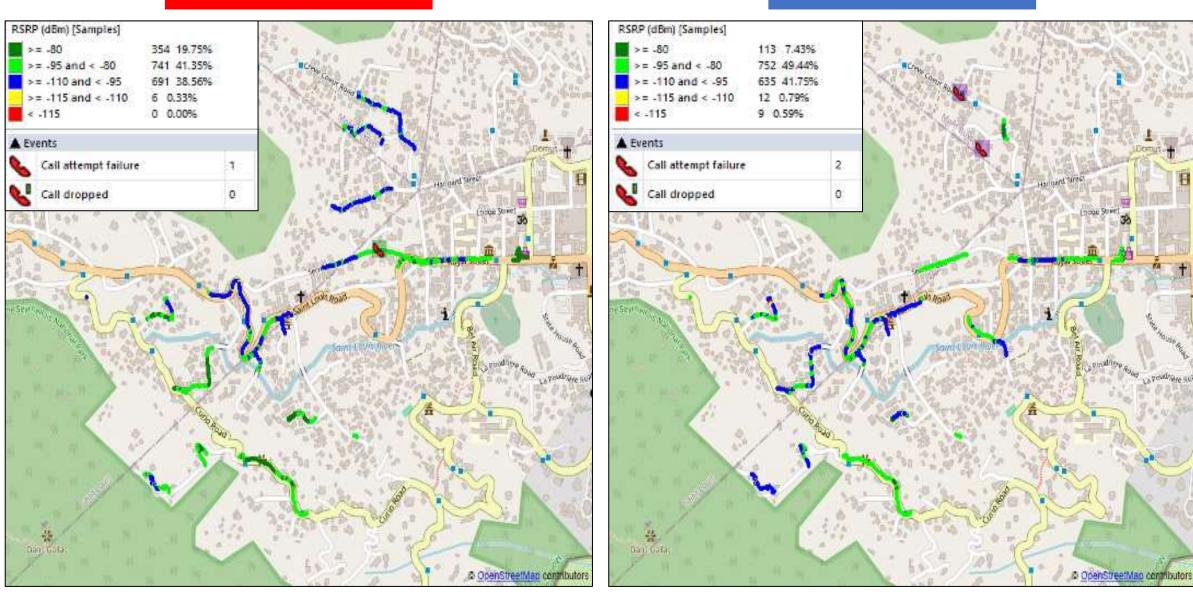






## Phase-2 LONG CALL FAILURE EVENTS LOCATION vs RSRP

### **Airtel LC MO**

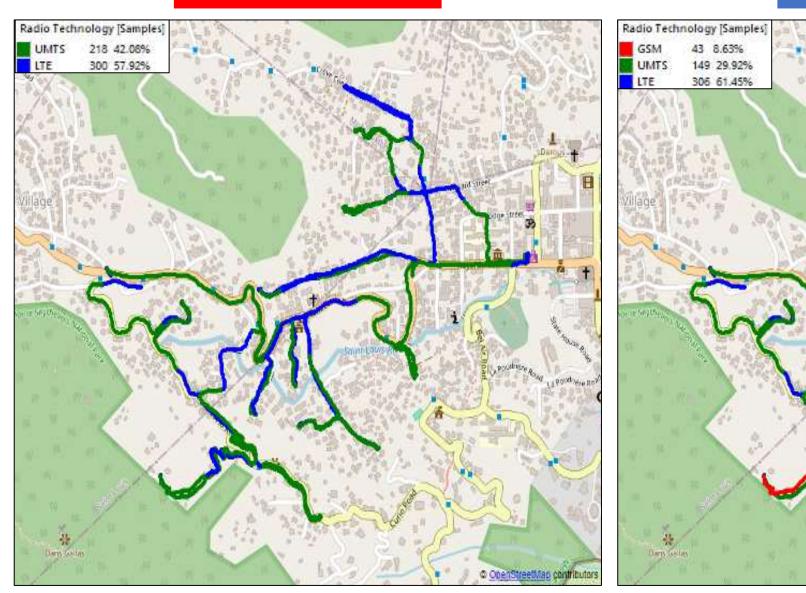


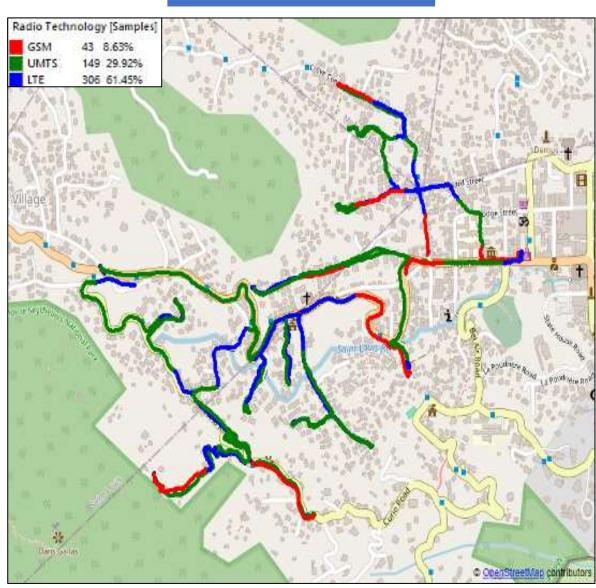


# **LONG CALL DRIVE PLOTS**

# **Phase-1 Long Call RADIO TECHNOLOGY PLOT**

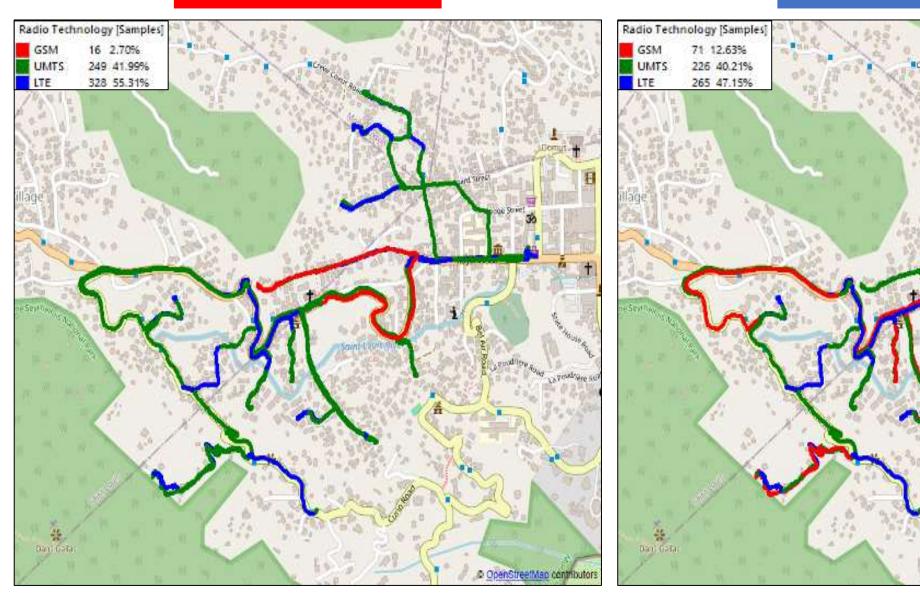






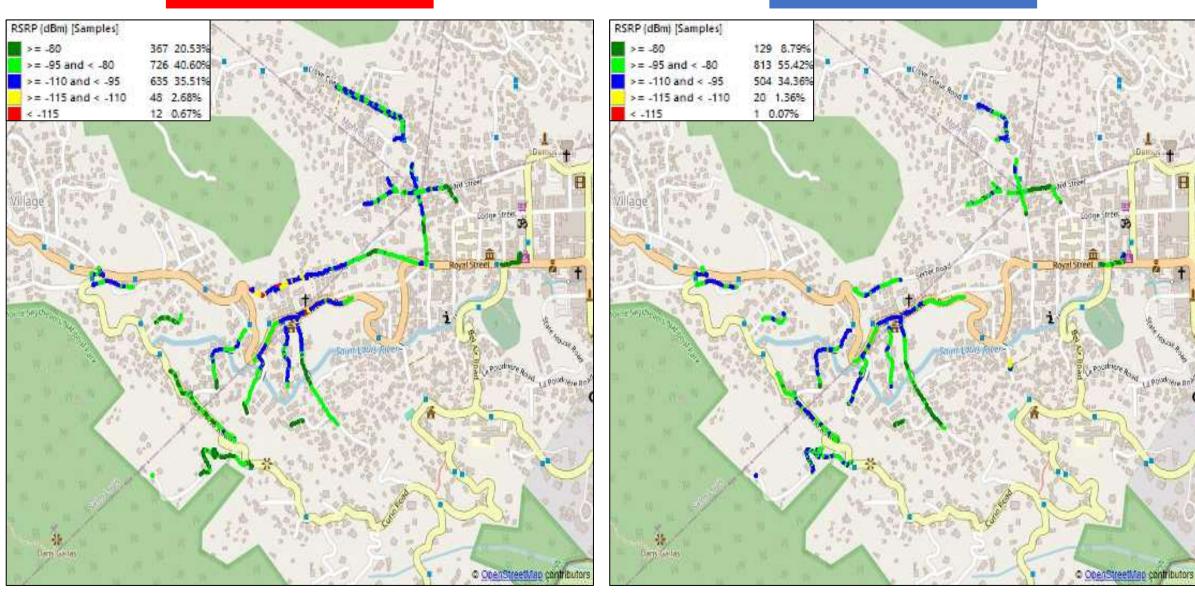
# **Phase-2 Long Call RADIO TECHNOLOGY PLOT**





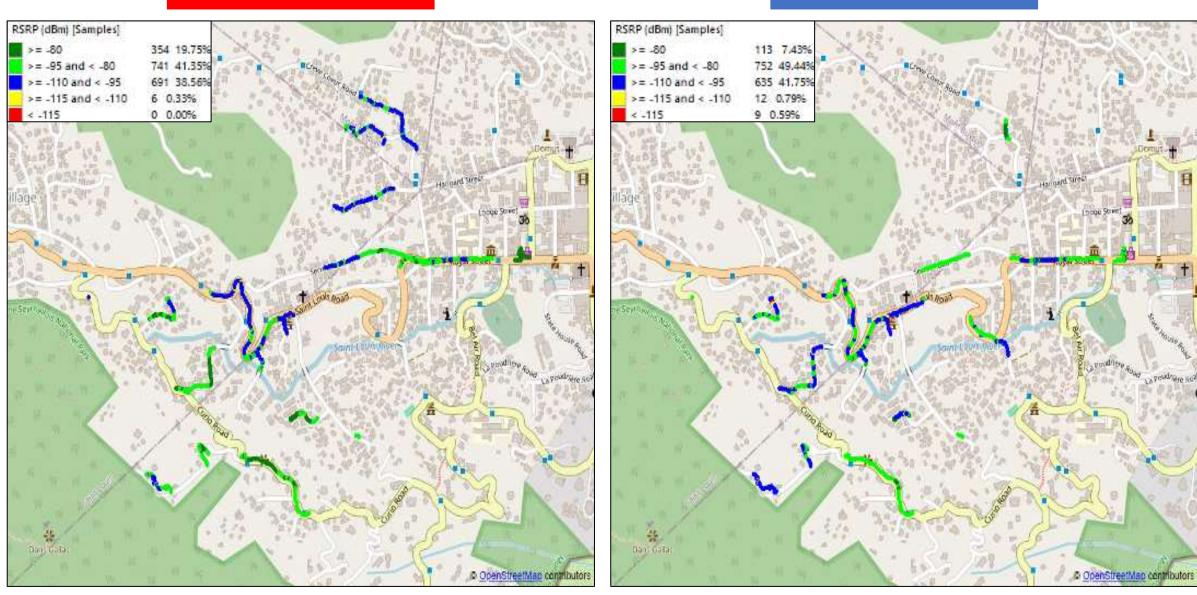
# **Phase-1 Long Call RSRP PLOT**





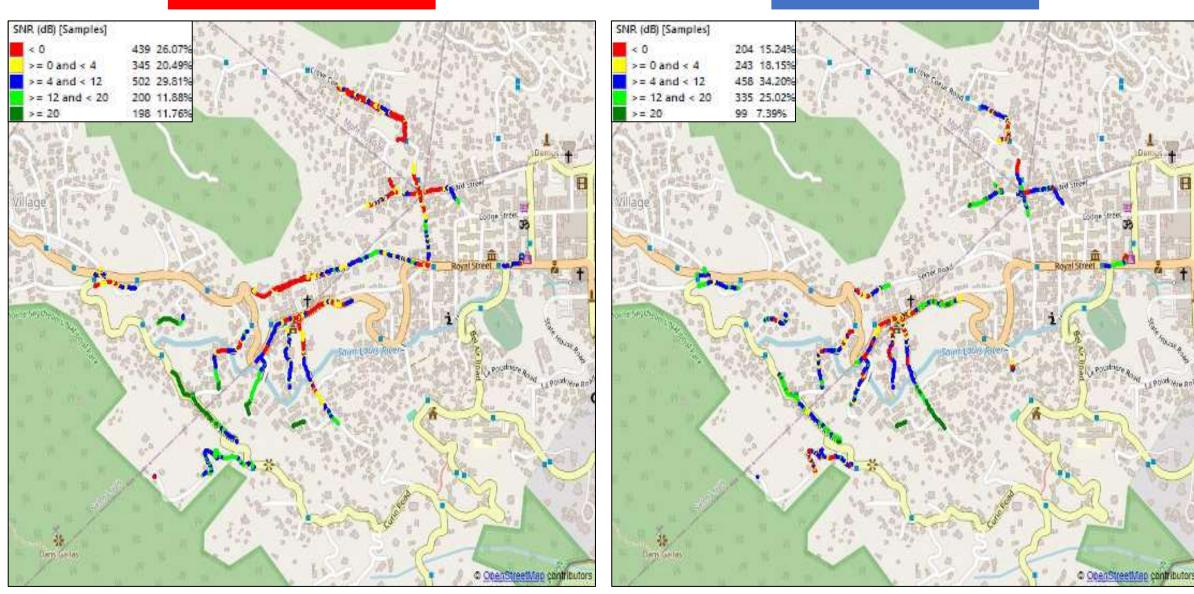
# **Phase-2 Long Call RSRP PLOT**

### **Airtel LC MO**



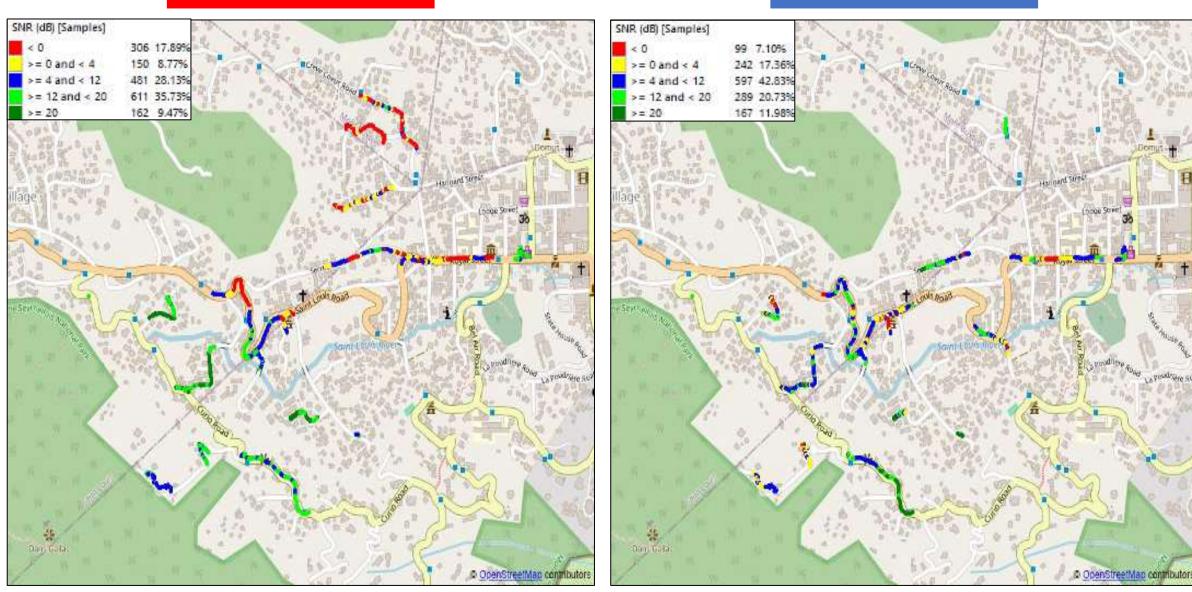
# **Phase-1 Long Call SINR PLOT**





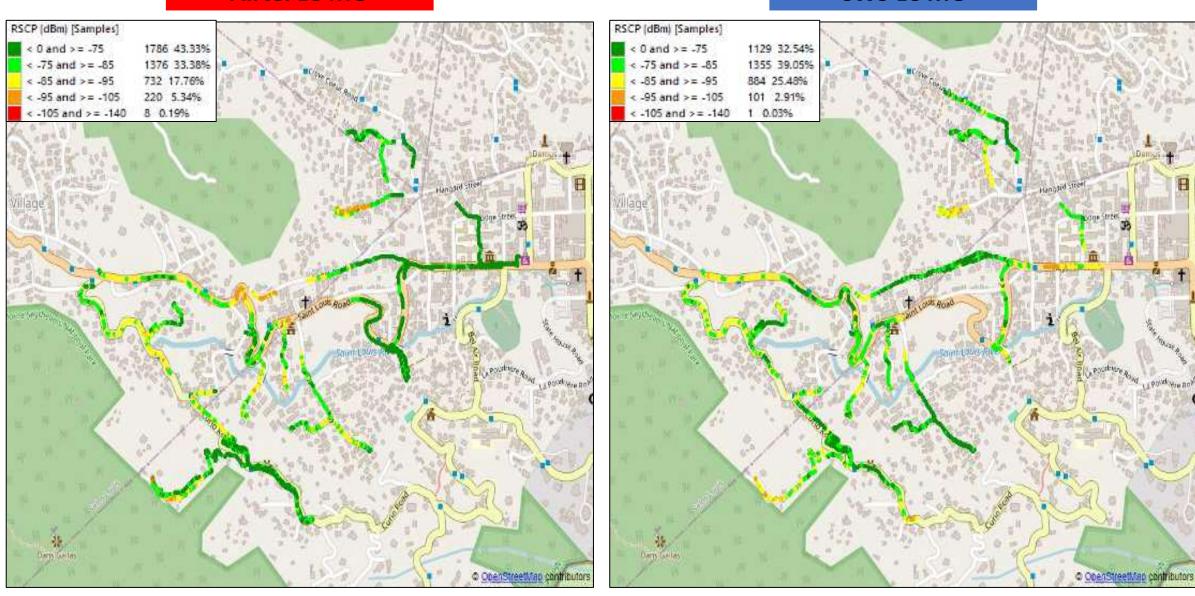
# **Phase-2 Long Call SINR PLOT**





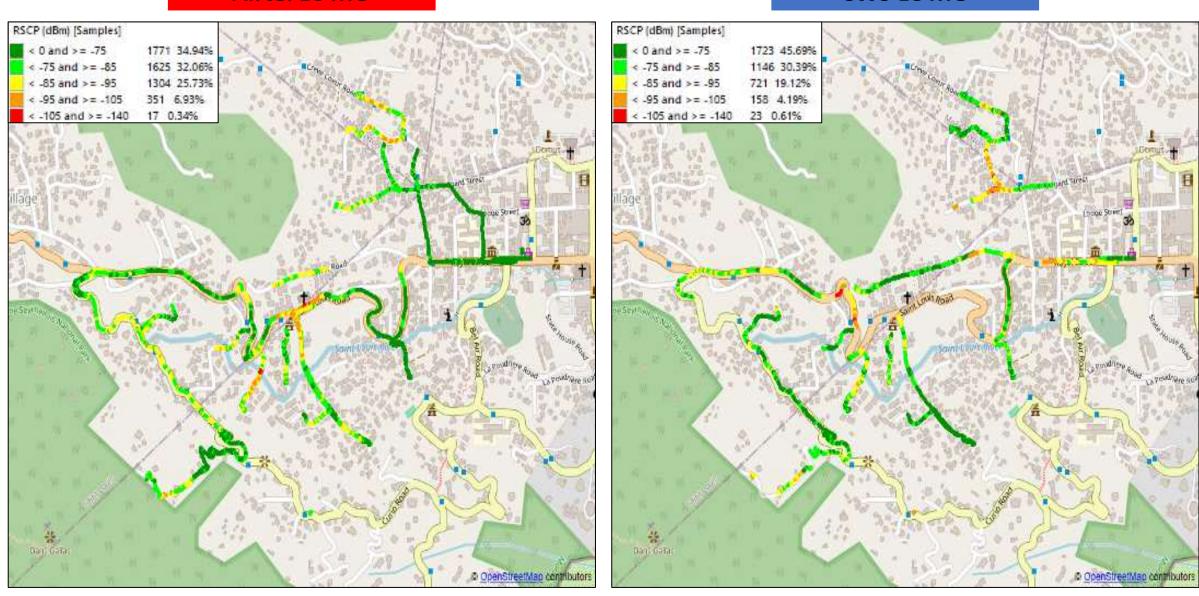
# **Phase-1 Long Call RSCP PLOT**

## Airtel LC MO



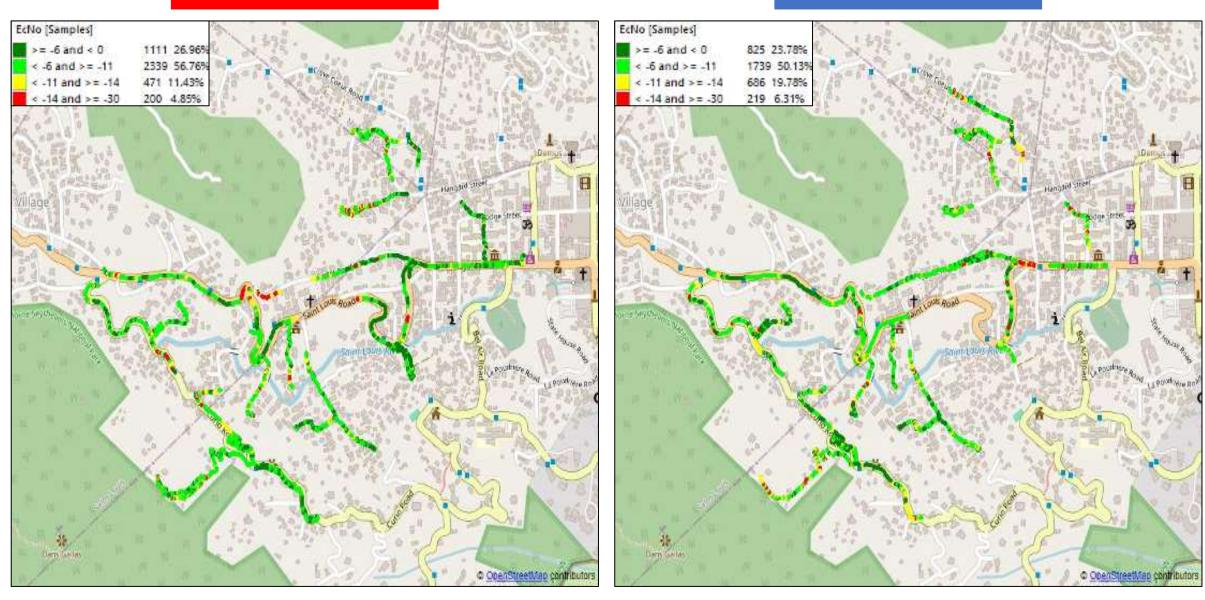
# **Phase-2 Long Call RSCP PLOT**

### **Airtel LC MO**



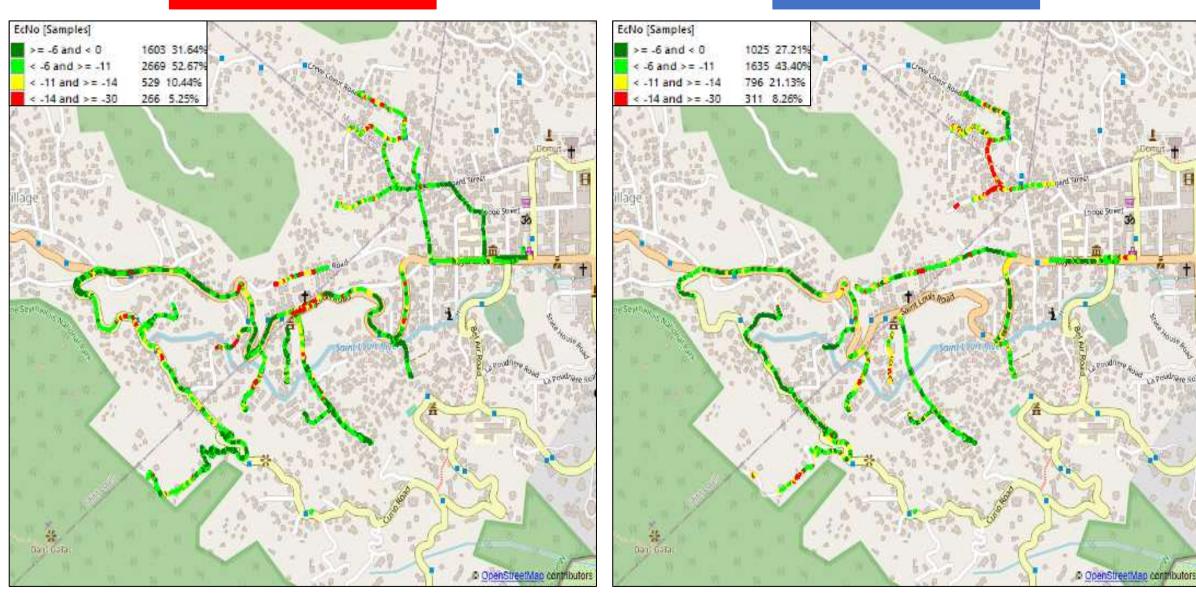
# Phase-1 Long Call EC/NO PLOT





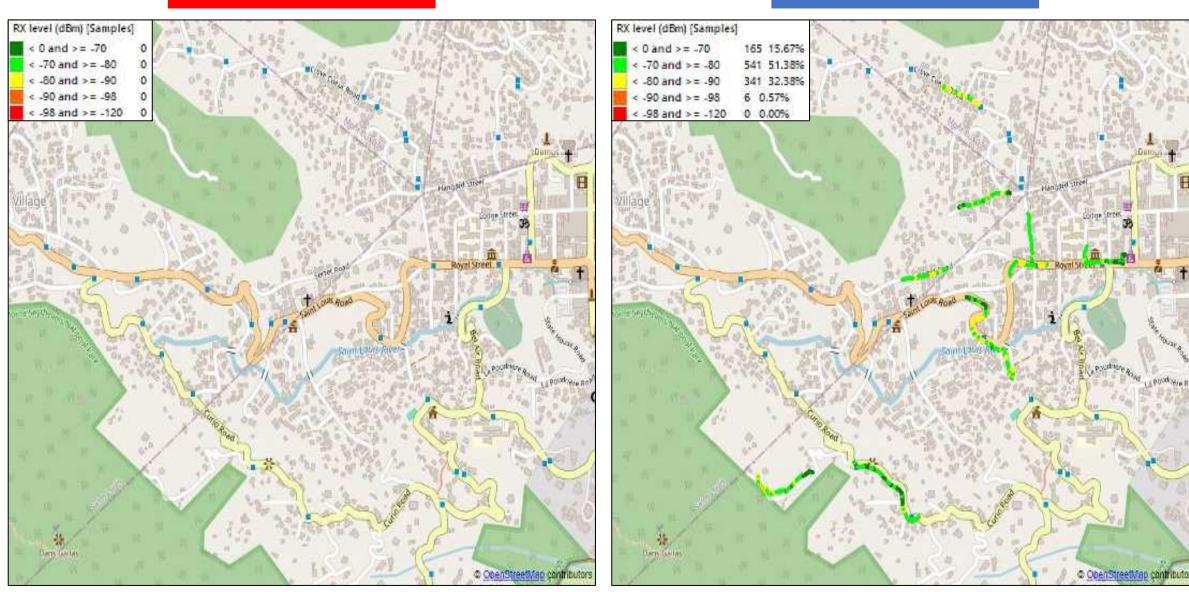
# Phase-2 Long Call EC/NO PLOT





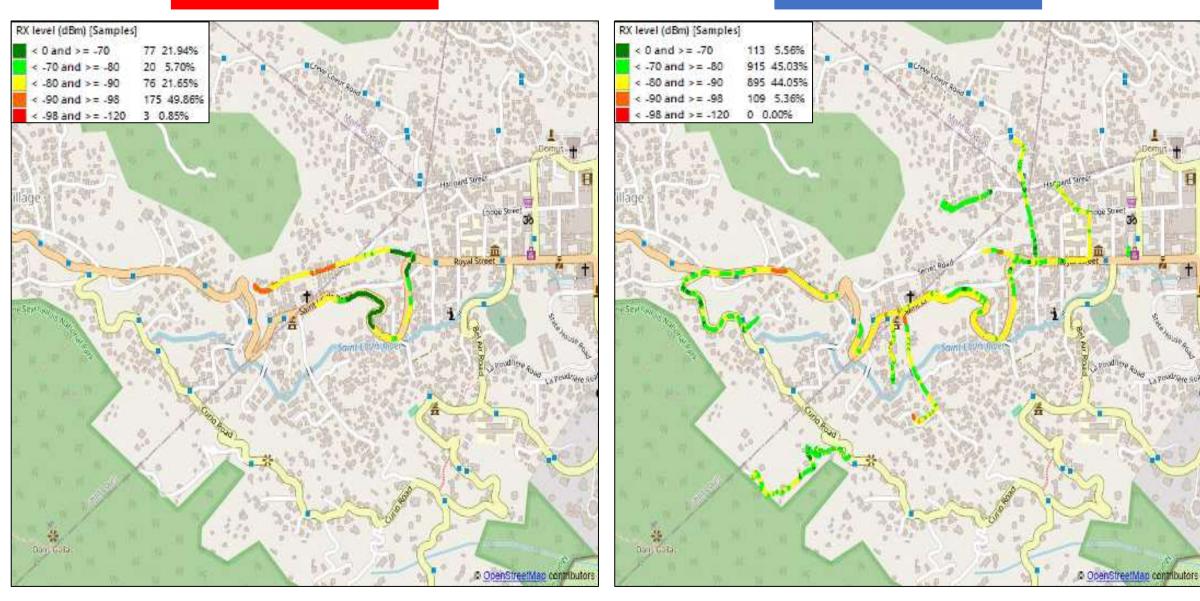
# **Phase-1 Long Call RX level sub PLOT**





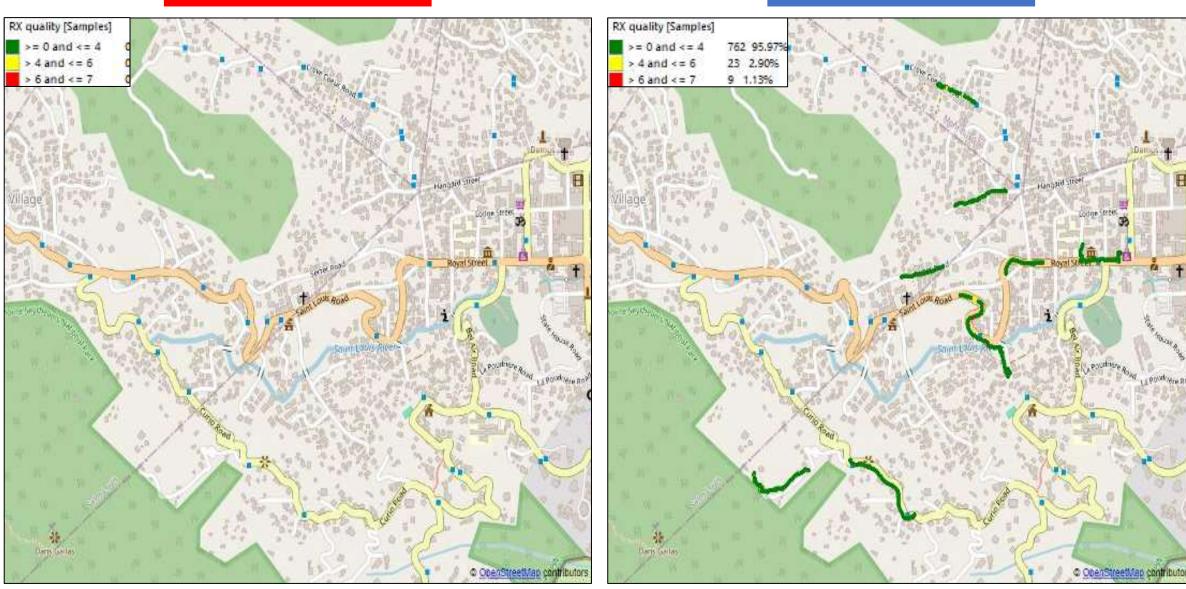
# **Phase-2 Long Call RX level sub PLOT**

### **Airtel LC MO**



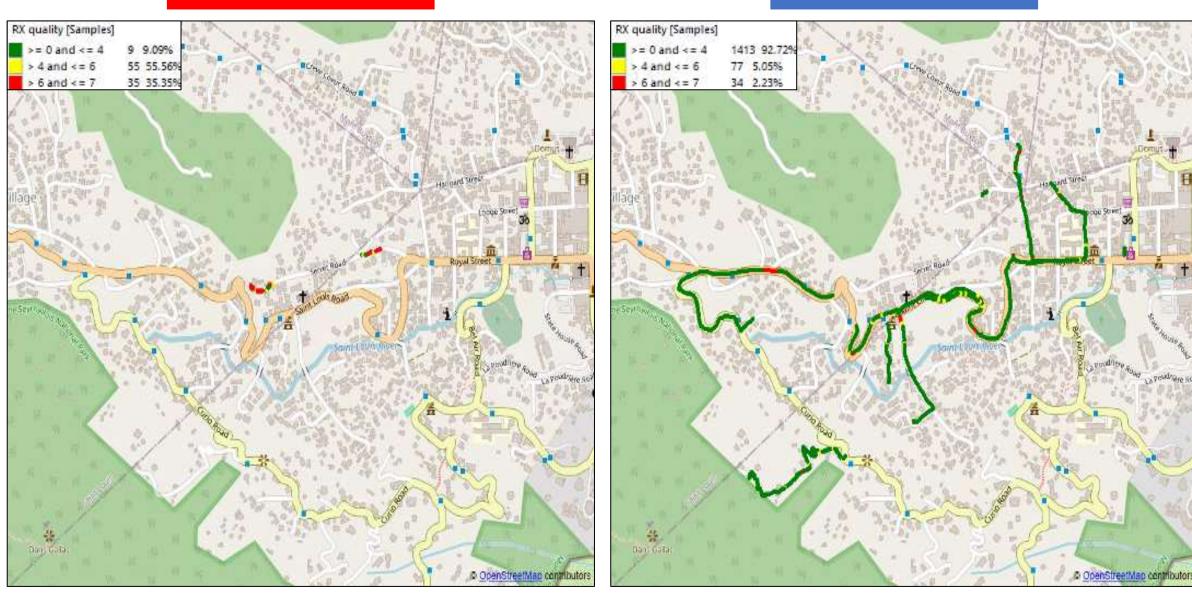
# **Phase-1 Long Call RX quality sub PLOT**





# **Phase-2 Long Call RX quality sub PLOT**

### **Airtel LC MO**

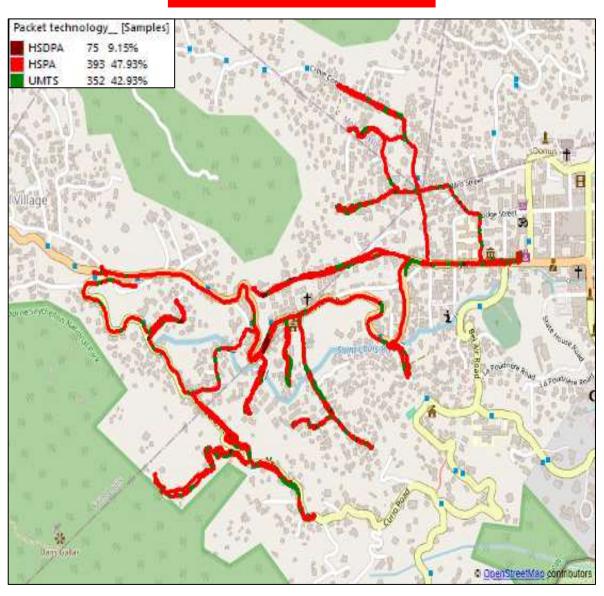


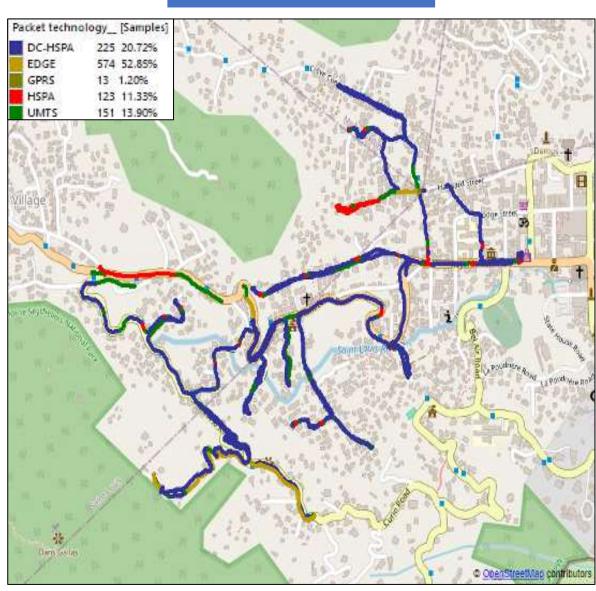


# **3G PREFERRED DATA DRIVE PLOTS**

# Phase-1 3G PREFERRED DATA TEST - TECHNOLOGY PLOT

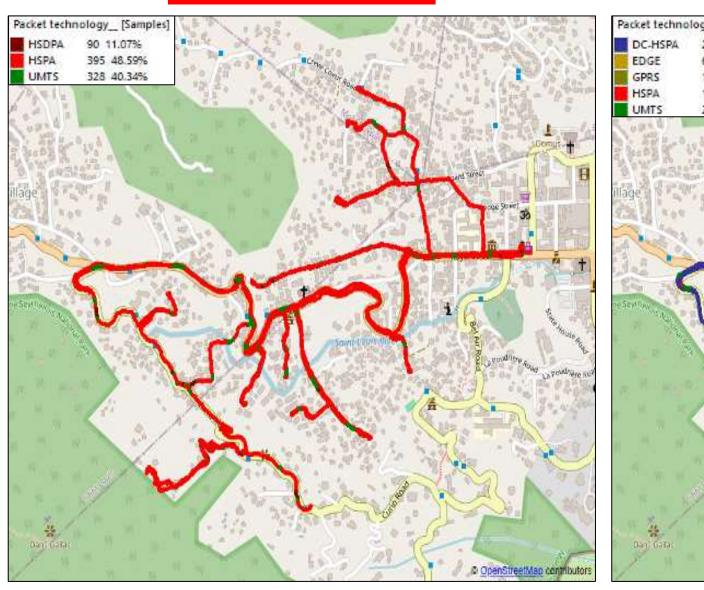


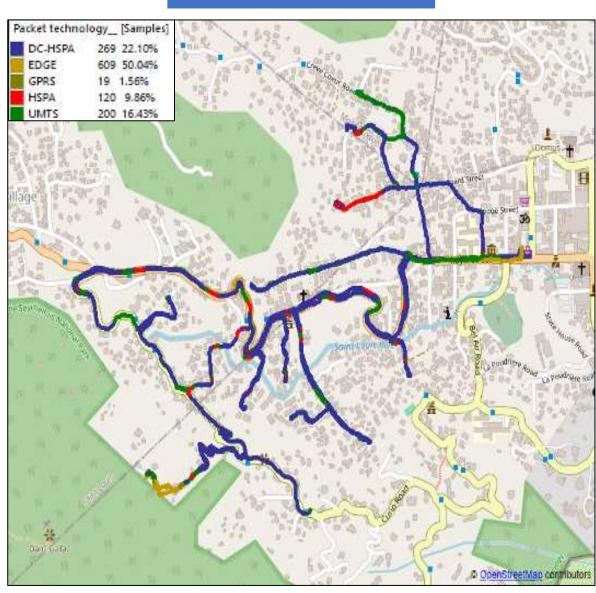




# Phase-2 3G PREFERRED DATA TEST - TECHNOLOGY PLOT

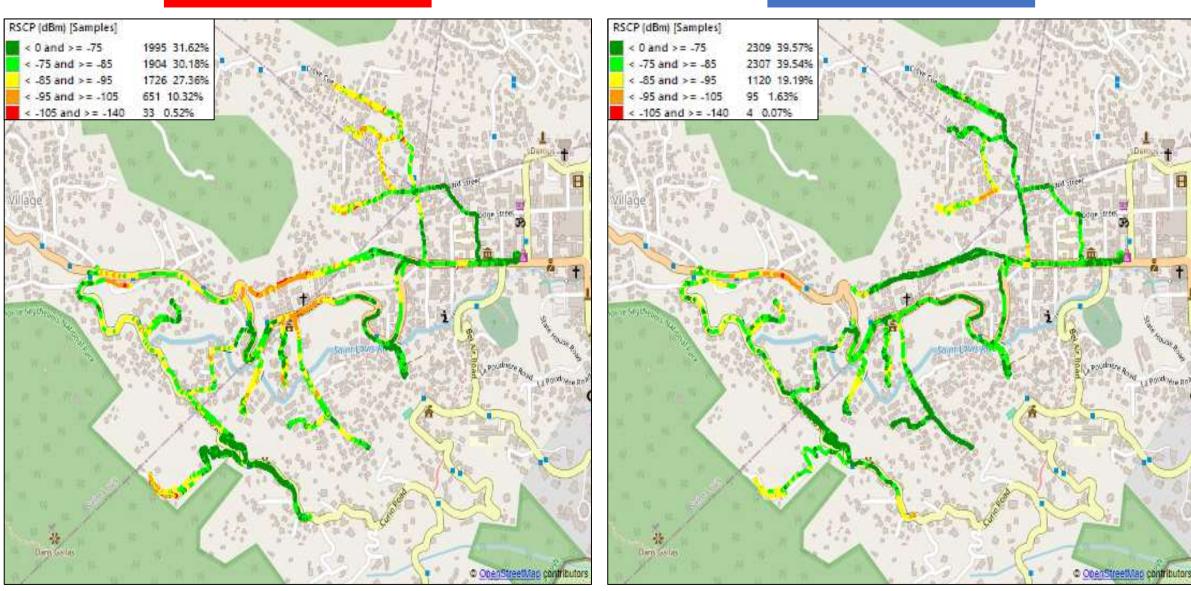






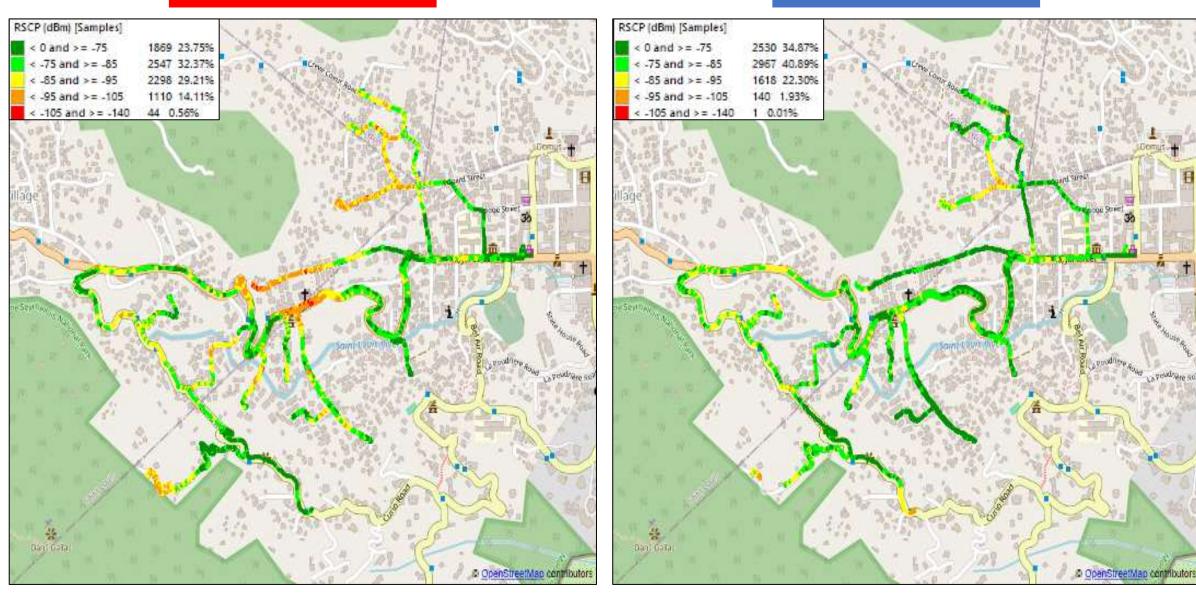
# Phase-1 3G PREFERRED DATA TEST - RSCP PLOT





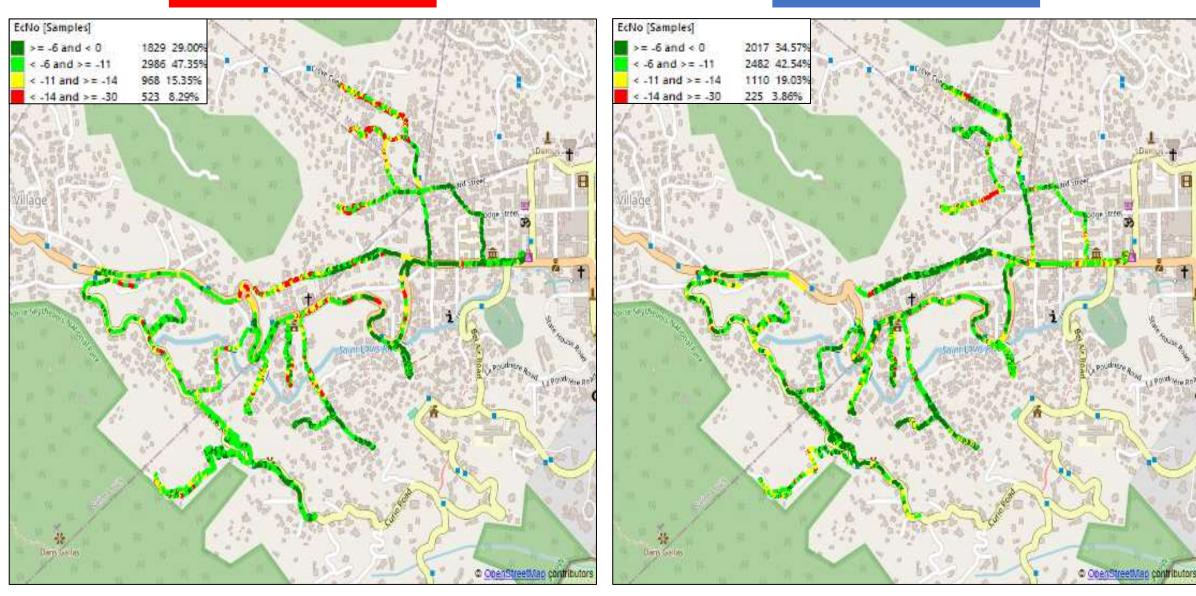
# Phase-2 3G PREFERRED DATA TEST - RSCP PLOT





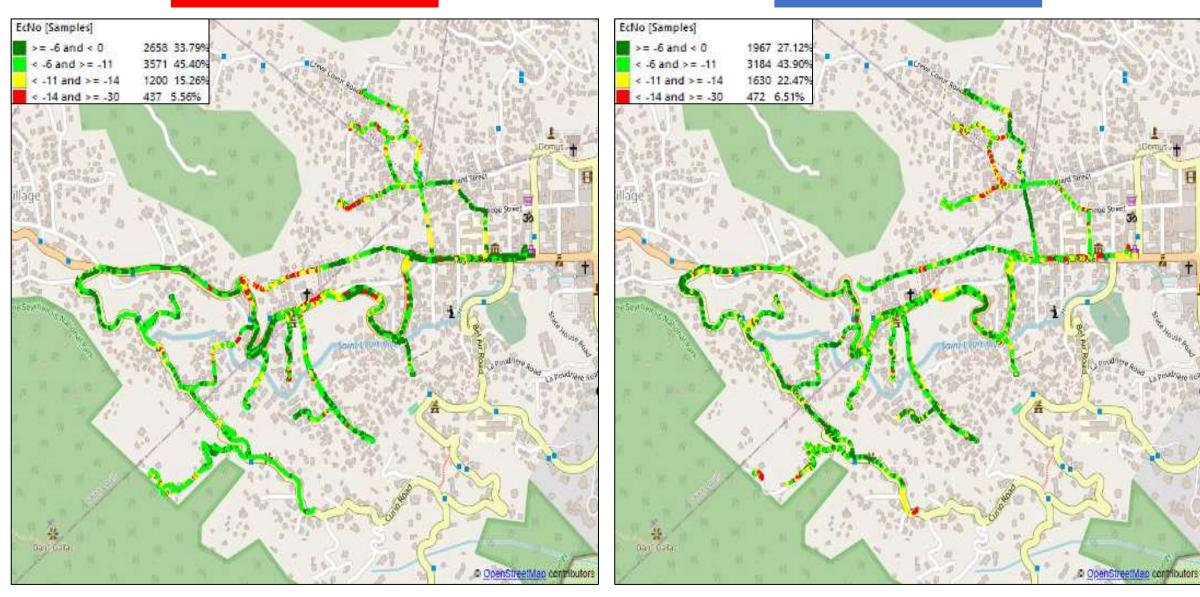
# Phase-1 3G PREFERRED DATA TEST - EC/NO PLOT





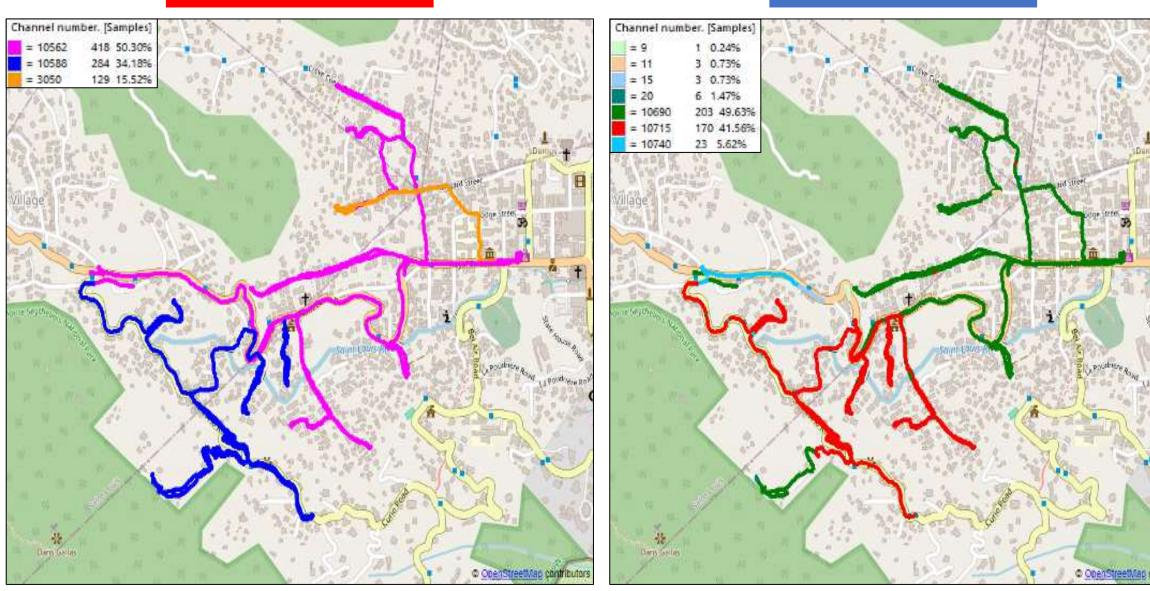
# Phase-2 3G PREFERRED DATA TEST - EC/NO PLOT





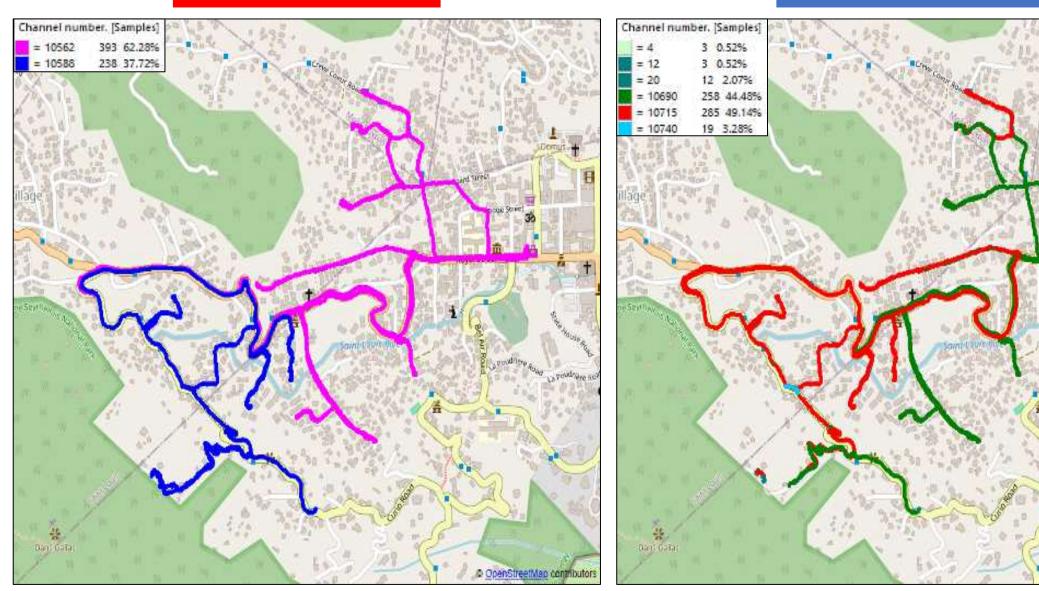
# Phase-1 3G PREFERRED DATA TEST - UARFCN PLOT





# Phase-2 3G PREFERRED DATA TEST - UARFCN PLOT



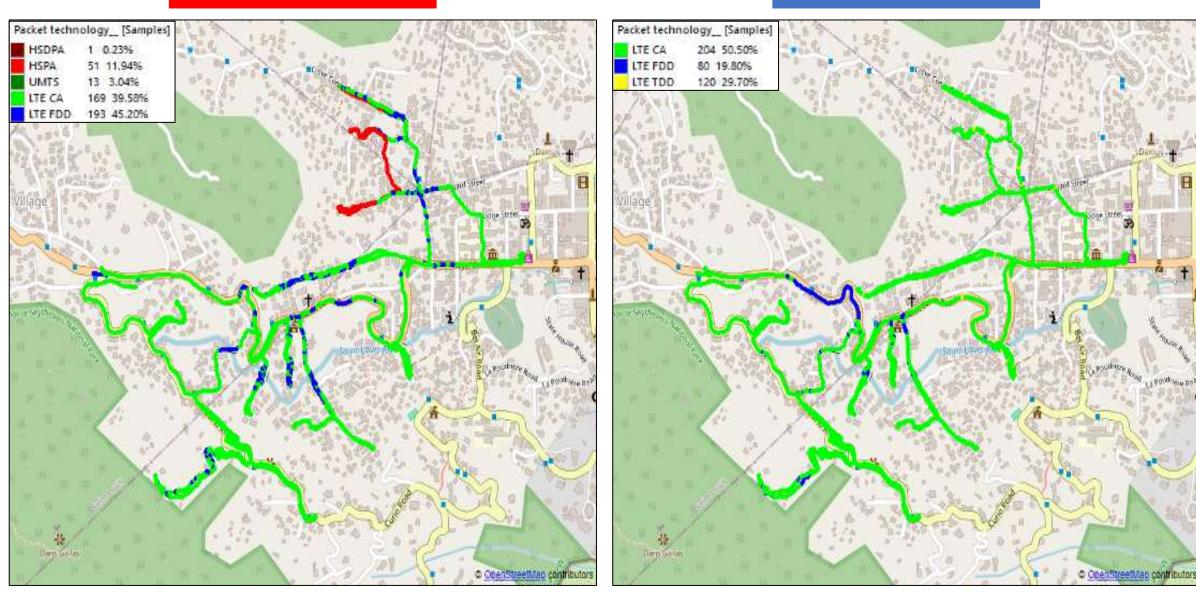




# 4G PREFERRED DATA DRIVE PLOTS

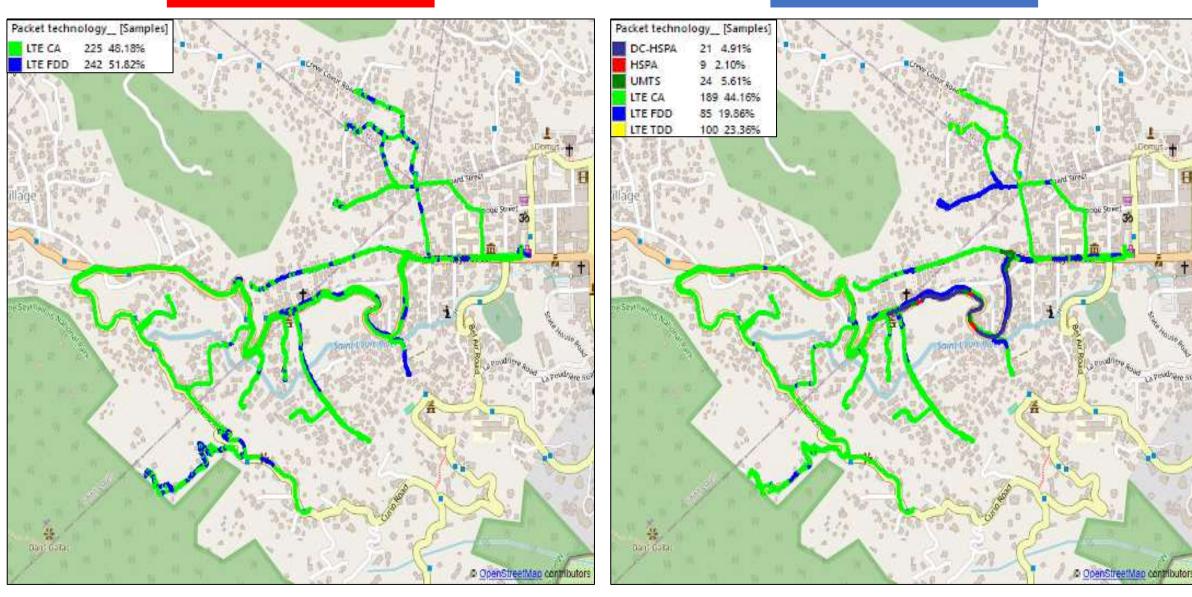
# Phase-1 4G PREFERRED DATA TEST - TECHNOLOGY PLOT





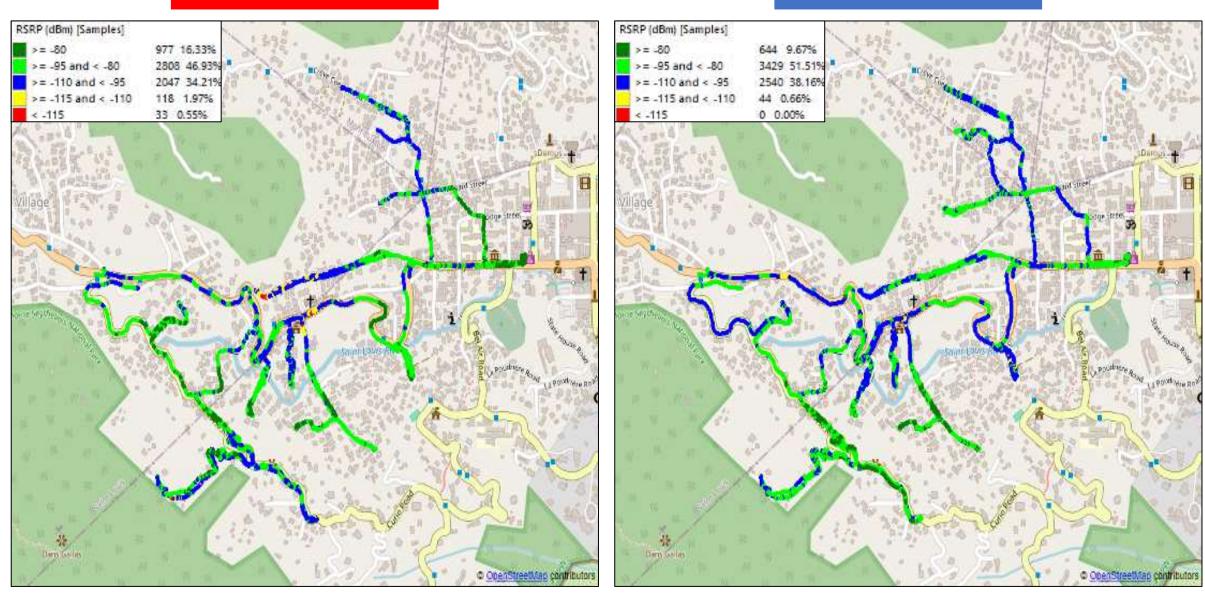
# Phase-2 4G PREFERRED DATA TEST - TECHNOLOGY PLOT





# Phase-1 4G PREFERRED DATA TEST - RSRP PLOT

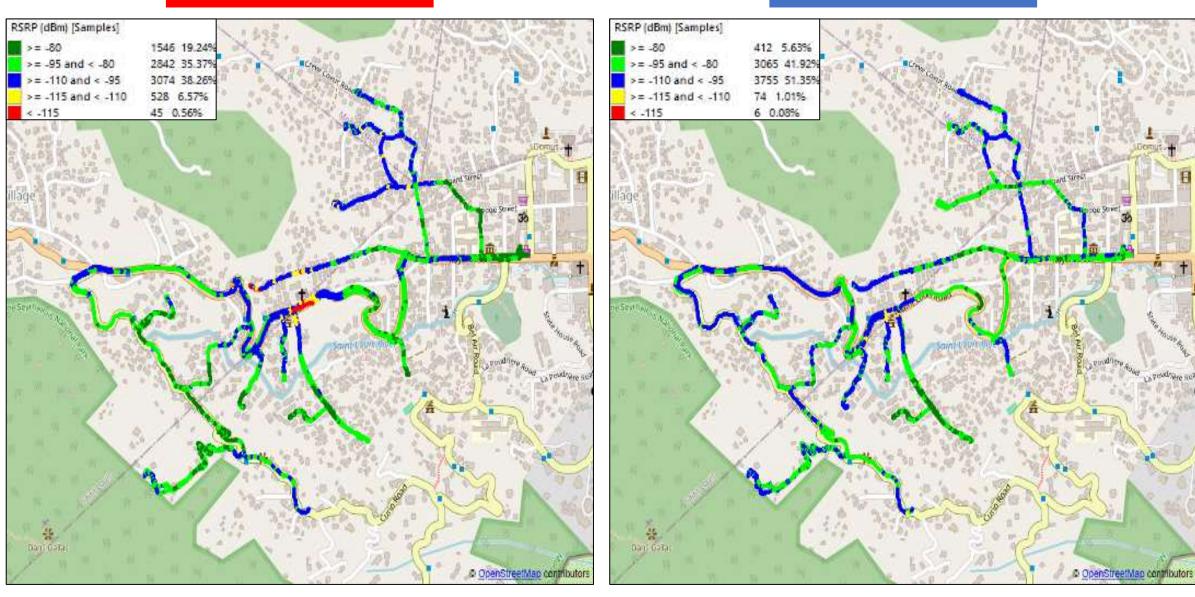






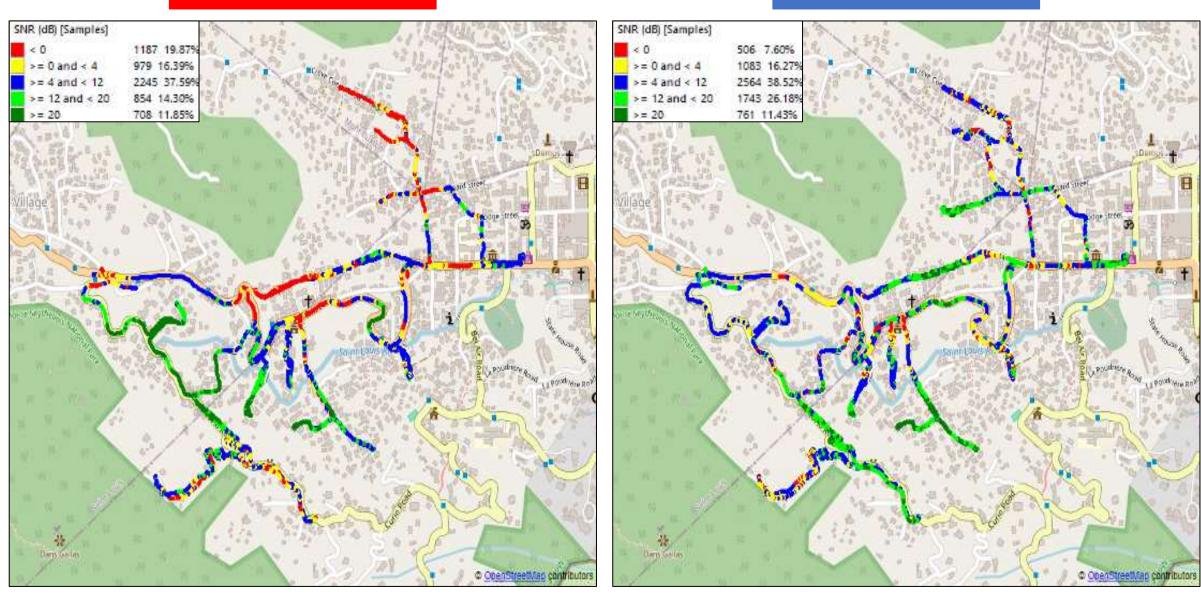
# Phase-2 4G PREFERRED DATA TEST - RSRP PLOT





# Phase-1 4G PREFERRED DATA TEST - SINR PLOT

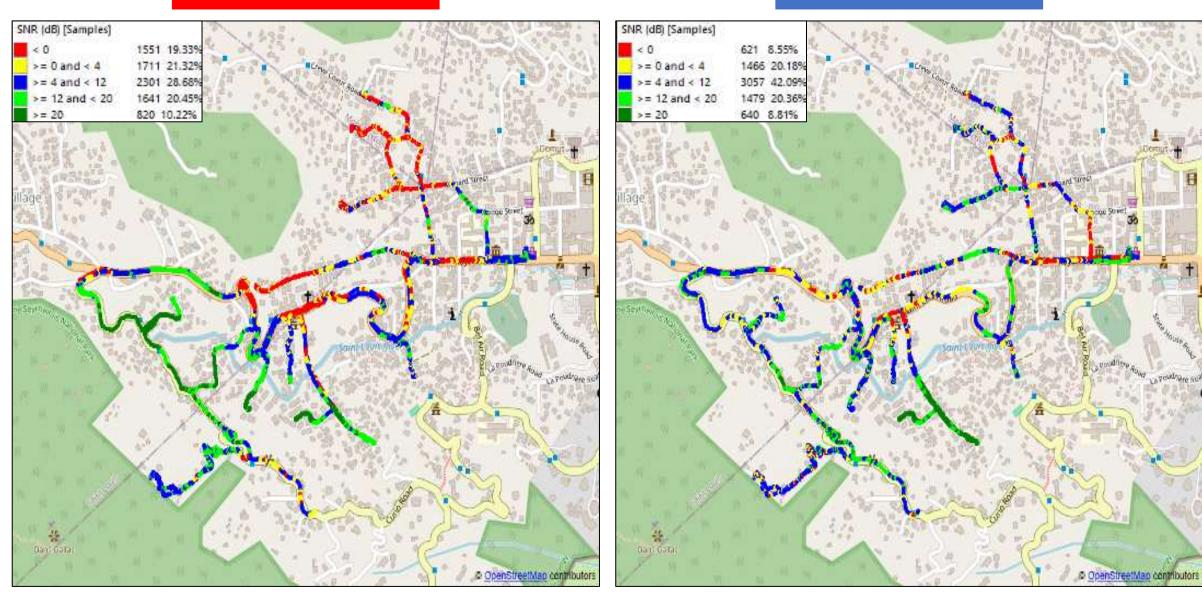






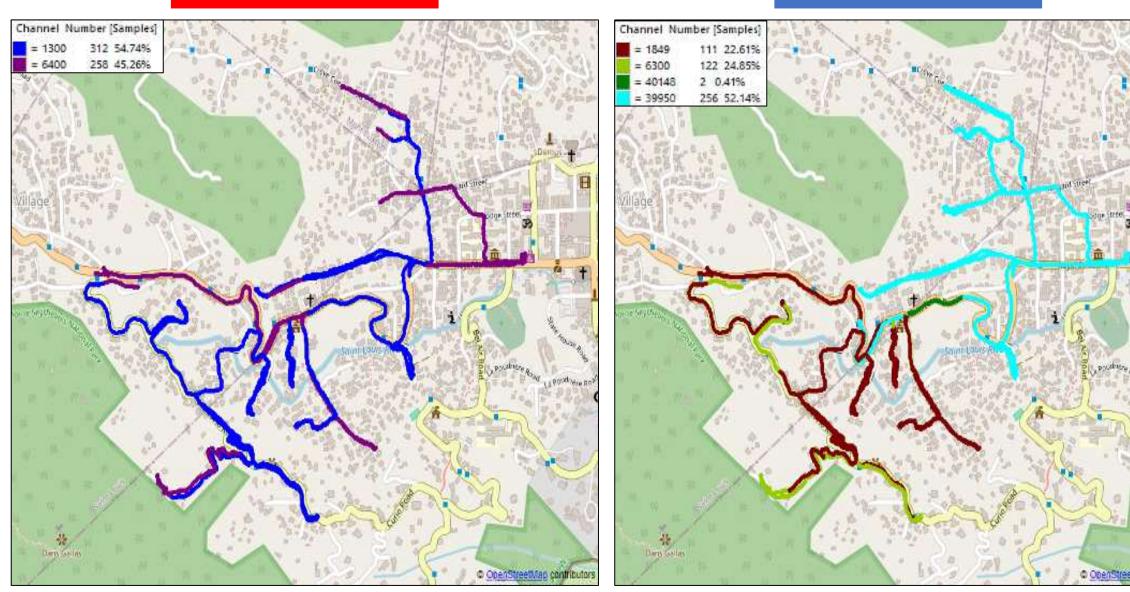
# Phase-2 4G PREFERRED DATA TEST - SINR PLOT





# Phase-1 4G PREFERRED DATA TEST - FREQUENCY BAND PLOT

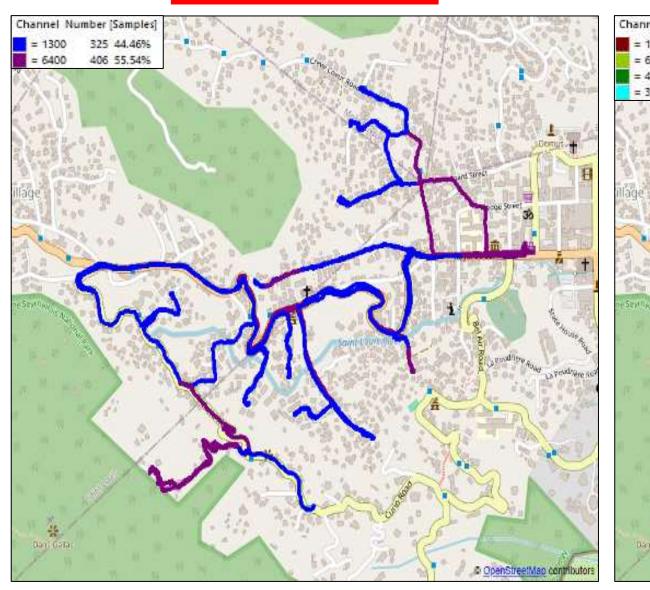


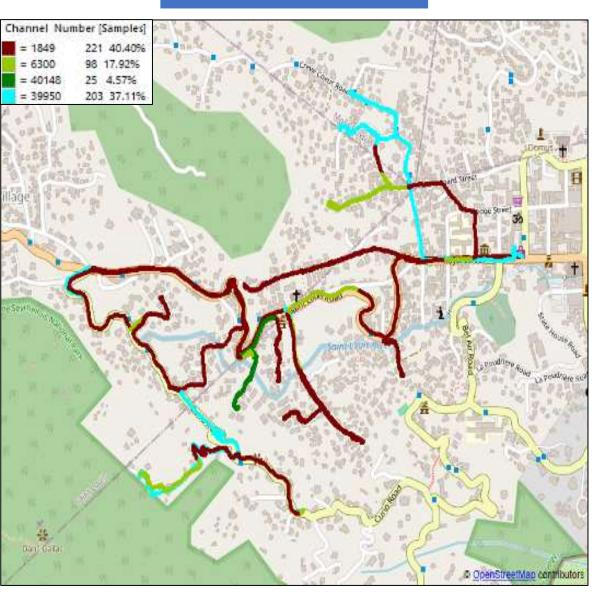




# Phase-2 4G PREFERRED DATA TEST - FREQUENCY BAND PLOT



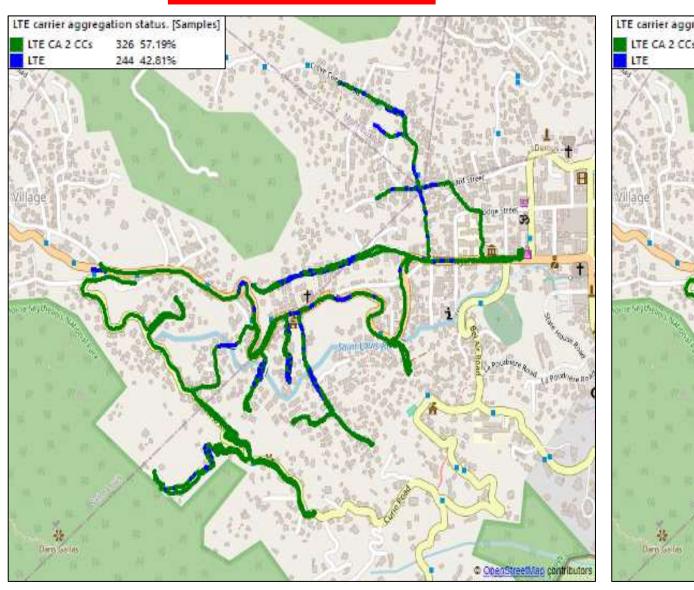


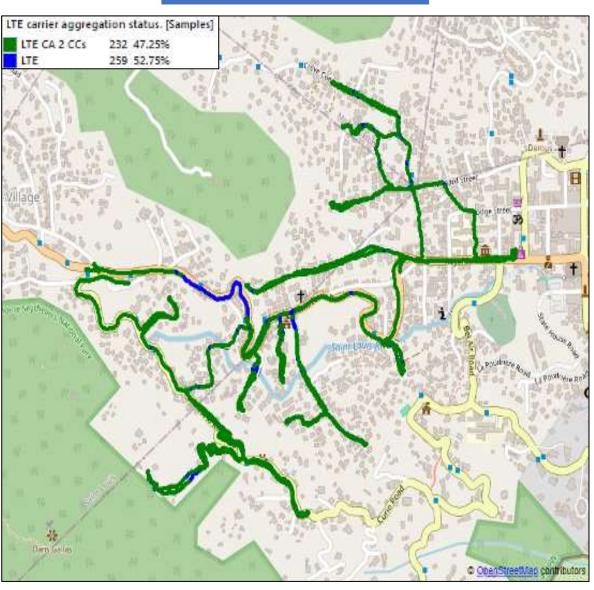




# Phase-1 4G PREFERRED DATA TEST - CARRIER AGGREGATION PLOT

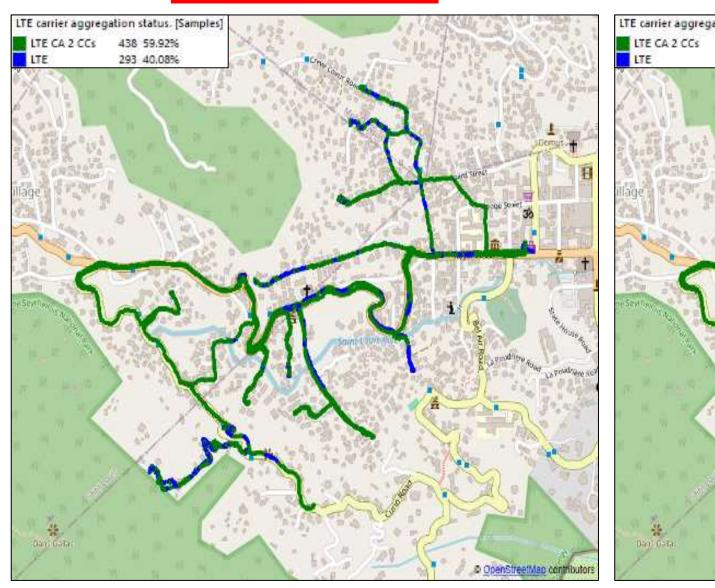


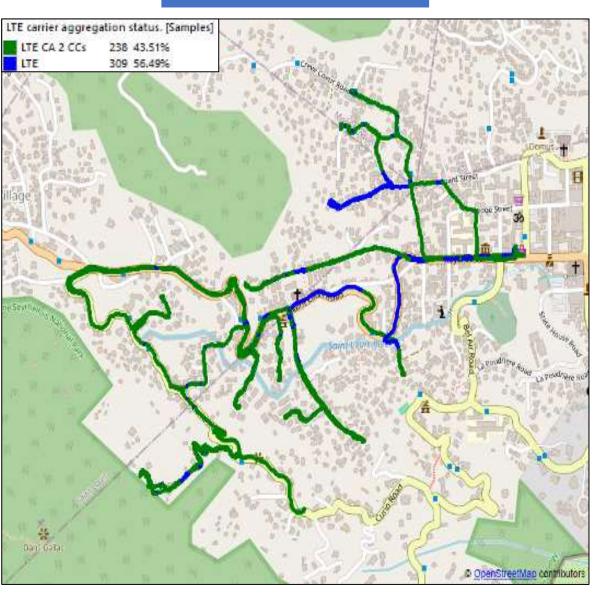




# Phase-2 4G PREFERRED DATA TEST - CARRIER AGGREGATION PLOT





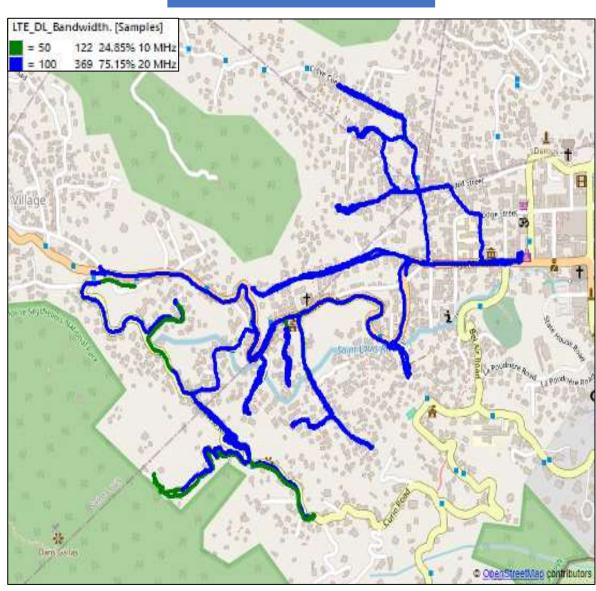




# Phase-1 4G PREFERRED DATA TEST – BANDWIDTH PLOT



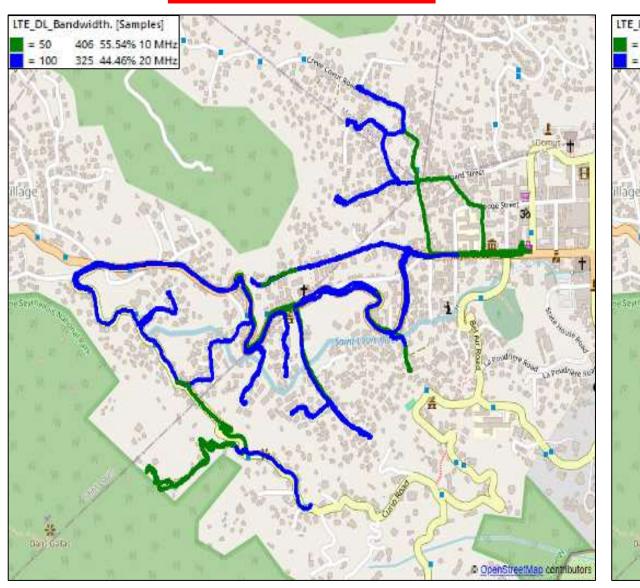


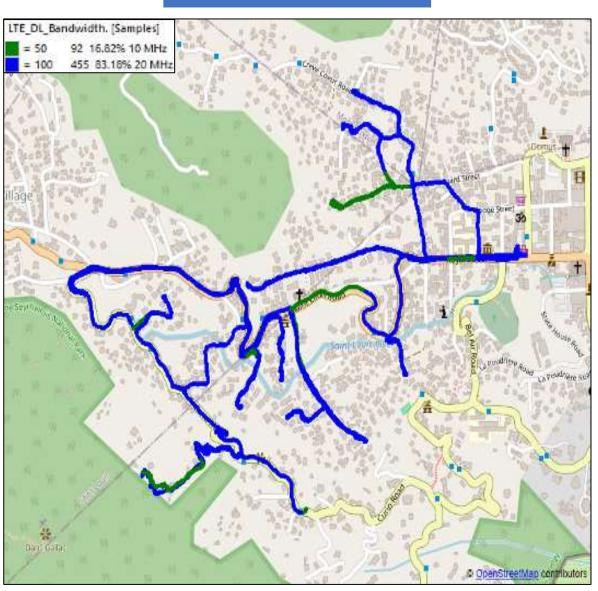




# Phase-2 4G PREFERRED DATA TEST – BANDWIDTH PLOT









# **Negative Event Analysis**



# Phase-1 Call Drop & Call Attempt Failure Airtel, CWS Summary

| Call Attempt Failure cause from Airtel | Count |
|--|-------|
| Total Call Attempt Failure             | 0     |
|  |       |

| Call Drop cause from Airtel | Count |
|-----------------------------|-------|
| Total Call Drop             | 1     |
| Poor Quality                | 1     |

| Call Attempt Failure cause from CWS | Count |
|-------------------------------------|-------|
| Total Call Attempt Failure          | 3     |
| Poor Coverage                       | 1     |
| Poor Quality                        | 1     |
| Network End                         | 1     |

| Call Drop cause from CWS | Count |
|--------------------------|-------|
| Total Call Drop          | 0     |
|                          |       |



# Phase-1 Call Attempt Failure Analysis 1 From MS7 CWS MO

|      | Time         | System   | Serving band |      |       | 1. best active RSCP | Time         | Ch    | SC  | 1. best active Ec/NO | 4  |       | Event ID | System   | Transf, dir. | Time         | Subchannel | Message name                          |
|------|--------------|----------|--------------|------|-------|---------------------|--------------|-------|-----|----------------------|----|-------|----------|----------|--------------|--------------|------------|---------------------------------------|
| 4.   | 14:47:54.954 | UMTS FDD | 2100         | Call | 2101. | -73                 | 14:47:50.602 | 10690 | 161 |                      | _  | 6575. | RRCSM    | UMTS FDD | Downlink     | 14:47:49.989 | BCCH       | MASTER_INFORMATION_BLOCK              |
| 2.   | 15:19:45.704 | UMTS FDD | 2100         | Call | 2102. |                     | 14:47:50.602 | 10690 | 161 | -5.1                 |    | 6576. | RRCSM    | UMTS FDD | Downlink     | 14:47:49.989 | BCCH       | SYSTEM_INFORMATION_BLOCK_TYPE_7       |
| 3.   | 15:24:06.924 | UMTS FDD | 2100         | Call | 2103. | -73                 | 14:47:51.221 | 10690 | 161 |                      |    | 6577. | RRCSM    | UMTS FDD | Downlink     | 14:47:49.989 | CCCH       | RRC_CONNECTION_SETUP                  |
| 7.00 |              |          |              |      | 2104. | (A)                 | 14:47:51.221 | 10690 | 161 | -7.1                 |    | 6578. | RRCSM    | UMTS FDD | Uplink       | 14:47:50.259 | DCCH       | RRC_CONNECTION_SETUP_COMPLETE         |
|      |              |          |              |      | 2105. | -73                 | 14:47:51.624 | 10690 | 161 |                      |    | 6579. | RRCSM    | UMTS FDD | Uplink       | 14:47:50.259 | DCCH       | INITIAL_DIRECT_TRANSFER               |
|      |              |          |              |      | 2106. |                     | 14:47:51,624 | 10690 | 161 | -7.6                 |    | 6580, | L3SM     | UMTS FDD | Uplink       | 14:47:50.259 | DCCH       | CM_SERVICE_REQUEST                    |
|      |              |          |              |      | 2107. | -73                 | 14:47:52.241 | 10690 | 161 |                      |    | 6581. | RRCSM    | UMTS FDD | Uplink       | 14:47:50.259 | DCCH       | INITIAL_DIRECT_TRANSFER               |
|      |              |          |              |      | 2108. |                     | 14:47:52,241 | 10690 | 161 | -9.6                 |    | 6582. | L3SM     | UMTS FDD | Uplink       | 14:47:50.259 | DCCH       | ROUTING_AREA_UPDATE_REQUEST           |
|      |              |          |              |      | 2109. | -73                 | 14:47:52,920 | 10690 | 161 |                      |    | 6583. | RRCSM    | UMTS FDD | Downlink     | 14:47:50.260 | DCCH       | MEASUREMENT_CONTROL                   |
|      |              |          |              |      | 2110. |                     | 14:47:52.920 | 10690 | 161 | -11.7                |    | 6584. | RRCSM    | UMTS FDD | Downlink     | 14:47:50.260 | DCCH       | SECURITY_MODE_COMMAND                 |
|      |              |          |              |      | 2111. | -73                 | 14:47:53.313 | 10690 | 161 |                      |    | 6585. | RRCSM    | UMTS FDD | Uplink       | 14:47:50.260 | DCCH       | SECURITY_MODE_COMPLETE                |
|      |              |          |              |      | 2112. |                     | 14:47:53.313 | 10690 | 161 | -8.1                 |    | 6586. | RRCSM    | UMTS FDD | Uplink       | 14:47:50.260 | DCCH       | UPLINK_DIRECT_TRANSFER                |
|      |              |          |              |      | 2113. | -78.5               | 14:47:53.787 | 10690 | 161 |                      |    | 6587. | L3SM     | UMTS FDD | Uplink       | 14:47:50.260 | DCCH       | SETUP                                 |
|      |              |          |              |      | 2114. |                     | 14:47:53.787 | 10690 | 161 | -10.9                |    | 6588. | RRCSM    | UMTS FDD | Downlink     | 14:47:50.260 | DCCH       | DOWNLINK_DIRECT_TRANSFER              |
|      |              |          |              |      | 2115. | -72.5               | 14:47:54.470 | 10690 | 161 |                      |    | 6589. | L3SM     | UMTS FDD | Downlink     | 14:47:50.260 | DCCH       | TMSI_REALLOCATION_COMMAND             |
|      |              |          |              |      | 2116. |                     | 14:47:54.470 | 10690 | 161 | 6.2                  |    | 6590. | RRCSM    | UMTS FDD | Uplink       | 14:47:50.260 | DCCH       | UPLINK_DIRECT_TRANSFER                |
|      |              |          |              |      | 2117. | -76                 | 14:47:54.965 | 10690 | 161 |                      |    | 6591. | L3SM     | UMTS FDD | Uplink       | 14:47:50.260 | DCCH       | TMSI_REALLOCATION_COMPLETE            |
|      |              |          |              |      | 2118. |                     | 14:47:54.965 | 10690 | 161 | -5.9                 | =1 | 6592. | RRCSM    | UMTS FDD | Downlink     | 14:47:50.601 | DCCH       | DOWNLINK_DIRECT_TRANSFER              |
|      |              |          |              |      | 2119. | -65                 | 14:50:02.791 | 10690 | 20  |                      | Г  | 6593. | L3SM     | UMTS FDD | Downlink     | 14:47:50.601 | DCCH       | CALL_PROCEEDING                       |
|      |              |          |              |      | 2120. |                     | 14:50:02.791 | 10690 | 20  | -8.2                 |    | 6594. | RRCSM    | UMTS FDD | Uplink       | 14:47:54.954 | DCCH       | UPLINK_DIRECT_TRANSFER                |
|      |              |          |              |      | 2121. | -65                 | 14:50:03.437 | 10690 | 20  |                      |    | 6595. | L3SM     | UMTS FDD | Uplink       | 14:47:54.954 | DCCH       | DISCONNECT                            |
|      |              |          |              |      | 2122. |                     | 14:50:03.437 | 10690 | 20  | -5.5                 |    | 6596. | RRCSM    | UMTS FDD | Downlink     | 14:47:54.954 | DCCH       | DOWNLINK_DIRECT_TRANSFER              |
|      |              |          |              |      | 2123. | -65                 | 14:50:03.934 | 10690 | 20  |                      |    | 6597. | L3SM     | UMTS FDD | Downlink     | 14:47:54.954 | DCCH       | RELEASE                               |
|      |              |          |              |      | 2124. |                     | 14:50:03.934 | 10690 | 20  | -4.3                 |    | 6598. | RRCSM    | UMTS FDD | Uplink       | 14:47:54.954 | DCCH       | UPLINK_DIRECT_TRANSFER                |
|      |              |          |              |      | 2125. | -65                 | 14:50:04.444 | 10690 | 20  |                      |    | 6599. | L3SM     | UMTS FDD | Uplink       | 14:47:54.954 | DCCH       | RELEASE_COMPLETE                      |
|      |              |          |              |      | 2126. |                     | 14:50:04,444 | 10690 | 20  | -6.9                 |    | 6600. | RRCSM    | UMTS FDD | Downlink     | 14:47:55,303 | DCCH       | RADIO_BEARER_SETUP                    |
|      |              |          |              |      | 2127. | -65                 | 14:50:04.935 | 10690 | 20  |                      |    | 6601. | RRCSM    | UMTS FDD | Downlink     | 14:47:55.304 | DCCH       | DOWNLINK_DIRECT_TRANSFER              |
|      |              |          |              |      | 2128. |                     | 14:50:04.935 | 10690 | 20  | -4.8                 |    | 6602. | L3SM     | UMTS FDD | Downlink     | 14:47:55.304 | DCCH       | AUTHENTICATION_AND_CIPHERING_REQUEST  |
|      |              |          |              |      | 2129. | -65                 | 14:50:05.435 | 10690 | 20  |                      |    | 6603. | RRCSM    | UMTS FDD | Uplink       | 14:47:55.304 | DCCH       | UPLINK_DIRECT_TRANSFER                |
|      |              |          |              |      | 2130. | ***                 | 14:50:05.435 | 10690 | 20  | -5.3                 |    | 6604. | L3SM     | UMTS FDD | Uplink       | 14:47:55.304 | DCCH       | AUTHENTICATION_AND_CIPHERING_RESPONSE |
|      |              |          |              |      | 2131. | -65                 | 14:50:05.964 | 10690 | 20  |                      |    | 6605. | RRCSM    | LTE FDD  | Downlink     | 14:49:11.780 | PCCH       | Paging                                |
|      |              |          |              |      | 2132. | 2.000               | 14:50:05.964 | 10690 | 20  | +12                  |    | 6606. | RRCSM    | LTE FDD  | Uplink       | 14:49:14.762 | DCCH       | MeasurementReport                     |
|      |              |          |              |      | 2133. | -62                 | 14:50:06.434 | 10690 | 20  |                      |    | 6607, | RRCSM    | LTE FDD  | Downlink     | 14:49:14.816 | DCCH       | RRCConnectionReconfiguration          |
|      |              |          |              |      | 2134. |                     | 14:50:06.434 | 10690 | 20  | -13.8                |    | 6608. | RRCSM    | LTE FDD  | Uplink       | 14:49:14.816 | DCCH       | RRCConnectionReconfigurationComplete  |
|      |              |          |              |      | 2135. | -60.1               | 14:50:06,931 | 10690 | 20  |                      |    | 6609. | RRCSM    | LTE FDD  | Downlink     | 14:49:14.816 | BCCH-SCH   | SystemInformationBlockType1           |
|      |              |          |              |      | 2136. |                     | 14:50:06,931 | 10690 | 20  | -6.3                 |    | 6610. | RRCSM    | LTE FDD  | Downlink     | 14:49:14.869 | BCCH-SCH   | SystemInformation - SIB2, SIB3        |

- This call failure event occurred on short call at 14:47:54:954 time when UE was latched with 3G network.
- During the session before the call failure UE send "CM Service Request" and "Setup" message to core network. Then call setup has been failed.
- During the setup fail, UE was latched with PSC 161 and RF condition RSCP -72.5 dBm and ECNO -6.2 dB are very good.
- Need to check MT End.



# Phase-1 Call Attempt Failure Analysis 2 From MS8 CWS MT

|       | 1. best active RSCP | Time         | Ch    | SC  | 1. best active ▲ |       | Event ID | System   | Transf. dir. | Time         | Subchannel | Message name                         |
|-------|---------------------|--------------|-------|-----|------------------|-------|----------|----------|--------------|--------------|------------|--------------------------------------|
| 1685. | -87                 | 14:47:15.541 | 10740 | 18  |                  | 6947. | RRCSM    | LTE TOD  | Downlink     | 14:47:52.658 | DCCH       | RRCConnectionReconfiguration         |
| 1686. |                     | 14:47:15.541 | 10740 | 18  | -5,6             | 6948. | RRCSM    | LTE TOD  | Uplink       | 14:47:52.663 | DCCH       | RRCConnectionReconfigurationComplete |
| 1687. | -89.2               | 14:47:15.983 | 10740 | 18  |                  | 6949. | RRCSM    | LTE TOD  | Downlink     | 14:47:52.678 | DCCH       | UECapabilityEnquiry                  |
| 1688, |                     | 14:47:15.983 | 10740 | 18  | -6.3             | 6950. | RRCSM    | LTETOD   | Uplink       | 14:47:52,679 | DCCH       | UECapabilityInformation              |
| 1689. | -95.7               | 14:47:16.601 | 10740 | 18  |                  | 6951. | RRCSM    | UMTS FDD | Uplink       | 14:47:52,679 |            | INTER_RAT_HANDOVER_INFO              |
| 1690. |                     | 14:47:16.601 | 10740 | 18  | -7.8             | 6952. | RRCSM    | LTE TOD  | Downlink     | 14:47:52.680 | DCCH       | RRCConnectionReconfiguration         |
| 1691. | -88.4               | 14:47:16.816 | 10740 | 18  |                  | 6953. | RRCSM    | LTE TOD  | Uplink       | 14:47:52.682 | DCCH       | RRCConnectionReconfigurationComplete |
| 1692. |                     | 14:47:16.816 | 10740 | 18  | -5.7             | 6954. | RRCSM    | LTE TOD  | Uplink       | 14:47:53.265 | DCCH       | MeasurementReport                    |
| 1693. | -96                 | 14:47:17.601 | 10740 | 18  |                  | 6955. | RRCSM    | LTETDD   | Downlink     | 14:47:53.288 | DCCH       | RRCConnectionRelease                 |
| 1694. |                     | 14:47:17.601 | 10740 | 18  | -8.6             | 6956. | RRCSM    | UMTS FDD | Downlink     | 14:47:53.288 | BCCH       | SYSTEM_INFORMATION_CONTAINER         |
| 1695. | -98.8               | 14:47:18.054 | 10740 | 18  |                  | 6957, | RRCSM    | UMTS FDD | Downlink     | 14:47:53,288 | BCCH       | SYSTEM_INFORMATION_CONTAINER         |
| 1696. | -1940.5             | 14:47:18.054 | 10740 | 18  | -11.6            | 6958. | RRCSM    | UMTS FDD | Downlink     | 14:47:53.288 | BCCH       | SYSTEM_INFORMATION_CONTAINER         |
| 1697. | -96.2               | 14:47:18.585 | 10740 | 18  |                  | 6959. | RRCSM    | UMTS FDD | Downlink     | 14:47:53,288 | BCCH       | SYSTEM_INFORMATION_CONTAINER         |
| 1698, |                     | 14:47:18.585 | 10740 | 18  | -9.3             | 6960, | RRCSM    | UMTS FDD | Downlink     | 14:47:53.288 | BCCH       | SYSTEM_INFORMATION_CONTAINER         |
| 1699. | -98.8               | 14:47:18.855 | 10740 | 18  |                  | 6961. | RRCSM    | UMTS FDD | Downlink     | 14:47:53.288 | BCCH       | SYSTEM_INFORMATION_CONTAINER         |
| 1700. |                     | 14:47:18.855 | 10740 | 18  | -10.4            | 6962. | RRCSM    | UMTS FDD | Downlink     | 14:47:53.288 | BCCH       | SYSTEM_INFORMATION_CONTAINER         |
| 1701. | -92.1               | 14:47:19.758 | 10740 | 18  |                  | 6963. | RRCSM    | UMTS FDD | Downlink     | 14:47:53,288 | BCCH       | SYSTEM_INFORMATION_CONTAINER         |
| 1702. | - N                 | 14:47:19,758 | 10740 | 18  | -8               | 6964. | RRCSM    | UMTS FDD | Downlink     | 14:47:53,626 | BCCH_BCH   | SYSTEM_INFORMATION_BCH               |
| 1703. | -67.6               | 14:47:53,956 | 10715 | 161 |                  | 6965. | RRCSM    | UMTS FDD | Downlink     | 14:47:53,646 | BCCH_BCH   | SYSTEM_INFORMATION_BCH               |
| 1704. |                     | 14:47:53.956 | 10715 | 161 | -12.7            | 6966. | RRCSM    | UMTS FDD | Downlink     | 14:47:53.666 | BCCH_BCH   | SYSTEM_INFORMATION_BCH               |
| 1705. | -64.5               | 14:47:54.604 | 10715 | 161 |                  | 6967. | RRCSM    | UMTS FDD | Downlink     | 14:47:53.666 | BCCH       | MASTER_INFORMATION_BLOCK             |
| 1706. |                     | 14:47:54.604 | 10715 | 161 | 4.1              | 6968, | RRCSM    | UMTS FDD | Downlink     | 14:47:53.666 | BCCH       | SYSTEM_INFORMATION_BLOCK_TYPE_7      |
| 1707. | -75.2               | 14:47:55.111 | 10715 | 161 |                  | 6969. | RRCSM    | UMTS FDD | Downlink     | 14:47:53.686 | BCCH_BCH   | SYSTEM_INFORMATION_BCH               |
| 1708. |                     | 14:47:55.111 | 10715 | 161 | -5.3             | 6970. | RRCSM    | UMTS FDD | Downlink     | 14:47:53.686 | BCCH       | SYSTEM_INFORMATION_BLOCK_TYPE_2      |
| 1709. | -66                 | 14:50:06.130 | 10690 | 20  |                  | 6971. | RRCSM    | UMTS FDD | Downlink     | 14:47:53.686 | BCCH       | SYSTEM_INFORMATION_BLOCK_TYPE_3      |
| 1710. |                     | 14:50:06.130 | 10690 | 20  | -11.6            | 6972. | RRCSM    | UMTS FDD | Downlink     | 14:47:53.866 | BCCH_BCH   | SYSTEM_INFORMATION_BCH               |
| 1711. | -66                 | 14:50:06.715 | 10690 | 20  |                  | 6973. | RRCSM    | UMTS FDD | Downlink     | 14:47:53.886 | BCCH_BCH   | SYSTEM_INFORMATION_BCH               |
| 1712. |                     | 14:50:06,715 | 10690 | 20  | -6.2             | 6974. | RRCSM    | UMTS FDD | Downlink     | 14:47:53.906 | BCCH_BCH   | SYSTEM_INFORMATION_BCH               |
| 1713. | -66                 | 14:50:07.327 | 10690 | 20  |                  | 6975. | RRCSM    | UMTS FDD | Downlink     | 14:47:53.906 | BCCH       | MASTER_INFORMATION_BLOCK             |
| 1714. |                     | 14:50:07.327 | 10690 | 20  | -6.8             | 6976. | RRCSM    | UMTS FDD | Downlink     | 14:47:53,906 | BCCH       | SYSTEM_INFORMATION_BLOCK_TYPE_7      |
| 1715. | -66                 | 14:50:07.635 | 10690 | 20  |                  | 6977. | RRCSM    | UMTS FDD | Downlink     | 14:47:53.926 | BCCH_BCH   | SYSTEM_INFORMATION_BCH               |
| 1716. |                     | 14:50:07.635 | 10690 | 20  | -5.3             | 6978. | RRCSM    | UMTS FDD | Downlink     | 14:47:53.926 | BCCH       | SYSTEM_INFORMATION_BLOCK_TYPE_5      |
| 1717. | -66                 | 14:50:08.120 | 10690 | 20  |                  | 6979. | RRCSM    | UMTS FDD | Downlink     | 14:47:53.946 | BCCH_BCH   | SYSTEM_INFORMATION_BCH               |
| 1718. |                     | 14:50:08.120 | 10690 | 20  | -6.4             | 6980. | RRCSM    | UMTS FDD | Downlink     | 14:47:53.946 | BCCH       | SYSTEM_INFORMATION_BLOCK_TYPE_1      |
| 1719. | -66                 | 14:50:08.775 | 10690 | 20  |                  | 6981. | RRCSM    | UMTS FDD | Downlink     | 14:47:53.966 | BCCH_BCH   | SYSTEM_INFORMATION_BCH               |
| 1720. |                     | 14:50:08,775 | 10690 | 20  | -5.6             | 6982. | RRCSM    | UMTS FDD | Downlink     | 14:47:53.966 | BCCH       | SCHEDULING_BLOCK_1                   |

- On MT End, During the setup fail, UE was latched with PSC 18 and RF condition RSCP -92.1 dBm and ECNO -8 dB both are ok.
- On both MO And MT Side, RF Conditions seems OK Also there is no abnormal message regarding failure.
- Need to check from Network End.



# Phase-1 Call Attempt Failure Analysis 2 From MS7 CWS MO

|    | Y            | C. 15.11   | Carrie Carrie  |      |       | d bad adia prop  | T            | CL   | cc  | 1 5 - 4 - 4 - 5 - 610 | 7.1 |        | Continu   | Towns at a   | *            | C. K. Marana   | WORKS SECTION                    |
|----|--------------|--|--|------|-------|--|--------------|--|-----|-----------------------|-----|--------|---|--|--------------|--|----------------------------------|
| 4: | Time         | The state of the s | Serving band   |      | 41.40 | 1. best active RSCP  | Time         | The state of the s | 100 | 1. best active Ec/NO  | ٥   | +30+0  |   | Transf. dir.   | Time         | Subchannel   |                                  |
| 1. | 14:47:54.954 |  | WINDS OF THE PERSON  |      | 4148. | 00.0   | 15:19:39.895 |  |     | -24.9                 |     | -      | Control by Section 1 (1)  |  | 15:19:45.350 |  | SYSTEM_INFORMATION_BLOCK_TYPE_1  |
| 2. | 15:19:45.704 |  | A CONTRACTOR OF THE PARTY OF TH | Cal  | 4149. | -90.6  | 15:19:40.496 |  |     |                       |     | 13820. |   |  |              | 41-300 to 1 100 to 1   | SYSTEM_INFORMATION_BCH           |
| 3. | 15:24:06.924 | OWLZ LDD   | 2100   | Call | 4150. |  | 15:19:40.496 |  | -   | -24                   |     | 13821. | District Control  | The second second  | 15:19:45.370 |  | SCHEDULING_BLOCK_1               |
|    |              |  |  |      | 4151. | -91,7  | 15:19:40.925 |  |     |                       |     | 13822. |   |  |              | The Particular Control of the Particular Con | SYSTEM_INFORMATION_BCH           |
|    |              |  |  |      | 4152, | 7666   | 15:19:40.925 |  |     | -25.8                 |     | 13823. | to the enterior of the art  | And the second second  | 15:19:45.430 |  | SYSTEM_INFORMATION_BLOCK_TYPE_19 |
|    |              |  |  |      | 4153. | -84.8  | 15:19:41.392 |  |     | 100                   |     | 13824. |   |  |              | A STATE OF THE PARTY OF THE PAR | SYSTEM_INFORMATION_BLOCK_TYPE_19 |
|    |              |  |  |      | 4154, | DESCRIPTION OF THE PROPERTY OF | 15:19:41.392 |  |     | -25.9                 |     | 13825. | UMTS FDD  | HINEST STATE OF THE STATE OF TH | 15:19:45.501 |  | RRC_CONNECTION_REQUEST           |
|    |              |  |  |      | 4155. | -90.1  | 15:19:41.892 | P 10 70 10 10 10 10 10 10 10 10 10 10 10 10 10   |     |                       |     | 13826. | The first street of the SA  |  | 15:19:45.530 | A PROPERTY OF THE PARTY OF THE  | SYSTEM_INFORMATION_BCH           |
|    |              |  |  |      | 4156. | P001000  | 15:19:41.892 | 100000   |     | -24.9                 |     | 13827. | 100000000000000000000000000000000000000   | The second secon | 15:19:45.550 |  | SYSTEM_INFORMATION_BCH           |
|    |              |  |  |      | 4157. | -92.7  | 15:19:42.403 |  |     |                       |     | 13828. |   |  | 15:19:45.550 | 2000   | MASTER_INFORMATION_BLOCK         |
|    |              |  |  |      | 4158, |  | 15:19:42.403 |  |     | -24                   |     | 13829. | 100000000000000000000000000000000000000   |  | 15:19:45.550 | 10.00000   | SYSTEM_INFORMATION_BLOCK_TYPE_7  |
|    |              |  |  |      | 4159. | -91.8  | 15:19:42.892 |  |     |                       |     | 13830. | THE RESERVE TO SERVE THE PARTY OF THE PARTY |  | 15:19:45.570 | a Department   | SYSTEM_INFORMATION_BCH           |
|    |              |  |  |      | 4160. |  | 15:19:42.892 |  |     | -25.6                 |     | 13831. | holological country   |  | 15:19:45.570 |  | SYSTEM_INFORMATION_BLOCK_TYPE_2  |
|    |              |  |  |      | 4161. | -87.2  | 15:19:43.392 | 10690 8  | 84  |                       |     | 13832. | UMTS FDD  | Downlink   | 15:19:45.570 | BCCH   | SYSTEM_INFORMATION_BLOCK_TYPE_3  |
|    |              |  |  |      | 4162. |  | 15:19:43.392 | 10690 8  | 84  | -24.8                 |     | 13833. | UMTS FDD  | Downlink   | 15:19:45.590 | BCCH_BCH   | SYSTEM_INFORMATION_BCH           |
|    |              |  |  |      | 4163. | -88.6  | 15:19:43.892 | 10690 8  | 34  |                       |     | 13834. | UMTS FDD  | Downlink   | 15:19:45.610 | BCCH_BCH   | SYSTEM_INFORMATION_BCH           |
|    |              |  |  |      | 4164. |  | 15:19:43.892 | 10690 8  | 94  | -21.7                 |     | 13835. | UMTS FDD  | Downlink   | 15:19:45.630 | BCCH_BCH   | SYSTEM_INFORMATION_BCH           |
|    |              |  |  |      | 4165. | -97.3  | 15:19:44.601 | 10690 8  | 34  |                       |     | 13836. | UMTS FDD  | Downlink   | 15:19:45.630 | BCCH   | MASTER_INFORMATION_BLOCK         |
|    |              |  |  |      | 4166. |  | 15:19:44.601 | 10690 8  | 84  | -25.2                 |     | 13837. | UMTS FDD  | Downlink   | 15:19:45.630 | BCCH   | SYSTEM_INFORMATION_BLOCK_TYPE_7  |
|    |              |  |  |      | 4167. | -97.3  | 15:19:44.864 | 10690 8  | 84  |                       |     | 13838. | UMTS FDD  | Downlink   | 15:19:45.650 | BCCH_BCH   | SYSTEM_INFORMATION_BCH           |
|    |              |  |  |      | 4168. | PO 40001   | 15:19:44.864 | 10690 8  | 34  | -25.2                 |     | 13839. | UMTS FDD  | Downlink   | 15:19:45.653 | CCCH   | RRC_CONNECTION_SETUP             |
|    |              |  |  |      | 4169. | -97.3  | 15:19:45.704 | 10690 8  | 34  |                       |     | 13840. | UMTS FDD  | Uplink   | 15:19:45.704 | DCCH   | RRC_CONNECTION_SETUP_COMPLETE    |
|    |              |  |  |      | 4170. |  | 15:19:45.704 | 10690 8  | 34  | -25,2                 |     | 13841. | UMTS FDD  | Uplink   | 15:19:45,870 | DCCH   | INITIAL_DIRECT_TRANSFER          |
|    |              |  |  |      | 4171. | -97.3  | 15:19:45.890 | 10690 8  | 84  |                       |     | 13842. | UMTS FDD  | Uplink   | 15:19:45.870 | DCCH   | LOCATION_UPDATING_REQUEST        |
|    |              |  |  |      | 4172. |  | 15:19:45.890 | 10690 8  | 84  | -25.2                 |     | 13843. | UMTS FDD  | Downlink   | 15:19:45.997 | DCCH   | MEASUREMENT_CONTROL              |
|    |              |  |  |      | 4173. | -97.3  | 15:19:46.669 | 10690 8  | 34  |                       |     | 13844. | UMTS FDD  | Downlink   | 15:19:46.017 | DCCH   | DOWNLINK_DIRECT_TRANSFER         |
|    |              |  |  |      | 4174. | NV.025   | 15:19:46.669 | 10690 8  | 34  | -25.2                 |     | 13845. | UMTS FDD  | Downlink   | 15:19:46.017 | DCCH   | IDENTITY_REQUEST                 |
|    |              |  |  |      | 4175. | -77.2  | 15:19:49.614 | 10690 2  | 20  |                       |     | 13846. | UMTS FDD  | Uplink   | 15:19:46.017 | DCCH   | UPLINK_DIRECT_TRANSFER           |
|    |              |  |  |      | 4176. | official.  | 15:19:49.614 | 10690 2  | 20  | -6.7                  |     | 13847, | UMTS FDD  | Uplink   | 15:19:46.017 | DCCH   | IDENTITY_RESPONSE                |
|    |              |  |  |      | 4177. | -73  | 15:20:17.407 | 10690 2  | 20  |                       |     | 13848. | UMTS FDD  | Downlink   | 15:19:46.117 | DCCH   | DOWNLINK_DIRECT_TRANSFER         |
|    |              |  |  |      | 4178. |  | 15:20:17.407 |  |     | -7.9                  |     | 13849. | UMTS FDD  | Downlink   | 15:19:46.117 | DCCH   | IDENTITY_REQUEST                 |
|    |              |  |  |      | 4179. | -73  | 15:20:17.677 | 10690 2  | 20  |                       |     | 13850. | UMTS FDD  | Uplink   | 15:19:46.118 | DCCH   | UPLINK_DIRECT_TRANSFER           |
|    |              |  |  |      | 4180. |  | 15:20:17.677 |  |     | -4.8                  |     | 13851. | UMTS FDD  | Uplink   | 15:19:46.118 |  | IDENTITY_RESPONSE                |
|    |              |  |  |      | 4181. | -73  | 15:20:18.602 |  | -24 |                       |     | 13852. |   | State of the last  | 15:19:46.417 |  | SECURITY_MODE_COMMAND            |
|    |              |  |  |      | 4182. | (UGD)  | 15:20:18.602 |  |     | -5.8                  |     | 13853. | UMTS FDD  | The street of the street   | 15:19:46.418 |  | SECURITY MODE_COMPLETE           |
|    |              |  |  |      | 4183. | -73  | 15:20:18.865 |  |     |                       | _   | -      | The state of the state of   |  | 15:19:46.517 | STORY STORY  | DOWNLINK DIRECT_TRANSFER         |

- This call failure event occurred on short call at 15:19:45:704 time when UE was latched with 3G network.
- During the session before the call failure UE send "CM Service Request" and "Setup" message to core network. Then call setup has been failed.
- During the setup fail, UE was latched with PSC 84 and RF condition RSCP -97.3 dBm good but ECNO -25.2 dB are very good.
- As per the Analysis the call setup failure event occurred due to poor quality in the network.



# Phase-1 Call Attempt Failure Analysis 3 From MS7 CWS MO

| 2010 | Time         | System   | Serving band | 1    |       | 1. best active RSCP                     | Time         | Ch    | SC  | 1. best active Ec/NO | ٨ |        | System   | Transf. dir. | Time         | Subchannel | Message name                          |
|------|--------------|----------|--------------|------|-------|---|--------------|-------|-----|----------------------|---|--------|----------|--------------|--------------|------------|---------------------------------------|
| 1.   | 14:47:54.954 | UMTS FDD | 2100         | Call | 4329. | -102                                    | 15:23:19.845 | 10740 | 21  |                      |   | 14765. | UMTS FOD | Downlink     | 15:24:02.705 | BCCH_BCH   | SYSTEM_INFORMATION_BCH                |
| 2.   | 15:19:45.704 | UMTS FDD | 2100         | Call | 4330. |   | 15:23:19.845 | 10740 | 21  | -9.4                 |   | 14766. | UMTS FDD | Downlink     | 15:24:02,705 | BCCH       | SYSTEM_INFORMATION_BLOCK_TYPE_19      |
| 3,   | 15:24:06:924 | UMTS FDD | 2100         | Call | 4331. | -107.8                                  | 15:23:20.509 | 10740 | 21  |                      |   | 14767. | UMTS FDD | Downlink     | 15:24:02.725 | BCCH_BCH   | SYSTEM_INFORMATION_BCH                |
|      |              |          |              |      | 4332. |   | 15:23:20.509 | 10740 | 202 | -13.6                |   | 14768. | UMTS FDD | Downlink     | 15:24:02.745 | BCCH_BCH   | SYSTEM_INFORMATION_BCH                |
|      |              |          |              |      | 4333. | -107.6                                  | 15:23:21.040 | 10740 | 21  |                      |   | 14769. | UMTS FDD | Downlink     | 15:24:02.745 | BCCH       | MASTER_INFORMATION_BLOCK              |
|      |              |          |              |      | 4334. | 0.00000                                 | 15:23:21.040 | 10740 | 21  | -13.2                |   | 14770. | UMTS FDD | Downlink     | 15:24:02.745 | BCCH       | SYSTEM_INFORMATION_BLOCK_TYPE_7       |
|      |              |          |              |      | 4335. | -104.9                                  | 15:23:21.507 | 10740 | 21  |                      |   | 14771. | UMTS FDD | Downlink     | 15:24:02.765 | BCCH_BCH   | SYSTEM_INFORMATION_BCH                |
|      |              |          |              |      | 4336. |   | 15:23:21.507 | 10740 | 21  | -14.8                |   | 14772. | UMTS FDD | Downlink     | 15:24:02.778 | CCCH       | RRC_CONNECTION_SETUP                  |
|      |              |          |              |      | 4337. | -105.4                                  | 15:23:22.047 | 10740 | 21  |                      |   | 14773. | UMTS FDD | Uplink       | 15:24:02.833 | DCCH       | RRC_CONNECTION_SETUP_COMPLETE         |
|      |              |          |              |      | 4338, |   | 15:23:22.047 | 10740 | 21  | -11.8                |   | 14774. | UMTS FDD | Uplink       | 15:24:02.834 | DCCH       | INITIAL_DIRECT_TRANSFER               |
|      |              |          |              |      | 4339, | -103.5                                  | 15:23:22.547 | 10740 | 21  | 7400                 |   | 14775. | UMTS FDD | Uplink       | 15:24:02.834 | DCCH       | CM_SERVICE_REQUEST                    |
|      |              |          |              |      | 4340, |   | 15:23:22.547 | 10740 | 21  | -10                  |   | 14776. | UMTS FDD | Uplink       | 15:24:02.834 | DCCH       | INITIAL_DIRECT_TRANSFER               |
|      |              |          |              |      | 4341, | -109.7                                  | 15:23:22.870 | 10740 | 21  |                      |   | 14777. | UMTS FDD | Uplink       | 15:24:02.834 | DCCH       | ROUTING_AREA_UPDATE_REQUEST           |
|      |              |          |              |      | 4342. |   | 15:23:22.870 | 10740 | 21  | -15.8                |   | 14778. | UMTS FDD | Downlink     | 15:24:03.126 | DCCH       | MEASUREMENT_CONTROL                   |
|      |              |          |              |      | 4343. | -105.6                                  | 15:23:23.547 | 10740 | 21  |                      |   | 14779. | UMTS FDD | Downlink     | 15:24:03.136 | DCCH       | SECURITY_MODE_COMMAND                 |
|      |              |          |              |      | 4344. | 11.1000000                              | 15:23:23.547 | 10740 | 21  | -10.5                |   | 14780. | UMTS FDD | Uplink       | 15:24:03.137 | DCCH       | SECURITY_MODE_COMPLETE                |
|      |              |          |              |      | 4345. | -106.7                                  | 15:23:23.967 | 10740 | 21  |                      |   | 14781, | UMTS FDD | Uplink       | 15:24:03.208 | DCCH       | UPLINK_DIRECT_TRANSFER                |
|      |              |          |              |      | 4346. |   | 15:23:23.967 | 10740 | 21  | -12                  |   | 14782. | UMTS FDD | Uplink       | 15:24:03.208 | DCCH       | SETUP                                 |
|      |              |          |              |      | 4347. | -107.8                                  | 15:23:24.708 | 10740 | 24  |                      |   | 14783. | UMTS FDD | Downlink     | 15:24:03.236 | DCCH       | DOWNLINK_DIRECT_TRANSFER              |
|      |              |          |              |      | 4348. |   | 15:23:24.708 | 10740 | 24  | -17.7                |   | 14784. | UMTS FDD | Downlink     | 15:24:03.236 | DCCH       | TMSI_REALLOCATION_COMMAND             |
|      |              |          |              |      | 4349. | -108.5                                  | 15:23:25.207 | 10740 | 24  |                      |   | 14785. | UMTS FDD | Uplink       | 15:24:03.237 | DCCH       | UPLINK_DIRECT_TRANSFER                |
|      |              |          |              |      | 4350. |   | 15:23:25.207 | 10740 | 24  | -18.3                |   | 14786. | UMTS FDD | Uplink       | 15:24:03.237 | DCCH       | TMSI_REALLOCATION_COMPLETE            |
|      |              |          |              |      | 4351. | -108.8                                  | 15:23:25.673 | 10740 | 24  |                      |   | 14787. | UMTS FDD | Downlink     | 15:24:03.366 | DCCH       | DOWNLINK_DIRECT_TRANSFER              |
|      |              |          |              |      | 4352. | 2000                                    | 15:23:25.673 | 10740 | 24  | -12.9                |   | 14788. | UMTS FDD | Downlink     | 15:24:03.366 | DCCH       | CALL_PROCEEDING                       |
|      |              |          |              |      | 4353. | -107.8                                  | 15:23:25.967 | 10740 | 24  |                      |   | 14789. | UMTS FDD | Uplink       | 15:24:06.924 | DCCH       | UPLINK_DIRECT_TRANSFER                |
|      |              |          |              |      | 4354. | 100000000000000000000000000000000000000 | 15:23:25.967 | 10740 | 24  | -17.6                |   | 14790. | UMTS FDD | Uplink       | 15:24:06:924 | DCCH       | DISCONNECT                            |
|      |              |          |              |      | 4355. | -107.8                                  | 15:23:26.117 | 10740 | 24  |                      |   | 14791. | UMTS FOD | Downlink     | 15:24:07.006 | DCCH       | DOWNLINK_DIRECT_TRANSFER              |
|      |              |          |              |      | 4356, |   | 15:23:26.117 | 10740 | 24  | -17.6                |   | 14792. | UMTS FDD | Downlink     | 15:24:07.006 | DCCH       | RELEASE                               |
|      |              |          |              |      | 4357. | -107.8                                  | 15:23:26.118 | 10740 | 24  |                      |   | 14793. | UMTS FDD | Uplink       | 15:24:07.007 | DCCH       | UPLINK_DIRECT_TRANSFER                |
|      |              |          |              |      | 4358, |   | 15:23:26.118 | 10740 | 24  | -17.6                |   | 14794. | UMTS FDD | Uplink       | 15:24:07.007 | DCCH       | RELEASE_COMPLETE                      |
|      |              |          |              |      | 4359. | -107.6                                  | 15:23:26.597 | 10740 | 24  |                      |   | 14795. | UMTS FDD | Downlink     | 15:24:07.096 | DCCH       | DOWNLINK_DIRECT_TRANSFER              |
|      |              |          |              |      | 4360. |   | 15:23:26.597 | 10740 | 24  | -17.5                |   | 14796. | UMTS FDD | Downlink     | 15:24:07.096 | DCCH       | AUTHENTICATION_AND_CIPHERING_REQUEST  |
|      |              |          |              |      | 4361. | -107.6                                  | 15:23:26.618 | 10740 | 24  | -                    |   | 14797. | UMTS FDD | Uplink       | 15:24:07.134 | DCCH       | UPLINK_DIRECT_TRANSFER                |
|      |              |          |              |      | 4362. | 0.000000                                | 15:23:26.618 | 10740 | 24  | -17.5                |   | 14798. | UMTS FDD | Uplink       | 15:24:07.134 | DCCH       | AUTHENTICATION_AND_CIPHERING_RESPONSE |
|      |              |          |              |      | 4363. | -107.6                                  | 15:23:26.828 | 10740 | 24  |                      |   | 14799. | UMTS FDD | Downlink     | 15:24:07.166 | DCCH       | SIGNALLING_CONNECTION_RELEASE         |
|      |              |          |              |      | 4364. | 100000                                  | 15:23:26.828 | 10740 | 24  | -17.5                |   | 14800. | UMTS FDD | Uplink       | 15:24:07.167 | DCCH       | INITIAL_DIRECT_TRANSFER               |
|      |              |          |              |      | 4365, | -107.6                                  | 15:23:27.158 | 10740 | 21  |                      |   | 14801. | UMTS FDD | Uplink       | 15:24:07.167 | DCCH       | LOCATION_UPDATING_REQUEST             |

- This call failure event occurred on short call at 15:24:06:924 time when UE was latched with 3G network.
- During the session before the call failure UE send "CM Service Request" and "Setup" message to core network. Then call setup has been failed.
- During the setup fail, UE was latched with PSC 24 and RF condition RSCP -107.6dBm poor but ECNO -17.5 dB are very good.
- As per the Analysis the call setup failure event occurred due to poor coverage in the network.



# Phase-1 Call Drop Analysis 1 MS9 Airtel MO

|     | Time           | System   | Serving b | and Call type |       | 1. best active RSCP    | Time         | Ch    | SC  | 1. best active | A V |       | Event ID | System   | Transf. dir. | Time         | Subchannel | Message name                     |
|-----|----------------|----------|-----------|---------------|-------|------------------------|--------------|-------|-----|----------------|-----|-------|----------|----------|--------------|--------------|------------|----------------------------------|
| 1.  | 14:32:05.071 ( | IMTS FDD | 2100      | Voice call    | 1577. |                        | 14:31:59.770 | 3050  | 104 | -14            |     | 1448. | RRCSM    | UMTS FDD | Downlink     | 14:32:04.812 | BCCH_BCH   | SYSTEM_INFORMATION_BCH           |
| 100 | TACABLE OF TO  |          | 1,110,110 | Michael       | 1578. | -91.3                  | 14:32:00.234 | 3050  | 104 |                | 1   | 1449. | RRCSM    | UMTS FDD | Downlink     | 14:32:04.832 | BCCH_BCH   | SYSTEM_INFORMATION_BCH           |
|     |                |          |           |               | 1579. |                        | 14:32:00,234 | 3050  | 104 | -17            | į.  | 1450. | RRCSM    | UMTS FDD | Downlink     | 14:32:04.852 | BCCH_BCH   | SYSTEM_INFORMATION_BCH           |
|     |                |          |           |               | 1580. | -94.2                  | 14:32:00.690 | 3050  | 405 |                |     | 1451, | RRCSM    | UMTS FDD | Downlink     | 14:32:04.852 | BCCH       | SCHEDULING_BLOCK_1               |
|     |                |          |           |               | 1581. |                        | 14:32:00.690 | 3050  | 104 | -16.3          |     | 1452. | RRCSM    | UMTS FDD | Downlink     | 14:32:04.853 | BCCH_BCH   | SYSTEM_INFORMATION_BLOCK_TYPE_19 |
|     |                |          |           |               | 1582. | -94.2                  | 14:32:01.088 | 3050  | 405 |                |     | 1453. | RRCSM    | UMTS FDD | Downlink     | 14:32:04.932 | BCCH_BCH   | SYSTEM_INFORMATION_BCH           |
|     |                |          |           |               | 1583. |                        | 14:32:01.088 | 3050  | 104 | -16,3          |     | 1454. | RRCSM    | UMTS FDD | Downlink     | 14:32:04.952 | BCCH_BCH   | SYSTEM_INFORMATION_BCH           |
|     |                |          |           |               | 1584. | -94.1                  | 14:32:01.230 | 3050  | 104 | 200            | -   | 1455. | RRCSM    | UMTS FDD | Downlink     | 14:32:04.952 | BCCH       | MASTER_INFORMATION_BLOCK         |
|     |                |          |           |               | 1585. |                        | 14:32:01.230 | 3050  | 104 | -18.4          |     | 1456. | RRČSM    | UMTS FDD | Downlink     | 14:32:04.953 | BCCH_BCH   | MASTER_INFORMATION_BLOCK         |
|     |                |          |           |               | 1586. | -94.1                  | 14:32:01.273 | 3050  | 104 |                |     | 1457. | RRCSM    | UMTS FDD | Downlink     | 14:32:04.953 | BCCH_BCH   | SCHEDULING_BLOCK_1               |
|     |                |          |           |               | 1587. |                        | 14:32:01.273 | 3050  | 104 | -18.4          |     | 1458. | RRCSM    | UMTS FDD | Downlink     | 14:32:04.953 | BCCH_BCH   | SYSTEM_INFORMATION_BLOCK_TYPE_1  |
|     |                |          |           |               | 1588. | -94.1                  | 14:32:01.770 | 3050  | 104 |                |     | 1459. | RRCSM    | UMTS FDD | Downlink     | 14:32:04.953 | BCCH_BCH   | SYSTEM_INFORMATION_BLOCK_TYPE_3  |
|     |                |          |           |               | 1589. | 2000                   | 14:32:01.770 | 3050  | 104 | -18.4          |     | 1460. | RRCSM    | UMTS FDD | Downlink     | 14:32:04.953 | BCCH_BCH   | SYSTEM_INFORMATION_BLOCK_TYPE_5  |
|     |                |          |           |               | 1590, | -94.1                  | 14:32:01.804 | 3050  | 104 |                |     | 1461. | RRCSM    | UMTS FDD | Downlink     | 14:32:04.953 | BCCH_BCH   | SYSTEM_INFORMATION_BLOCK_TYPE_18 |
|     |                |          |           |               | 1591. |                        | 14:32:01,804 | 3050  | 104 | -18,4          |     | 1462. | RRCSM    | UMTS FDD | Uplink       | 14:32:04.964 | CCCH       | CELL_UPDATE                      |
|     |                |          |           |               | 1592. | -97.8                  | 14:32:01.823 | 3050  | 104 |                |     | 1463. | RRCSM    | UMTS FDD | Downlink     | 14:32:04.972 | BCCH_BCH   | SYSTEM_INFORMATION_BCH           |
|     |                |          |           |               | 1593. |                        | 14:32:01.823 | 3050  | 104 | -21.1          |     | 1464. | RRCSM    | UMTS FDD | Downlink     | 14:32:04.992 | BCCH_BCH   | SYSTEM_INFORMATION_BCH           |
|     |                |          |           |               | 1594. | -94.4                  | 14:32:02.898 | 3050  | 305 |                |     | 1465. | RRCSM    | UMTS FDD | Downlink     | 14:32:05.012 | BCCH_BCH   | SYSTEM_INFORMATION_BCH           |
|     |                |          |           |               | 1595. | NAME OF TAXABLE PARTY. | 14:32:02.898 | 3050  | 305 | -18.2          |     | 1466. | RRCSM    | UMTS FDD | Downlink     | 14:32:05.012 | BCCH       | SYSTEM_INFORMATION_BLOCK_TYPE_12 |
|     |                |          |           |               | 1596. | -97.8                  | 14:32:03.293 | 3050  | 104 |                |     | 1467. | RRCSM    | UMTS FDD | Downlink     | 14:32:05.032 | BCCH_BCH   | SYSTEM_INFORMATION_BCH           |
|     |                |          |           |               | 1597. | electe .               | 14:32:03,293 | 3050  | 104 | -21,1          | 3   | 1468, | RRCSM    | UMTS FDD | Downlink     | 14:32:05.032 | BCCH       | MASTER_INFORMATION_BLOCK         |
|     |                |          |           |               | 1598. | -97.8                  | 14:32:04.234 | 3050  | 104 |                |     | 1469. | RRCSM    | UMTS FDD | Downlink     | 14:32:05.052 | BCCH_BCH   | SYSTEM_INFORMATION_BCH           |
|     |                |          |           |               | 1599. |                        | 14:32:04.234 | 3050  | 104 | -21.1          |     | 1470. | RRCSM    | UMTS FDD | Downlink     | 14:32:05.052 | BCCH       | SYSTEM_INFORMATION_BLOCK_TYPE_3  |
|     |                |          |           |               | 1600. | -97.8                  | 14:32:04.916 | 3050  | 104 |                |     | 1471. | RRCSM    | UMTS FDD | Downlink     | 14:32:05.052 | BCCH       | SYSTEM_INFORMATION_BLOCK_TYPE_7  |
|     |                |          |           |               | 1601. |                        | 14:32:04.916 | 3050  | 104 | -21.1          |     | 1472. | RRCSM    | UMTS FDD | Downlink     | 14:32:05.062 | CCCH       | RRC_CONNECTION_RELEASE_CCCH      |
|     |                |          |           |               | 1602. | -100.8                 | 14:32:05.204 | 10588 | 104 |                |     | 1473. | RRCSM    | UMTS FDD | Downlink     | 14:32:05.192 | BCCH_BCH   | SYSTEM_INFORMATION_BCH           |
|     |                |          |           |               | 1603. |                        | 14:32:05.204 | 10588 | 104 | -15.9          |     | 1474. | RRCSM    | UMTS FDD | Downlink     | 14:32:05.192 | BCCH       | MASTER_INFORMATION_BLOCK         |
|     |                |          |           |               | 1604. | -98.7                  | 14:32:05.576 | 10588 | 104 |                |     | 1475. | RRCSM    | UMTS FDD | Downlink     | 14:32:05.193 | BCCH_BCH   | MASTER_INFORMATION_BLOCK         |
|     |                |          |           |               | 1605. |                        | 14:32:05.576 | 10588 | 104 | -15.3          |     | 1476. | RRCSM    | UMTS FDD | Downlink     | 14:32:05.193 | BCCH_BCH   | SCHEDULING_BLOCK_1               |
|     |                |          |           |               | 1606. | -96.7                  | 14:32:06.058 | 10588 | 104 |                |     | 1477. | RRCSM    | UMTS FDD | Downlink     | 14:32:05.193 | BCCH_BCH   | SYSTEM_INFORMATION_BLOCK_TYPE_1  |
|     |                |          |           |               | 1607. |                        | 14:32:06.058 | 10588 | 104 | -10.3          |     | 1478. | RRCSM    | UMTS FDD | Downlink     | 14:32:05,193 | BCCH_BCH   | SYSTEM_INFORMATION_BLOCK_TYPE_3  |
|     |                |          |           |               | 1608, | -97.1                  | 14:32:06.645 | 10588 | 104 |                |     | 1479. | RRCSM    | UMTS FDD | Downlink     | 14:32:05.193 | BCCH_BCH   | SYSTEM_INFORMATION_BLOCK_TYPE_5  |
|     |                |          |           |               | 1609. | MANAGE STATE           | 14:32:06.645 | 10588 | 104 | -11.1          |     | 1480. | RRCSM    | UMTS FDD | Downlink     | 14:32:05.193 | BCCH_BCH   | SYSTEM_INFORMATION_BLOCK_TYPE_18 |
|     |                |          |           |               | 1610. | -97.1                  | 14:32:06.932 | 10588 | 104 |                |     | 1481. | RRCSM    | UMTS FDD | Downlink     | 14:32:05.272 | BCCH_BCH   | SYSTEM_INFORMATION_BCH           |
|     |                |          |           |               | 1611. |                        | 14:32:06.932 | 10588 | 104 | -12.4          |     | 1482. | RRCSM    | UMTS FDD | Downlink     | 14:32:05.272 | BCCH       | MASTER_INFORMATION_BLOCK         |
|     |                |          |           |               | 1612  | -94                    | 14:32:07.638 | 10588 | 104 | 200            |     | 1483. | RRCSM    | UMTS FDD | Downlink     | 14:32:05.292 | BCCH BCH   | SYSTEM INFORMATION BCH           |

- This call drop event occurred on MO side at 14:32:05:071 time when UE was latched with 3G network.
- After getting Alerting message at 14:31:57:980 time Call drop happened.
- During the call drop UE, was latched with PSC 104 and RF condition RSCP -97.8 dBm is good but EC/NO -21.1 dB is poor.
- As per the analysis call drop happened due to poor Poor Quality of the network.
- Need to check with PSC 104 to improve the Quality of the network.



# Phase-2 Call Drop & Call Attempt Failure Airtel, CWS Summary

| Call Attempt Failure cause from Airtel | Count |
|--|-------|
| Total Call Attempt Failure             | 0     |
|  |       |

| Call Attempt Failure cause from CWS | Count |
|-------------------------------------|-------|
| Total Call Attempt Failure          | 1     |
| Poor Quality                        | 1     |

| Call Drop cause from Airtel | Count |
|-----------------------------|-------|
| Total Call Drop             | 0     |
|                             |       |

| Call Drop cause from CWS | Count |  |  |
|--------------------------|-------|--|--|
| Total Call Drop          | 0     |  |  |
|                          |       |  |  |



# Phase-2 Call Attempt Failure Analysis 1 From MS7 CWS MO

| Time System Serving band            | 1. best active l | RSCP Time    | Ch SC     | 1. best 🔺      | 1000   | Event ID | System    | Transf. dir. | Time         | Subchannel | Message name                          |
|-------------------------------------|------------------|--------------|-----------|----------------|--------|----------|-----------|--------------|--------------|------------|---------------------------------------|
| 1. 10:10:32:311 UMTS FDD 2100 Cal 4 | 76386.7          | 10:09:55.206 | 10690 20  | DESCRIPTION OF | 14780. | L3SM     | UMTS FDD  | Downlink     | 10:10:26.141 | DCCH       | TMSI_REALLOCATION_COMMAND             |
| 4                                   | 764.             | 10:09:55.206 | 10690 20  | -8.9           | 14781. | RRCSM    | UMTS FDD  | Uplink       | 10:10:26,141 | DCCH       | UPLINK_DIRECT_TRANSFER                |
| 4                                   | 76587            | 10:10:25.474 | 10690 20  |                | 14782. | L3SM     | UMTS FDD  | Uplink       | 10:10:26.141 | DCCH       | TMSI_REALLOCATION_COMPLETE            |
| 4                                   | 766.             | 10:10:25.474 | 10690 20  | -11.8          | 14783. | RRCSM    | UMTS FDD  | Downlink:    | 10:10:26.261 | DCCH       | DOWNLINK_DIRECT_TRANSFER              |
| 4                                   | 76787            | 10:10:26.045 | 10690 20  |                | 14784. | L3SM     | UMTS FDD  | Downlink     | 10:10:26,261 | DCCH       | CALL_PROCEEDING                       |
| 4                                   | 768.             | 10:10:26.045 | 10690 20  | -12.1          | 14785. | RRCSM    | UMTS FDD  | Uplink       | 10:10:26.847 | DCCH       | MEASUREMENT_REPORT                    |
| 4                                   | 76987            | 10:10:26.509 | 10690 20  |                | 14786. | RRCSM    | UMTS FDD  | Uplink       | 10:10:26,983 | DCCH       | MEASUREMENT_REPORT                    |
| 4                                   | 770.             | 10:10:26.509 | 10690 20  | -17            | 14787. | RRCSM    | UMTS FDD  | Downlink     | 10:10:27,011 | DCCH       | ACTIVE_SET_UPDATE                     |
| 14                                  | 77186,3          | 10:10:27.143 | 10690 316 |                | 14788. | RRCSM    | UMTS FDD  | Uplink       | 10:10:27.022 | DCCH       | ACTIVE_SET_UPDATE_COMPLETE            |
| 4                                   | 772.             | 10:10:27.143 | 10690 316 | -13            | 14789. | RRCSM    | UMTS FDD  | Downlink     | 10:10:27.111 | DCCH       | MEASUREMENT_CONTROL                   |
| 4                                   | 77385.3          | 10:10:27.537 | 10690 316 |                | 14790. | RRCSM    | UMTS FDD  | Downlink     | 10:10:27.141 | DCCH       | ACTIVE_SET_UPDATE                     |
| 4                                   | 774.             | 10:10:27.537 | 10690 20  | -9.4           | 14791. | RRCSM    | UMTS FDD  | Uplink       | 10:10:27.152 | DCCH       | ACTIVE_SET_UPDATE_COMPLETE            |
| 4                                   | 77586            | 10:10:28.146 | 10690 24  |                | 14792. | RRCSM    | UMTS FDD  | Uplink       | 10:10:27.937 | DCCH       | MEASUREMENT_REPORT                    |
| 4                                   | 776.             | 10:10:28.146 | 10690 20  | -11.6          | 14793. | RRCSM    | UMTS FDD  | Downlink     | 10:10:28.091 | DCCH       | ACTIVE_SET_UPDATE                     |
| 4                                   | 77786            | 10:10:28.653 | 10690 24  |                | 14794, | RRCSM    | UMTS FDD  | Uplink       | 10:10:28.112 | DCCH       | ACTIVE_SET_UPDATE_COMPLETE            |
| 4                                   | 778.             | 10:10:28.653 | 10690 20  | -12.5          | 14795. | RRCSM    | UMTS FDD  | Uplink       | 10:10:28.528 | DCCH       | MEASUREMENT_REPORT                    |
| 4                                   | 77989.1          | 10:10:29.151 | 10690 20  |                | 14796. | RRCSM    | UMTS FDD  | Downlink     | 10:10:28.621 | DCCH       | ACTIVE_SET_UPDATE                     |
| 4                                   | 780.             | 10:10:29,151 | 10690 20  | 16.9           | 14797. | RRCSM    | UMTS FDD  | Uplink       | 10:10:28,653 | DCCH       | ACTIVE_SET_UPDATE_COMPLETE            |
| 4                                   | 78180            | 10:10:29.780 | 10690 21  |                | 14798. | RRCSM    | UMTS FDD  | Downlink     | 10:10:30.101 | DCCH       | MEASUREMENT_CONTROL                   |
| 4                                   | 782.             | 10:10:29.780 | 10690 20  | -8.6           | 14799. | RRCSM    | UMTS FDD  | Uplink       | 10:10:30.467 | DCCH       | MEASUREMENT_REPORT                    |
| 4                                   | 78375,2          | 10:10:30.328 | 10690 21  |                | 14800, | RRCSM    | UMTS FDD  | Downlink     | 10:10:30,611 | DCCH       | ACTIVE_SET_UPDATE                     |
| 4                                   | 784.             | 10:10:30.328 | 10690 21  | -8.4           | 14801. | RRCSM    | UMTS FDD  | Uplink       | 10:10:30.623 | DCCH       | ACTIVE_SET_UPDATE_COMPLETE            |
| 4                                   | 78581.2          | 10:10:30.655 | 10690 21  |                | 14802. | RRCSM    | UMTS FDD  | Downlink     | 10:10:31.051 | DCCH       | DOWNLINK_DIRECT_TRANSFER              |
| 4                                   | 786.             | 10:10:30.655 | 10690 21  | -10.1          | 14803. | L3SM     | UMTS FDD  | Downlink     | 10:10:31.051 | DCCH       | AUTHENTICATION_AND_CIPHERING_REQUEST  |
| 4                                   | 78784.3          | 10:10:31.345 | 10690 20  |                | 14804. | RRCSM    | UMTS FDD  | Uplink       | 10:10:31.089 | DCCH       | UPLINK_DIRECT_TRANSFER                |
| . 4                                 | 788.             | 10:10:31.345 | 10690 20  | -11.3          | 14805, | L3SM     | UMTS FDD  | Uplink       | 10:10:31.089 | DCCH       | AUTHENTICATION_AND_CIPHERING_RESPONSE |
| 4                                   | 78977.5          | 10:10:31.739 | 10690 20  |                | 14806. | RRCSM    | UMTS FDD  | Downlink     | 10:10:31.341 | DCCH       | SECURITY_MODE_COMMAND                 |
| 4                                   | 790.             | 10:10:31.739 | 10690 20  | -8.6           | 14807. | RRCSM    | UMTS FDD  | Uplink       | 10:10:31.341 | DCCH       | SECURITY_MODE_COMPLETE                |
| 4                                   | 79180.3          | 10:10:32.424 | 10690 316 |                | 14806. | RRCSM    | UMTS FDD  | Downlink     | 10:10:31.721 | DCCH       | DOWNLINK_DIRECT_TRANSFER              |
| 4                                   | 792.             | 10:10:32.424 | 10690 20  | -10.3          | 14809. | L3SM     | UMTS FDD  | Downlink     | 10:10:31.721 | DCCH       | ROUTING_AREA_UPDATE_ACCEPT            |
| 4                                   | 79379.4          | 10:10:32.918 | 10690 21  |                | 14810. | RRCSM    | UMTS FDD  | Uplink       | 10:10:31.724 | DCCH       | UPLINK_DIRECT_TRANSFER                |
| 4                                   | 794.             | 10:10:32.918 | 10690 21  | -10.1          | 14811. | L3SM     | UMTS FDD  | Uplink       | 10:10:31.724 | DCCH       | ROUTING_AREA_UPDATE_COMPLETE          |
| 4                                   | 79581.1          | 10:10:33.453 | 10690 316 |                | 14812. | RRCSM    | UMTS FDD  | Downlink     | 10:10:32.311 | DCCH       | DOWNLINK_DIRECT_TRANSFER              |
| 4                                   | 796.             | 10:10:33.453 | 10690 316 | -13.1          | 14813. | L3SM     | UMTS FDD  | Downlink     | 10:10:32:311 | DCCH       | DISCONNECT                            |
| 4                                   | 79779.9          | 10:10:33.955 | 10690 316 |                | 14814. | RRCSM    | UMTS FDD  | Uplink       | 10:10:32.312 | DCCH       | UPLINK_DIRECT_TRANSFER                |
| 4                                   | 798.             | 10:10:33.955 | 10690 316 | -8.2           | 14815. | L3SM     | UMTS FDD  | Uplink       | 10:10:32.312 | DCCH       | RELEASE                               |
| 4                                   | 79982.5          | 10:10:34.287 | 10690 316 | Ψİ             | 14816  | RRCSM    | LIMTS FDD | Downlink     | 10:10:32.421 | DCCH       | DOWNLINK DIRECT TRANSFER              |

- This call failure event occurred on short call at 10:10:32:311 time when UE was latched with 3G network.
- After sending "CM Service Request"
   message to core network, then core
   network responds with "Call Proceeding"
   message. After that call setup has been
   failed.
- During the setup fail,UE was latched with PSC 21 and RF condition RSCP -75.2 dBm and Ec/No -8.4 dB are very good.
- Need to check MT End.



# Phase-2 Call Attempt Failure Analysis 1 From MS8 CWS MT

|       | 1. best active RSCP  | Time         | Ch                          | SC  | 1. best     | 4    |        | Event ID | System   | Transf. dir. | Time         | Subchannel   | Message name                    |
|-------|--|--------------|-----------------------------|-----|-------------|------|--------|----------|----------|--------------|--------------|--|---------------------------------|
| 3928. | -83.5  | 10:09:53.168 | 10690                       | -   | A LOUIS CO. |      | 14793. | RRCSM    |          | Downlink     | 10:10:31.719 | Contract and the property of the section of the sec | SYSTEM_INFORMATION_BCH          |
| 3929. | - 2  | 10:09:53.168 | 10690                       | 20  | -8.6        |      | 14794. | RRCSM    | UMTS FDD | Downlink     | 10:10:31,719 | BCCH   | MASTER_INFORMATION_BLOCK        |
| 3930. | -79.7  | 10:09:53.668 | 10690                       | 20  |             |      | 14795. | RRCSM    | UMTS FDD | Downlink     | 10:10:31.719 | BCCH   | SYSTEM_INFORMATION_BLOCK_TYPE_7 |
| 3931. | 9  | 10:09:53.668 | 10690                       | 20  | -6.4        |      | 14796. | RRCSM    | UMTS FDD | Downlink     | 10:10:31.739 | BCCH_BCH   | SYSTEM_INFORMATION_BCH          |
| 3932. | -83.3  | 10:09:54.254 | 10690                       | 20  |             |      | 14797. | RRCSM    | UMTS FDD | Downlink     | 10:10:31.759 | BCCH_BCH   | SYSTEM_INFORMATION_BCH          |
| 3933. | NACOUSE  | 10:09:54.254 | 10690                       | 20  | -8.1        |      | 14798. | RRCSM    | UMTS FDD | Downlink     | 10:10:31,779 | BCCH_BCH   | SYSTEM_INFORMATION_BCH          |
| 3934. | -78.2  | 10:09:54.944 | 10690                       | 20  |             |      | 14799. | RRCSM    | UMTS FDD | Downlink     | 10:10:31.799 | BCCH_BCH   | SYSTEM_INFORMATION_BCH          |
| 3935. |  | 10:09:54.944 | 10690                       | 20  | -7.1        |      | 14800. | RRCSM    | UMTS FDD | Downlink     | 10:10:31,799 | BCCH   | MASTER_INFORMATION_BLOCK        |
| 3936. | -89.1  | 10:09:55.458 | 10690                       | 316 |             |      | 14801. | RRCSM    | UMTS FDD | Downlink     | 10:10:31.799 | BCCH   | SYSTEM_INFORMATION_BLOCK_TYPE_7 |
| 3937. |  | 10:09:55.458 | 10690                       | 316 | -13.9       |      | 14802. | RRCSM    | UMTS FDD | Downlink     | 10:10:31.813 | CCCH   | RRC_CONNECTION_SETUP            |
| 3938. | -94  | 10:10:29.644 | 10690                       | 21  |             |      | 14803. | RRCSM    | UMTS FDD | Uplink       | 10:10:31.870 | DCCH   | RRC_CONNECTION_SETUP_COMPLETE   |
| 3939. |  | 10:10:29.644 | 10690                       | 21  | -15.2       |      | 14804. | RRCSM    | UMTS FDD | Uplink       | 10:10:31.870 | DCCH   | INITIAL_DIRECT_TRANSFER         |
| 3940. | -94  | 10:10:30.048 | 10690                       | 21  |             |      | 14805. | L3SM     | UMTS FDD | Uplink       | 10:10:31.870 | DCCH   | LOCATION_UPDATING_REQUEST       |
| 3941. | 0.540  | 10:10:30.048 | 10690                       | 21  | +13.8       |      | 14806. | RRCSM    | UMTS FDD | Downlink     | 10:10:32.173 | DCCH   | MEASUREMENT_CONTROL             |
| 3942. | -94  | 10:10:30.545 | 10690                       | 21  |             |      | 14807. | RRCSM    | UMTS FDD | Downlink     | 10:10:32.193 | DCCH   | DOWNLINK_DIRECT_TRANSFER        |
| 3943. | 1000   | 10:10:30.545 | 10690                       | 21  | -9.8        |      | 14808. | L3SM     | UMTS FDD | Downlink     | 10:10:32.193 | DCCH   | IDENTITY_REQUEST                |
| 3944. | -94  | 10:10:30.999 | 10690                       | 21  |             |      | 14809. | RRCSM    | UMTS FDD | Uplink       | 10:10:32.193 | DCCH   | UPLINK_DIRECT_TRANSFER          |
| 3945. |  | 10:10:30.999 | 10690                       | 21  | -11.8       |      | 14810. | L3SM     | UMTS FDD | Uplink       | 10:10:32,193 | DCCH   | IDENTITY_RESPONSE               |
| 3946. | -94  | 10:10:31.604 | 10690                       | 21  |             |      | 14811. | RRCSM    | UMTS FDD | Downlink     | 10:10:32.303 | DCCH   | DOWNLINK_DIRECT_TRANSFER        |
| 3947. | - 1  | 10:10:31.604 | 10690                       | 21  | -14.9       |      | 14812. | L3SM     | UMTS FDD | Downlink     | 10:10:32.303 | DCCH   | IDENTITY_REQUEST                |
| 3948. | -94  | 10:10:32.304 | 10690                       | 21  |             |      | 14813. | RRCSM    | UMTS FDD | Uplink       | 10:10:32.303 | DCCH   | UPLINK_DIRECT_TRANSFER          |
| 3949, |  | 10:10:32.304 | 10690                       | 21  | -13         |      | 14814. | L3SM     | UMTS FDD | Uplink       | 10:10:32,303 | DCCH   | IDENTITY_RESPONSE               |
| 3950. | -78.8  | 10:10:32.866 | 10690                       | 20  |             |      | 14815. | RRCSM    | UMTS FDD | Uplink       | 10:10:32.417 | DCCH   | MEASUREMENT_REPORT              |
| 3951. | A DOMESTICAL CONTROL OF THE PARTY OF T | 10:10:32.866 | 10690                       | 20  | -11         |      | 14816. | RRCSM    | UMTS FDD | Uplink       | 10:10:32.467 | DCCH   | MEASUREMENT_REPORT              |
| 3952. | -86.1  | 10:10:33.239 | 10690                       | 20  |             |      | 14817. | RRCSM    | UMTS FDD | Downlink     | 10:10:32.603 | DCCH   | ACTIVE_SET_UPDATE               |
| 3953. |  | 10:10:33,239 | 10690                       | 20  | -15.3       |      | 14818, | RRCSM    | UMTS FDD | Uplink       | 10:10:32.614 | DCCH   | ACTIVE_SET_UPDATE_COMPLETE      |
| 3954. | -88.5  | 10:10:33.967 | 10690                       | 20  |             |      | 14819. | RRCSM    | UMTS FDD | Downlink     | 10:10:32,713 | DCCH   | SECURITY_MODE_COMMAND           |
| 3955. |  | 10:10:33,987 | 10690                       | 20  | -16.2       |      | 14820. | RRCSM    | UMTS FDD | Uplink       | 10:10:32.713 | DCCH   | SECURITY_MODE_COMPLETE          |
| 3956. | -89.1  | 10:10:34.192 | 10690                       | 20  |             |      | 14821. | RRCSM    | UMTS FDD | Downlink     | 10:10:32.823 | DCCH   | MEASUREMENT_CONTROL             |
| 3957. |  | 10:10:34.192 | 10690                       | 20  | -17         |      | 14822. | RRCSM    | UMTS FDD | Downlink     | 10:10:32.843 | DCCH   | DOWNLINK_DIRECT_TRANSFER        |
| 3958. | -79.8  | 10:10:34.987 | 10690                       | 20  |             |      | 14823. | L3SM     | UMTS FDD | Downlink     | 10:10:32.843 | DCCH   | LOCATION_UPDATING_ACCEPT        |
| 3959, | 1951.01  | 10:10:34.987 | 10690                       | 20  | -14.2       |      | 14824, | RRCSM    | UMTS FDD | Uplink       | 10:10:32.844 | DCCH   | UPLINK_DIRECT_TRANSFER          |
| 3960. | -82.6  | 10:10:35.259 | distribution and the second | -   |             | _    | 14825. | L3SM     | UMTS FDD | Uplink       | 10:10:32.844 | DCCH   | TMSI_REALLOCATION_COMPLETE      |
| 3961. | 100000   | 10:10:35.259 | 10690                       | 20  | -15.3       |      | 14826. | RRCSM    | UMTS FDD | Downlink     | 10:10:33.023 | DCCH   | RRC_CONNECTION_RELEASE          |
| 3962. | -88  | 10:10:35.639 | 10690                       | 20  |             |      | 14827. | RRCSM    | UMTS FDD | Uplink       | 10:10:33.023 | DCCH   | RRC_CONNECTION_RELEASE_COMPLETE |
| 3963. |  | 10:10:35.639 | 10690                       | 20  | -12,9       | 11/4 | 14828. | RRCSM    | UMTS FDD | Uplink       | 10:10:33.064 | DCCH   | RRC_CONNECTION_RELEASE_COMPLETE |
| 3964. | -85.4  | 10:10:36.443 | 10690                       | 20  | 110.10      | *    | 14829. | RRCSM    | UMTS FDD | Downlink     | 10:10:33,239 | BCCH BCH   | SYSTEM INFORMATION BCH          |

- On MT End, During the setup fail, UE was latched with PSC 21 and RF condition RSCP -94 dBm is ok and Ec/No -15.2 dB which is poor.
- As per the Analysis the call setup failure event occurred due to poor quality in the network.



# **THANKS**