Seychelles Test Drive

Perseverance Phase-2 Report

DRIVE TEST ROUTE

Phase-1 Dates- 04th Oct 2024

Route Name: Mahe

District Name: Perseverance

Region: Northern

Island: Mahé

Drive Test Distance: 12.02 kms

Drive Test Duration: 00 hours,32 minutes,39 seconds

Phase-2 Dates- 18th Oct 2024

Route Name: Mahe

District Name: Perseverance

Region: Northern

Island: Mahé

Drive Test Distance: 12.35 kms

Drive Test Duration: 00 hours,28 minutes,49 seconds

VOICE EXECUTIVE SUMMARY

Phase-1

Short Call Findings:

- The Call Setup Success Rate for Airtel is (95.12%), while for Operator CWS it is (100.00%).
- The Call Setup Time for Airtel is (6.13s) , while for Operator CWS it is (7.80s)

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 (3.23), and for CWS, it is (3.46).

Phase-2

Short Call Findings:

- The Call Setup Success Rate for Airtel is (100.00%), while for Operator CWS it is (100.00%).
- The Call Setup Time for Airtel is (5.77s), while for Operator CWS it is (9.48s)

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 (3.16), and for CWS, it is (3.33).

4G PREFERRED DATA TEST – EXECUTIVE SUMMARY

Phase-1

4G Preferred Data Findings:

- Airtel SFTP DL is (5.17 Mbps), while SFTP UL is (5.42 Mbps), CWS SFTP DL is (6.77 Mbps), while SFTP UL is (3.12 Mbps)
- Airtel HTTP DL is (9.51 Mbps), HTTP Capacity DL is (7.60 Mbps) ,HTTP UL is (10.18 Mbps) , and HTTP Capacity UL is (12.44 Mbps).
- CWS HTTP DL is (7.30 Mbps), HTTP Capacity DL is (38.60 Mbps) ,HTTP UL is (6.32 Mbps) , and HTTP Capacity UL is (21.59 Mbps).
- On live web page testing for browsing, www.shein.com took (9.71s), www.nbs.gov.sc took (20.58s), and www.sbc.sc took (29.19s) on Airtel.
- On live web page testing for browsing, www.shein.com took (9.29s), www.nbs.gov.sc took (16.86s), and www.sbc.sc took (23.05s) on CWS.
- On static browsing, Kepler Webpage took (4.57s), and Kepler Mobile took (1.84s) on Airtel.
- On static browsing, Kepler Webpage took (5.34s), and Kepler Mobile took (2.87s) on CWS.
- YouTube average resolution in Airtel is (1006.40) pixels.
- YouTube average resolution in CWS is (989.77) pixels.
- Airtel scored 53.11% in Carrier Aggregation (CA).
- CWS scored 32.97% in Carrier Aggregation (CA).

Phase-2

4G Preferred Data Findings:

- Airtel SFTP DL is (7.53 Mbps), while SFTP UL is (7.10 Mbps), CWS SFTP DL is (8.36 Mbps), while SFTP UL is (3.52 Mbps)
- Airtel HTTP DL is (9.65 Mbps), HTTP Capacity DL is (12.22 Mbps) ,HTTP UL is (12.51 Mbps) , and HTTP Capacity UL is (21.26 Mbps).
- CWS HTTP DL is (9.77 Mbps), HTTP Capacity DL is (41.52 Mbps) ,HTTP UL is (6.51 Mbps) , and HTTP Capacity UL is (18.93 Mbps).
- On live web page testing for browsing, www.shein.com took (6.87s), www.nbs.gov.sc took (20.02s), and www.sbc.sc took (21.24s) on Airtel.
- On live web page testing for browsing, www.shein.com took (10.10s), www.nbs.gov.sc took (16.76s), and www.sbc.sc took (14.68s) on CWS.
- On static browsing, Kepler Webpage took (4.56s), and Kepler Mobile took (1.72s) on Airtel.
- On static browsing, Kepler Webpage took (5.03s), and Kepler Mobile took (2.69s) on CWS.
- YouTube average resolution in Airtel is (975.50) pixels.
- YouTube average resolution in CWS is (1058.21) pixels.
- Airtel scored 65.91% in Carrier Aggregation (CA).
- CWS scored 35.88% in Carrier Aggregation (CA).

3G PREFERRED DATA TEST - EXECUTIVE SUMMARY

Phase-1

3G Preferred Data Test Findings:

- Airtel SFTP DL is (3.36 Mbps), while SFTP UL is (1.66 Mbps), CWS SFTP DL is (2.98 Mbps), while SFTP UL is (1.44 Mbps)
- Airtel HTTP DL is (3.88 Mbps), HTTP Capacity DL is (4.58 Mbps) ,HTTP UL is (2.43 Mbps) , and HTTP Capacity UL is (5.09 Mbps).
- CWS HTTP DL is (2.95 Mbps), HTTP Capacity DL is (6.42 Mbps) ,HTTP UL is (1.82 Mbps) , and HTTP Capacity UL is (4.43 Mbps).
- On live web page testing for browsing, www.shein.com took (11.25s), www.nbs.gov.sc took (13.11s), and www.sbc.sc took (17.42s) on Airtel.
- On live web page testing for browsing, www.shein.com took (9.46s), www.nbs.gov.sc took (8.71s), and www.sbc.sc took (13.00s) on CWS.
- On static browsing, Kepler Webpage took (3.89s), and Kepler Mobile took (1.71s) on Airtel.
- On static browsing, Kepler Webpage took (5.68s), and Kepler Mobile took (2.51s) on CWS.
- YouTube average resolution in Airtel is (886.70) pixels.
- YouTube average resolution in CWS is (1027.79) pixels.

Phase-2

3G Preferred Data Test Findings:

- Airtel SFTP DL is (4.21 Mbps), while SFTP UL is (1.70 Mbps), CWS SFTP DL is (3.27 Mbps), while SFTP UL is (1.10 Mbps)
- Airtel HTTP DL is (5.40 Mbps), HTTP Capacity DL is (3.33 Mbps) ,HTTP UL is (1.94 Mbps) , and HTTP Capacity UL is (5.86 Mbps).
- CWS HTTP DL is (3.07 Mbps), HTTP Capacity DL is (6.26 Mbps) ,HTTP UL is (2.36 Mbps) , and HTTP Capacity UL is (4.08 Mbps).
- On live web page testing for browsing, www.shein.com took (8.56s), www.nbs.gov.sc took (10.61s), and www.sbc.sc took (12.80s) on Airtel.
- On live web page testing for browsing, www.shein.com took (9.26s), www.nbs.gov.sc took (16.76s), and www.sbc.sc took (10.89s) on CWS.
- On static browsing, Kepler Webpage took (5.13s), and Kepler Mobile took (2.51s) on Airtel.
- On static browsing, Kepler Webpage took (5.72s), and Kepler Mobile took (2.46s) on CWS.
- YouTube average resolution in Airtel is (1080.00) pixels.
- YouTube average resolution in CWS is (1080.00) 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
POP always on. ICMP PAYLOAD PING 800 BYTES			
1	FILE TRANSFER DOWNLOAD	FTP DL (3MB)	FTP DL (5MB)
	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, www.sbc.sc	www.shein.com, www.nbs.gov.sc, 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	41	39
Call Failed	2	0
Call Connected	39	39
CSSR[%]	95.12	100.00
USCSR[%]	4.88	0.00
CST [s] Alerting	6.13	7.80
CST [s]Connected	6.43	8.01

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

Call Setup Time (s)	Operators		Rank	
	Airtel	CWS	Airtel	CWS
Overall CST (until ringing/alerting)	6.13	7.80	1	2
CS calls CST (until ringing/alerting)	N/A	N/A	N/A	N/A
CSFB calls CST (until ringing/alerting)	6.13	7.80	1	2
Overall CST (until Connect/Connect Acknowledge)	6.43	8.01	1	2
CS calls CST (until Connect/Connect Acknowledge)	N/A	N/A	N/A	N/A
CSFB calls CST (until Connect/Connect Acknowledge)	6.43	8.01	1	2

Phase-2

Short Call Statistics		
Short Call Scenario	Operator 1	Operator 2
Voice KPIs	Airtel	CWS
Call Attempt	36	33
Call Failed	0	0
Call Connected	36	33
CSSR[%]	100.00	100.00
USCSR[%]	0.00	0.00
CST [s] Alerting	5.77	9.49
CST [s]Connected	6.02	9.70

Call Setup Time (s)	Operators		Rank	
	Airtel	CWS	Airtel	CWS
Overall CST (until ringing/alerting)	5.77	9.49	1	2
CS calls CST (until ringing/alerting)	#N/A	#N/A	#N/A	#N/A
CSFB calls CST (until ringing/alerting)	5.77	9.49	1	2
Overall CST (until Connect/Connect Acknowledge)	6.02	9.70	1	2
CS calls CST (until Connect/Connect Acknowledge)	#N/A	#N/A	#N/A	#N/A
CSFB calls CST (until Connect/Connect Acknowledge)	6.02	9.70	1	2

VOICE TEST KPI STATISTICS (Long Call)

Phase-1

Long Call Statistics		
Long Call Scenario	Operator 1	Operator 2
Voice KPIs	Airtel	CWS
Call Connected	11	11
Call Dropped	0	0
Call Completed	11	11
CRR[%]	100.00	100.00
DCR[%]	0.00	0.00
MOS	3.23	3.46

	Airtel short call	CWS short call	Airtel long call	CWS long call
CSFB Calls	41	39	11	11
CS Calls	0	0	0	0

Handover Statistics	Airtel MO	CWS MO
Handover Attempt	15	49
Handover Failure	0	1
Handover Success	15	48
HOSR %	100.00	97.96

Phase-2

Long Call Statistics		
Long Call Scenario	Operator 1	Operator 2
Voice KPIs	Airtel	CWS
Call Connected	10	10
Call Dropped	0	0
Call Completed	10	10
CRR[%]	100.00	100.00
DCR[%]	0.00	0.00
MOS	3.16	3.33

	Airtel short call	CWS short call	Airtel long call	CWS long call
CSFB Calls	36	33	10	10
CS Calls	0	0	0	0

Handover Statistics	Airtel MO	CWS MO
Handover Attempt	13	38
Handover Failure	2	1
Handover Success	11	37
HOSR %	84.62	97.37

DATA TEST KPI STATISTICS(4G Preferred)

DATA Scenario		Phase-1				Phase-2			
		Airtel 4G	CWS 4G	Airtel 4G (Rank)	CWS 4G (Rank)	Airtel 4G	CWS 4G	Airtel 4G (Rank)	CWS 4G (Rank)
FILE TRANSFER	SFTP DL (Mbps)	5.17	6.77	2	1	7.53	8.36	2	1
	SFTP UL(Mbps)	5.42	3.12	1	2	7.10	3.52	1	2
	HTTP DL(Mbps)	9.51	7.30	1	2	9.65	9.77	2	1
	HTTP UL(Mbps)	10.18	6.32	1	2	12.51	6.51	1	2
	HTTP Capacity DL(Mbps)	7.60	38.60	2	1	12.22	41.52	2	1
	HTTP Capacity UL(Mbps)	12.44	21.59	2	1	21.26	18.93	1	2
BROWSER	Overall Browser DL Time (s)	13.53	11.17	2	1	11.14	9.85	2	1
	Kepler Webpage DL Time (s)	4.57	5.34	1	2	4.56	5.03	1	2
	Mobile Kepler Webpage DL Time (s)	1.84	2.87	1	2	1.72	2.69	1	2
	www.shein.com Webpage DL Time (s)	9.71	9.29	2	1	6.87	10.10	1	2
	www.nbs.gov.sc Webpage DL Time (s)	20.58	16.86	2	1	20.02	16.76	2	1
	www.sbc.sc Webpage DL Time (s)	29.19	23.05	2	1	21.24	14.68	2	1
LATENCY	Avg Latency (ms)	271.50	270.76	2	1	260.18	246.65	2	1
	Median Latency (ms)	269	230	2	1	142	192	1	2
YOUTUBE	YouTube Access Time (s)	5.46	1.87	2	1	5.56	2.11	2	1
	YouTube Average Resolution (pixels)	1006.40	989.77	1	2	975.50	1058.21	2	1
	YouTube Success Ratio [%]	100.00	100.00	1	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 (%)
SFTP DL	Success	6	6	100.00	100.00
	Failure	0	0	0.00	0.00
SFTP UL	Success	6	6	100.00	100.00
	Failure	0	0	0.00	0.00
HTTP DL	Success	5	6	83.33	100.00
	Failure	1	0	16.67	0.00
HTTP UL	Success	5	6	100.00	100.00
	Failure	0	0	0.00	0.00
HTTP Capacity DL	Success	5	5	100.00	100.00
	Failure	0	0	0.00	0.00
HTTP Capacity UL	Success	5	4	100.00	80.00
	Failure	0	1	0.00	20.00

Phase-2

Test Type	Status	Airtel 4G	CWS 4G	Airtel 4G (%)	CWS 4G (%)
SFTP DL	Success	6	6	100.00	100.00
	Failure	0	0	0.00	0.00
SFTP UL	Success	6	6	100.00	100.00
	Failure	0	0	0.00	0.00
HTTP DL	Success	6	6	100.00	100.00
	Failure	0	0	0.00	0.00
HTTP UL	Success	6	6	100.00	100.00
	Failure	0	0	0.00	0.00
HTTP Capacity DL	Success	5	5	100.00	100.00
	Failure	0	0	0.00	0.00
HTTP Capacity UL	Success	5	5	100.00	100.00
	Failure	0	0	0.00	0.00

4G PREFERRED BROWSING FILE ACCESS

Phase-1

Web Page	Status	Airtel 4G	CWS 4G	Airtel 4G (%)	CWS 4G (%)
Kepler	Success	4	6	80.00	100.00
	Failure	1	0	20.00	0.00
Mobile Kepler	Success	5	5	100.00	100.00
	Failure	0	0	0.00	0.00
www.shein.com	Success	5	6	100.00	100.00
	Failure	0	0	0.00	0.00
www.nbs.gov.sc	Success	5	5	100.00	100.00
	Failure	0	0	0.00	0.00
www.sbc.sc	Success	5	5	100.00	100.00
	Failure	0	0	0.00	0.00

Phase-2

Web Page	Status	Airtel 4G	CWS 4G	Airtel 4G (%)	CWS 4G (%)
Kepler	Success	4	5	80.00	100.00
	Failure	1	0	20.00	0.00
Mobile Kepler	Success	5	5	100.00	100.00
	Failure	0	0	0.00	0.00
www.shein.com	Success	5	5	100.00	100.00
	Failure	0	0	0.00	0.00
www.nbs.gov.sc	Success	5	5	100.00	100.00
	Failure	0	0	0.00	0.00
www.sbc.sc	Success	5	5	100.00	100.00
	Failure	0	0	0.00	0.00

4G PREFERRED LATENCY

Phase-1

	Latency KPIs	Airtel 4G	CWS 4G
Overall Latency	Sample Count [32 bytes]	9	11
	Average Latency [ms]	278.33	252.36
	Median Latency [ms]	264	199
	Ping session status: Successful	9	11
	Ping session status: Failed [Socket error]	0	0
	Ping session status: Failed [Protocol error timeout]	0	0
	Packet Loss<1%	0.00	0.00
www.google.com	Average Latency [ms]	402.80	157.00
	Median Latency [ms]	401	152
	Ping session status: Successful	5	5
	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]	122.75	331.83
	Median Latency [ms]	124	328
	Ping session status: Successful	4	6
	Ping session status: Failed [Socket error]	0	0
	Ping session status: Failed [Protocol error timeout]	0	0
	Packet Loss<1%	0.00	0.00

Phase-2

	Latency KPIs	Airtel 4G	CWS 4G
Overall Latency	Sample Count [32 bytes]	11	11
	Average Latency [ms]	256.73	215.18
	Median Latency [ms]	142	192
	Ping session status: Successful	11	11
	Ping session status: Failed [Socket error]	0	0
	Ping session status: Failed [Protocol error timeout]	0	0
	Packet Loss<1%	0.00	0.00
www.google.com	Average Latency [ms]	419.80	173.00
	Median Latency [ms]	423	166
	Ping session status: Successful	5	5
	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]	120.83	250.67
	Median Latency [ms]	116	239
	Ping session status: Successful	6	6
	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)	5	6
Success(Count)	5	6
Failure(Count)	0	0
YouTube Access Time (s)	5.46	1.87
YouTube Average Resolution (pixels)	1006.40	989.77
YouTube Success Ratio [%]	100.00	100.00

Phase-2

LTE YOUTUBE Success Ratio		
KPIs	Airtel 4G	CWS 4G
Attempt(Count)	6	6
Success(Count)	6	6
Failure(Count)	0	0
YouTube Access Time (s)	5.56	2.11
YouTube Average Resolution (pixels)	975.50	1058.21
YouTube Success Ratio [%]	100.00	100.00

DATA TEST KPI STATISTICS (3G Preferred)

DATA Scenario		Phase-1				Phase-2			
		Airtel 3G	CWS 3G	Airtel 3G (Rank)	CWS 3G (Rank)	Airtel 3G	CWS 3G	Airtel 3G (Rank)	CWS 3G (Rank)
FILE TRANSFER	SFTP DL (Mbps)	3.36	2.98	1	2	4.21	3.27	1	2
	SFTP UL(Mbps)	1.66	1.44	1	2	1.70	1.10	1	2
	HTTP DL(Mbps)	3.88	2.95	1	2	5.40	3.07	1	2
	HTTP UL(Mbps)	2.43	1.82	1	2	1.94	2.36	2	1
	HTTP Capacity DL(Mbps)	4.58	6.42	2	1	3.33	6.26	2	1
	HTTP Capacity UL(Mbps)	5.09	4.43	1	2	5.86	4.08	1	2
BROWSER	Overall Browser DL Time (s)	9.47	7.87	2	1	7.58	8.85	1	2
	Kepler Webpage DL Time (s)	3.89	5.68	1	2	5.13	5.72	1	2
	Mobile Kepler Webpage DL Time (s)	1.71	2.51	1	2	2.51	2.46	2	1
	www.shein.com Webpage DL Time (s)	11.25	9.46	2	1	8.56	9.26	1	2
	www.nbs.gov.sc Webpage DL Time (s)	13.11	8.71	2	1	10.61	16.73	1	2
	www.sbc.sc Webpage DL Time (s)	17.42	13.00	2	1	12.80	10.89	2	1
LATENCY	Avg Latency (ms)	258.04	192.02	2	1	288.43	238.68	2	1
	Median Latency (ms)	138	194	1	2	344.5	171	2	1
YOUTUBE	YouTube Access Time (s)	3.95	6.08	1	2	4.60	2.06	2	1
	YouTube Average Resolution (pixels)	886.70	1027.79	2	1	1080.00	1080.00	1	1
	YouTube Success Ratio [%]	100.00	100.00	1	1	100.00	80.00	1	2

3G PREFERRED THROUGHPUT FILE ACCESS

Phase-1

Test Type	Status	Airtel 3G	CWS 3G	Airtel 3G (%)	CWS 3G (%)
SFTP DL	Success	6	6	100.00	100.00
	Failure	0	0	0.00	0.00
SFTP UL	Success	6	5	100.00	83.33
	Failure	0	1	0.00	16.67
HTTP DL	Success	6	6	100.00	100.00
	Failure	0	0	0.00	0.00
HTTP UL	Success	6	6	100.00	100.00
	Failure	0	0	0.00	0.00
HTTP Capacity DL	Success	5	5	100.00	100.00
	Failure	0	0	0.00	0.00
HTTP Capacity UL	Success	5	5	100.00	100.00
	Failure	0	0	0.00	0.00

Phase-2

Test Type	Status	Airtel 3G	CWS 3G	Airtel 3G (%)	CWS 3G (%)
SFTP DL	Success	5	5	100.00	100.00
	Failure	0	0	0.00	0.00
SFTP UL	Success	5	5	100.00	100.00
	Failure	0	0	0.00	0.00
HTTP DL	Success	5	5	100.00	100.00
	Failure	0	0	0.00	0.00
HTTP UL	Success	5	3	100.00	60.00
	Failure	0	2	0.00	40.00
HTTP Capacity DL	Success	4	4	100.00	100.00
	Failure	0	0	0.00	0.00
HTTP Capacity UL	Success	4	4	100.00	100.00
	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 (%)
Kepler	Success	5	5	100.00	100.00
	Failure	0	0	0.00	0.00
Mobile Kepler	Success	5	5	100.00	100.00
	Failure	0	0	0.00	0.00
www.shein.com	Success	5	5	100.00	100.00
	Failure	0	0	0.00	0.00
www.nbs.gov.sc	Success	5	5	100.00	100.00
	Failure	0	0	0.00	0.00
www.sbc.sc	Success	5	5	100.00	100.00
	Failure	0	0	0.00	0.00

Phase-2

Web Page	Status	Airtel 3G	CWS 3G	Airtel 3G(%)	CWS 3G (%)
Kepler	Success	5	5	100.00	100.00
	Failure	0	0	0.00	0.00
Mobile Kepler	Success	4	4	100.00	100.00
	Failure	0	0	0.00	0.00
www.shein.com	Success	5	4	100.00	100.00
	Failure	0	0	0.00	0.00
www.nbs.gov.sc	Success	4	4	80.00	100.00
	Failure	1	0	20.00	0.00
www.sbc.sc	Success	3	4	75.00	100.00
	Failure	1	0	25.00	0.00

3G PREFERRED LATENCY

Phase-1

	Latency KPIs	Airtel 3G	CWS 3G
Overall Latency	Sample Count [32 bytes]	11	10
	Average Latency [ms]	267.73	179.30
	Median Latency [ms]	284	176
	Ping session status: Successful	11	10
	Ping session status: Failed [Socket error]	0	0
	Ping session status: Failed [Protocol error timeout]	0	1
	Packet Loss<1%	0.00	9.09
www.google.com	Average Latency [ms]	412.40	143.80
	Median Latency [ms]	411	139
	Ping session status: Successful	5	5
	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]	147.17	214.80
	Median Latency [ms]	120	210
	Ping session status: Successful	6	5
	Ping session status: Failed [Socket error]	0	0
	Ping session status: Failed [Protocol error timeout]	0	1
	Packet Loss<1%	0.00	16.67

Phase-2

	Latency KPIs	Airtel 3G	CWS 3G
Overall Latency	Sample Count [32 bytes]	6	7
	Average Latency [ms]	342.33	239.57
	Median Latency [ms]	408	197
	Ping session status: Successful	6	7
	Ping session status: Failed [Socket error]	0	0
	Ping session status: Failed [Protocol error timeout]	3	1
	Packet Loss<1%	33.33	12.50
www.google.com	Average Latency [ms]	420.75	180.75
	Median Latency [ms]	417	150
	Ping session status: Successful	4	4
	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]	185.50	318.00
	Median Latency [ms]	186	211
	Ping session status: Successful	2	3
	Ping session status: Failed [Socket error]	0	0
	Ping session status: Failed [Protocol error timeout]	3	1
	Packet Loss<1%	60.00	25.00

3G PREFERRED YOUTUBE COMPARISON

Phase-1

UMTS YOUTUBE Success Ratio		
KPIs	Airtel 3G	CWS 3G
Attempt(Count)	6	5
Success(Count)	6	5
Failure(Count)	0	0
YouTube Access Time (s)	3.95	6.08
YouTube Average Resolution (pixels)	886.70	1027.79
YouTube Success Ratio [%]	100.00	100.00

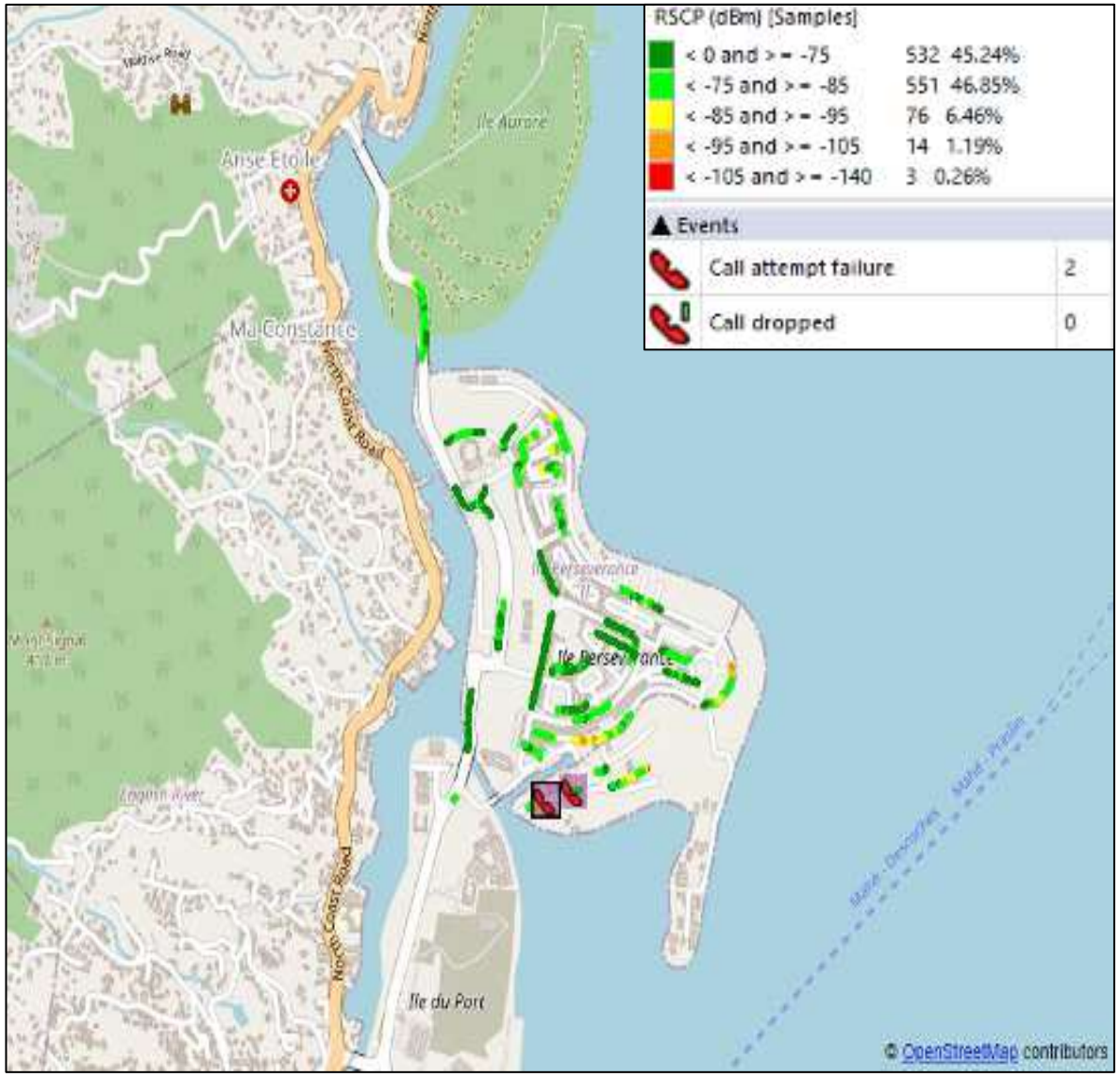
Phase-2

UMTS YOUTUBE Success Ratio		
KPIs	Airtel 3G	CWS 3G
Attempt(Count)	5	5
Success(Count)	5	4
Failure(Count)	0	1
YouTube Access Time (s)	4.60	2.06
YouTube Average Resolution (pixels)	1080.00	1080.00
YouTube Success Ratio [%]	100.00	80.00

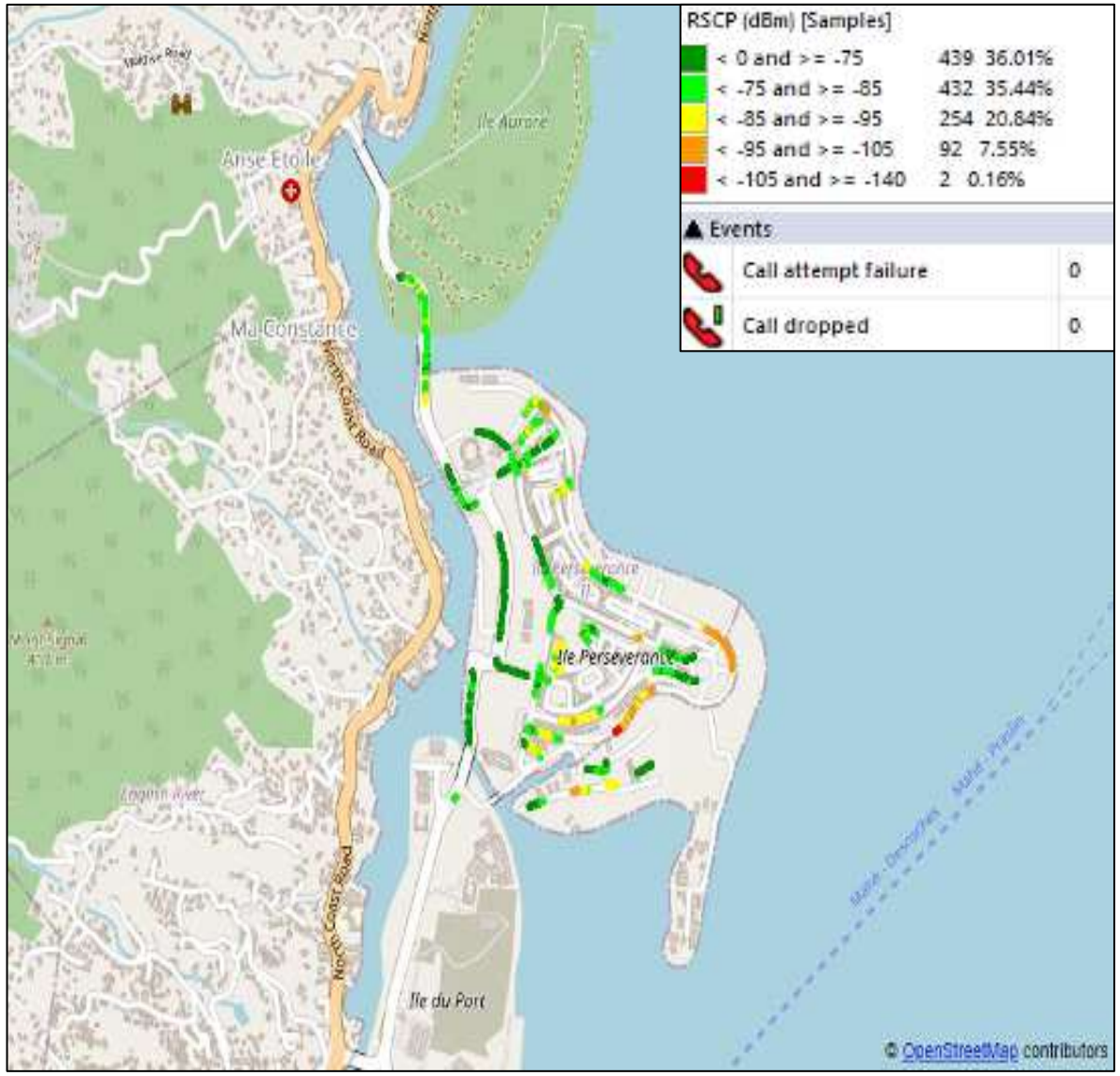
Voice Call Events

Phase-1 SHORT CALL FAILURE EVENTS LOCATION vs RSCP

Airtel SC MO

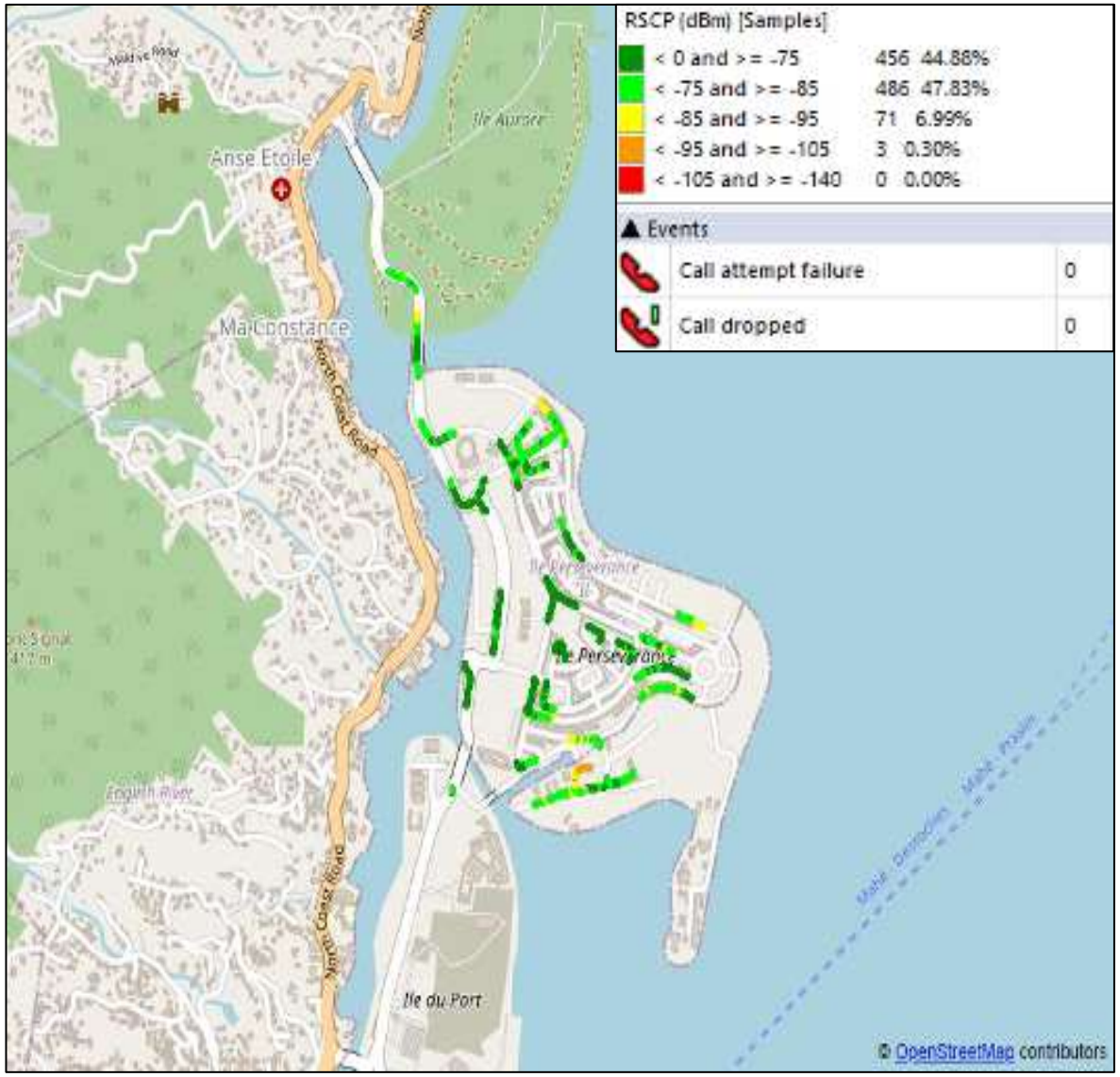


CWS SC MO

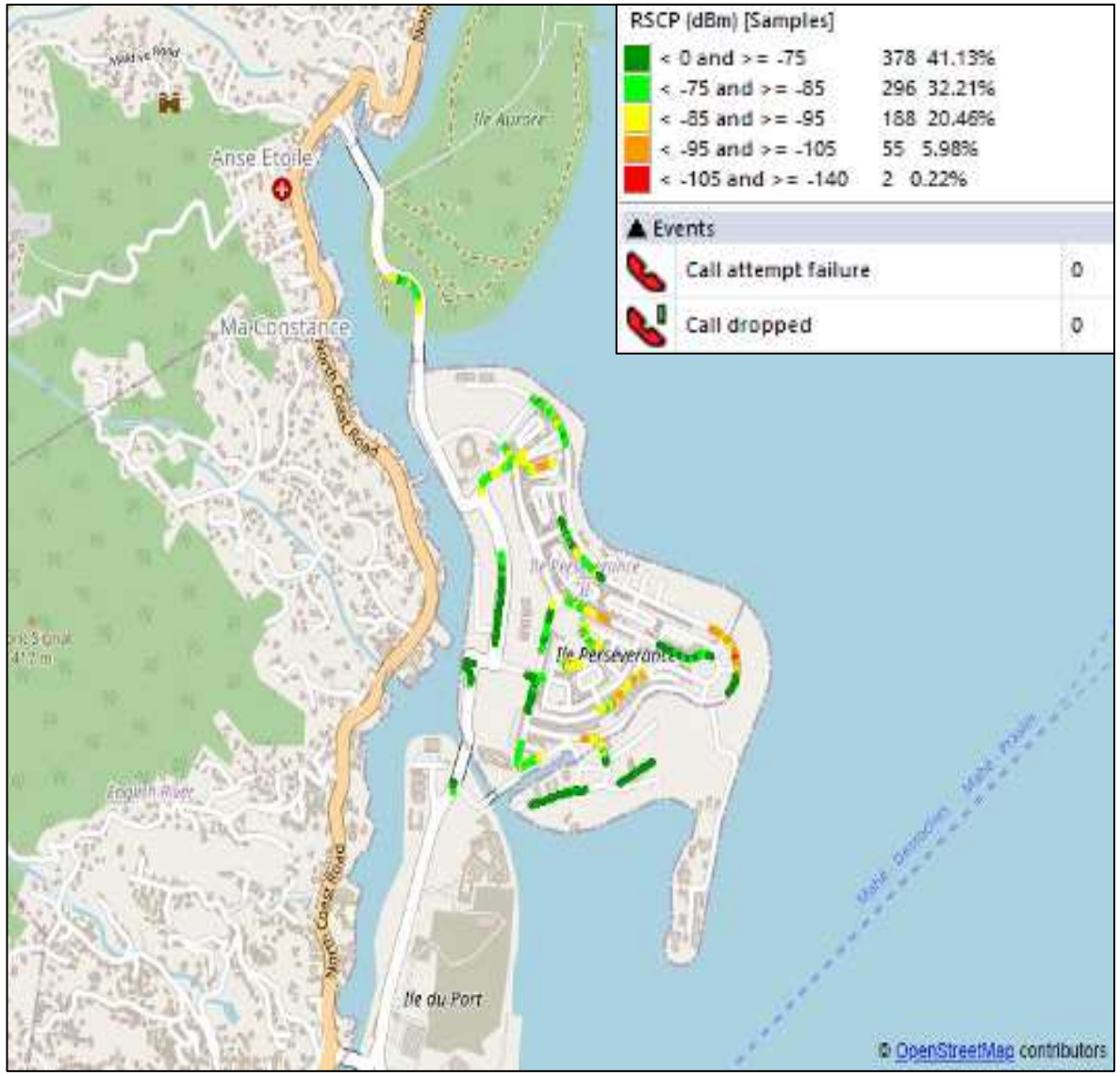


Phase-2 SHORT CALL FAILURE EVENTS LOCATION vs RSCP

Airtel SC MO

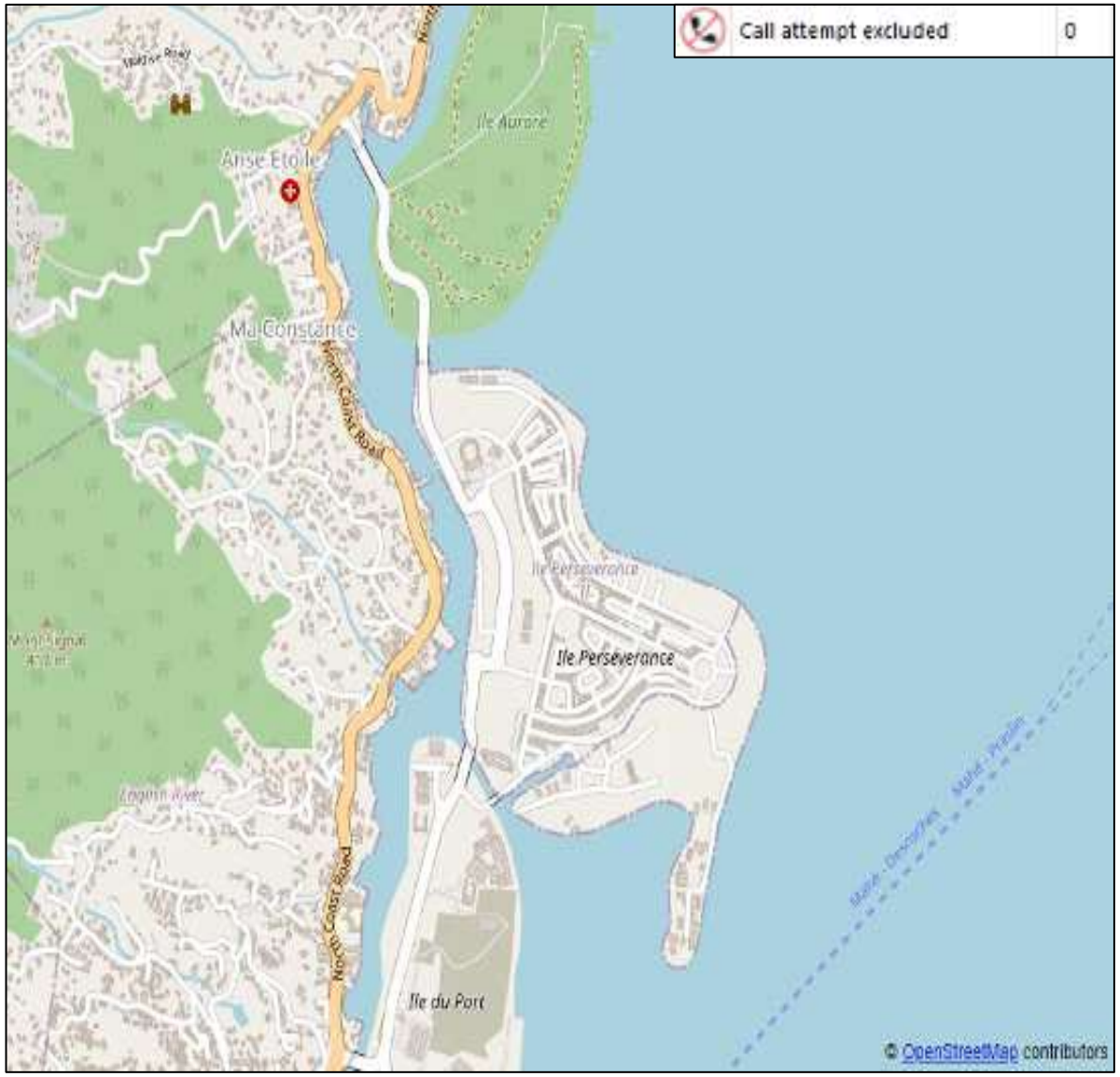


CWS SC MO

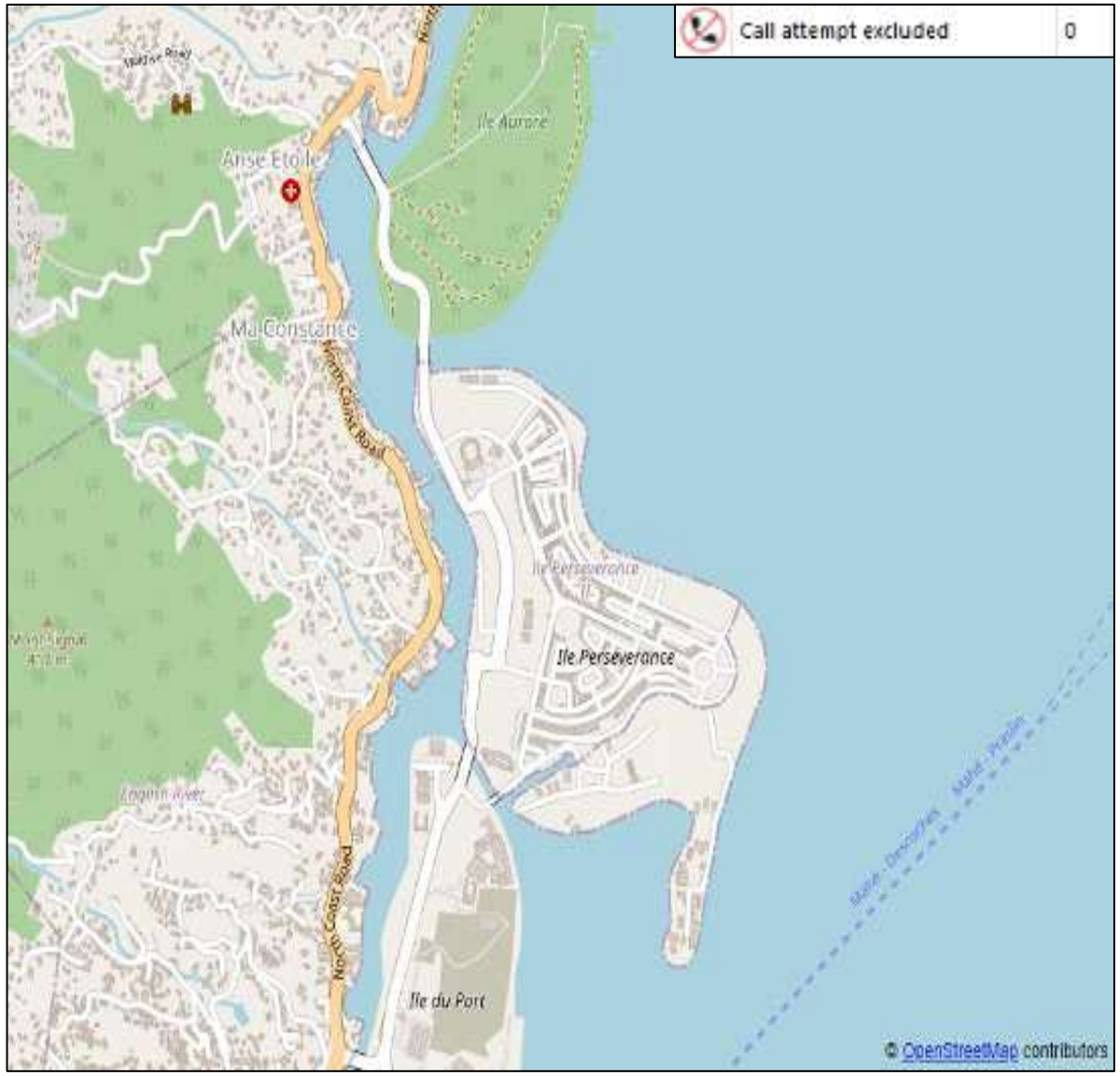


Phase-1 SHORT CALL EXCLUDED EVENTS

Airtel SC MO

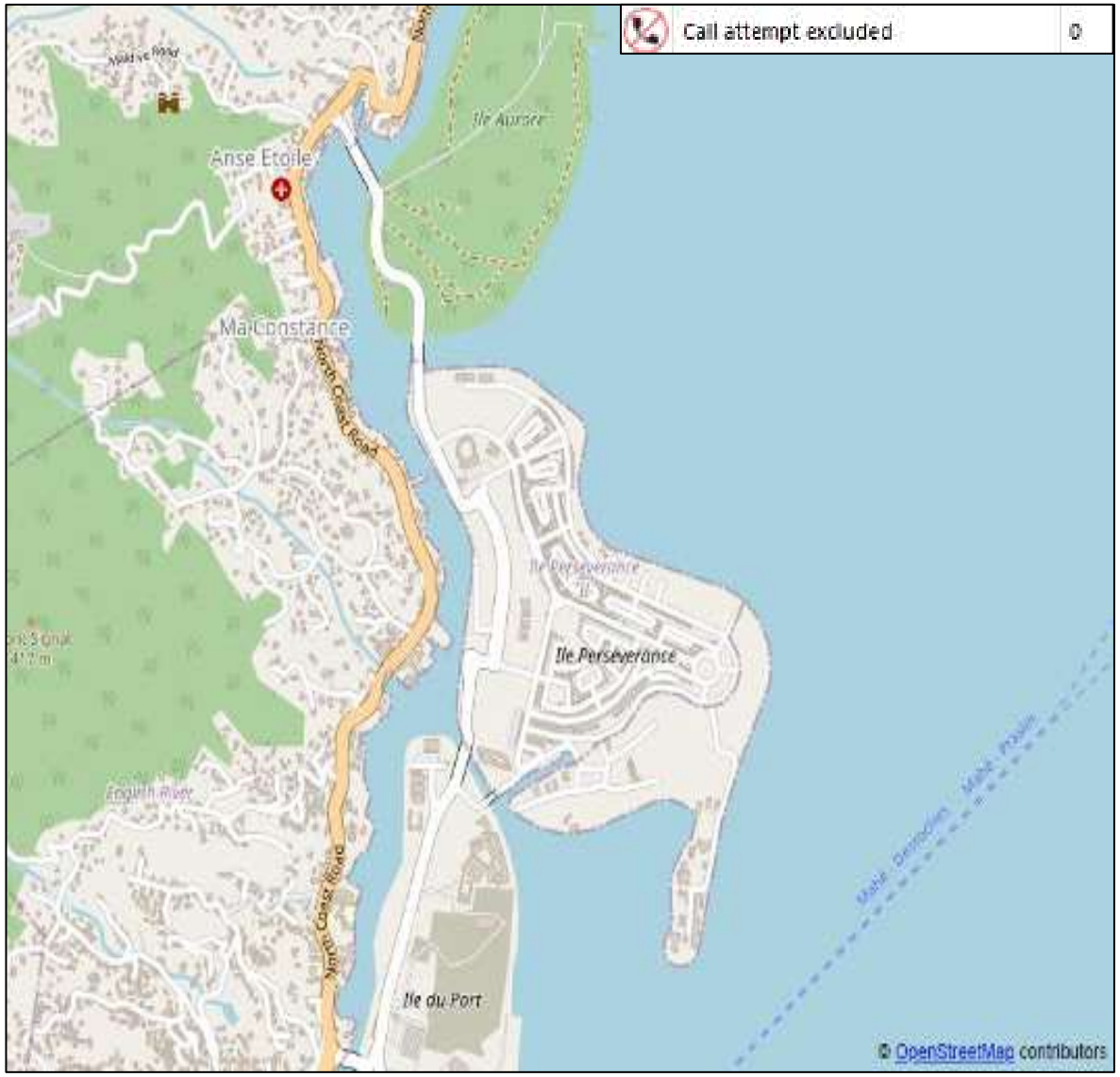


CWS SC MO

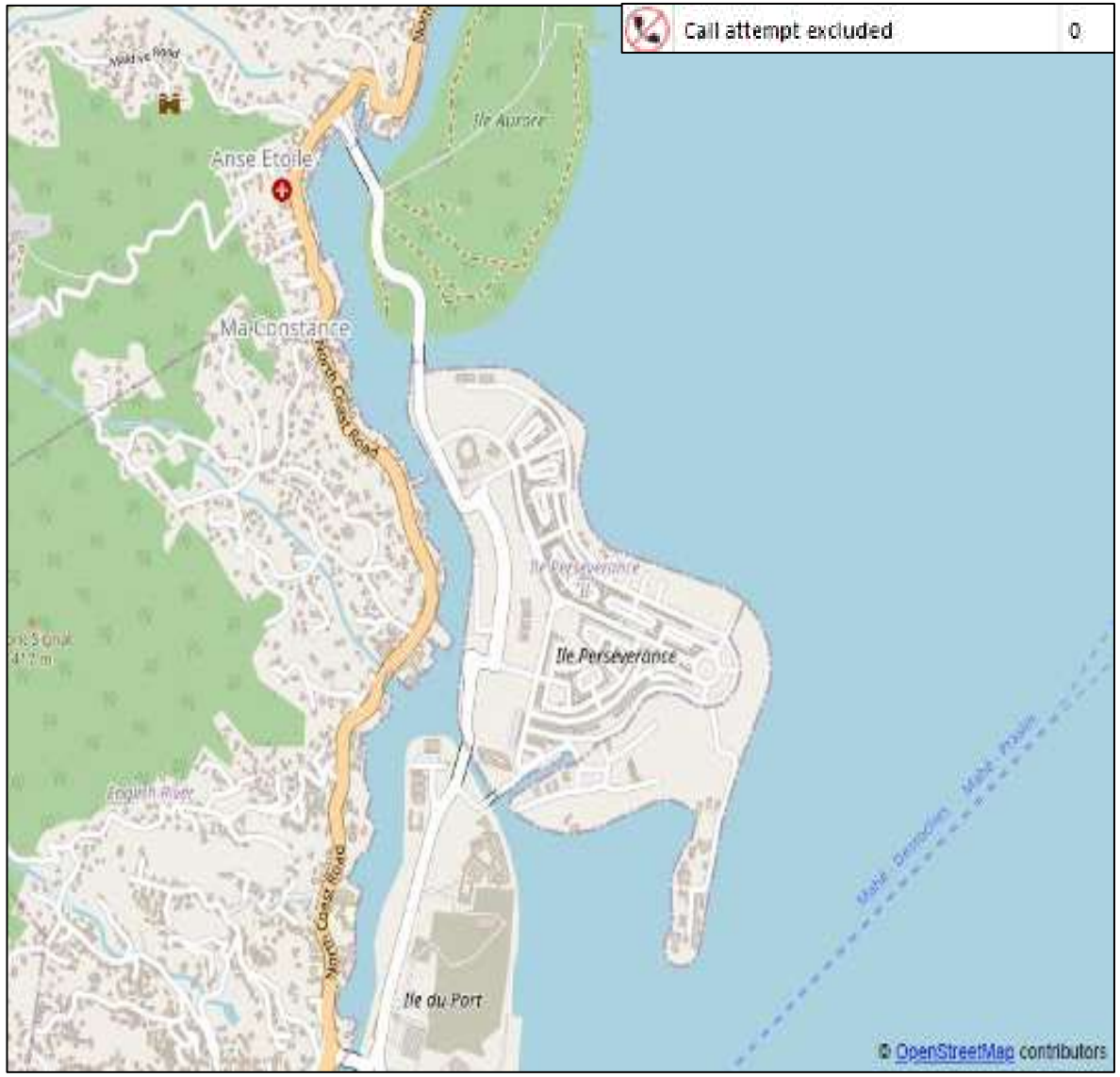


Phase-2 SHORT CALL EXCLUDED EVENTS

Airtel SC MO

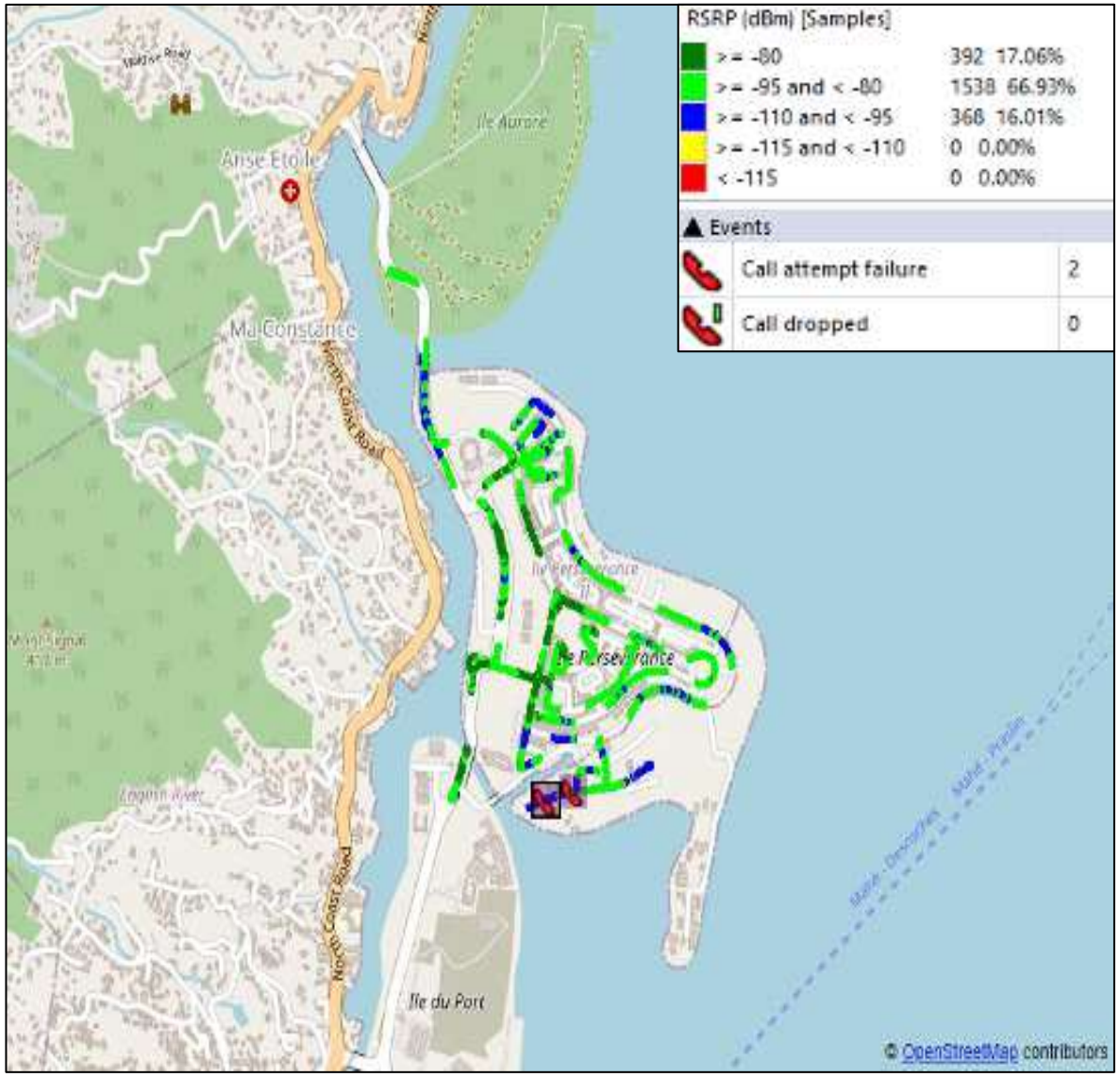


CWS SC MO

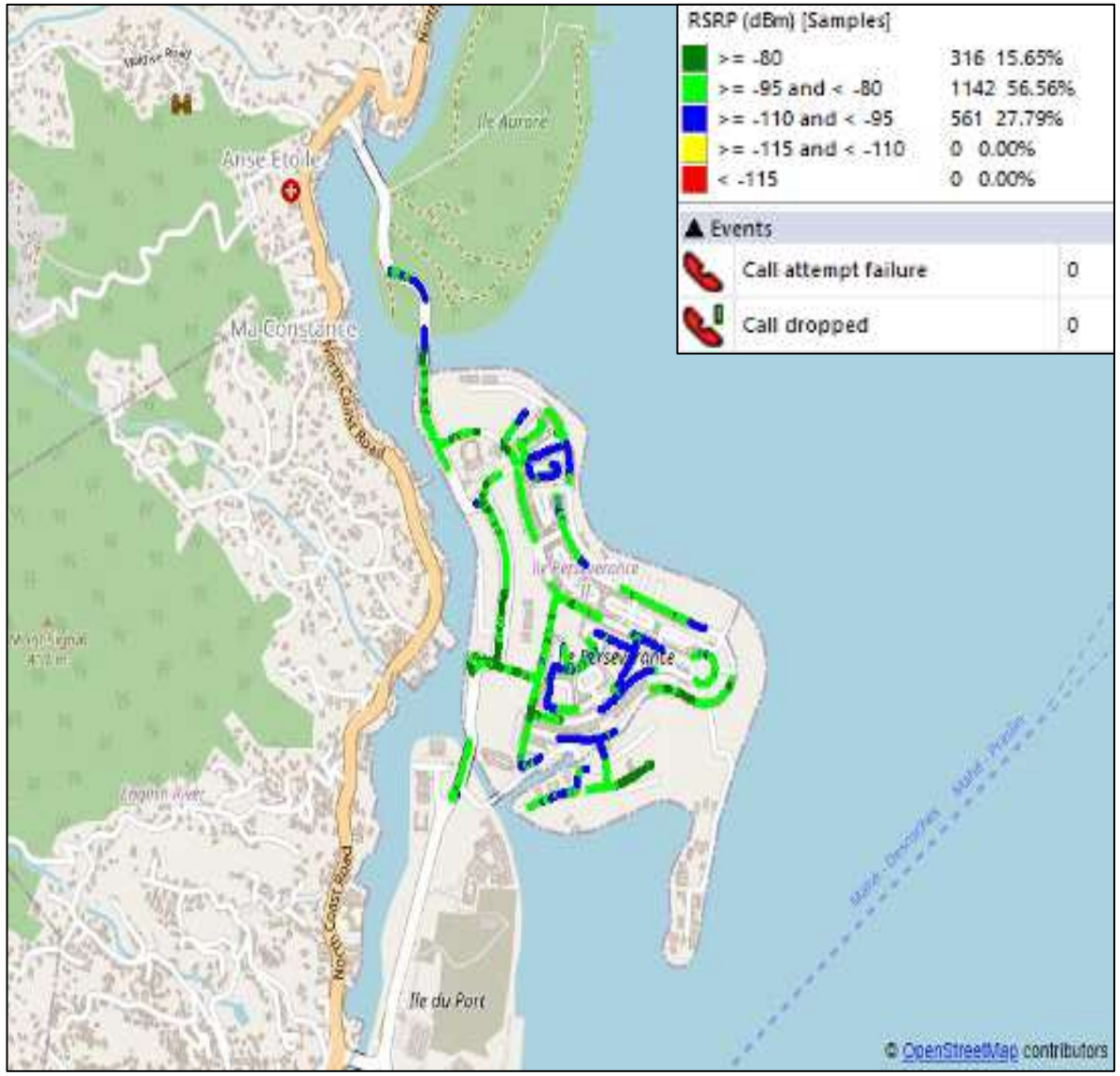


Phase-1 SHORT CALL FAILURE EVENTS LOCATION vs RSRP

Airtel SC MO

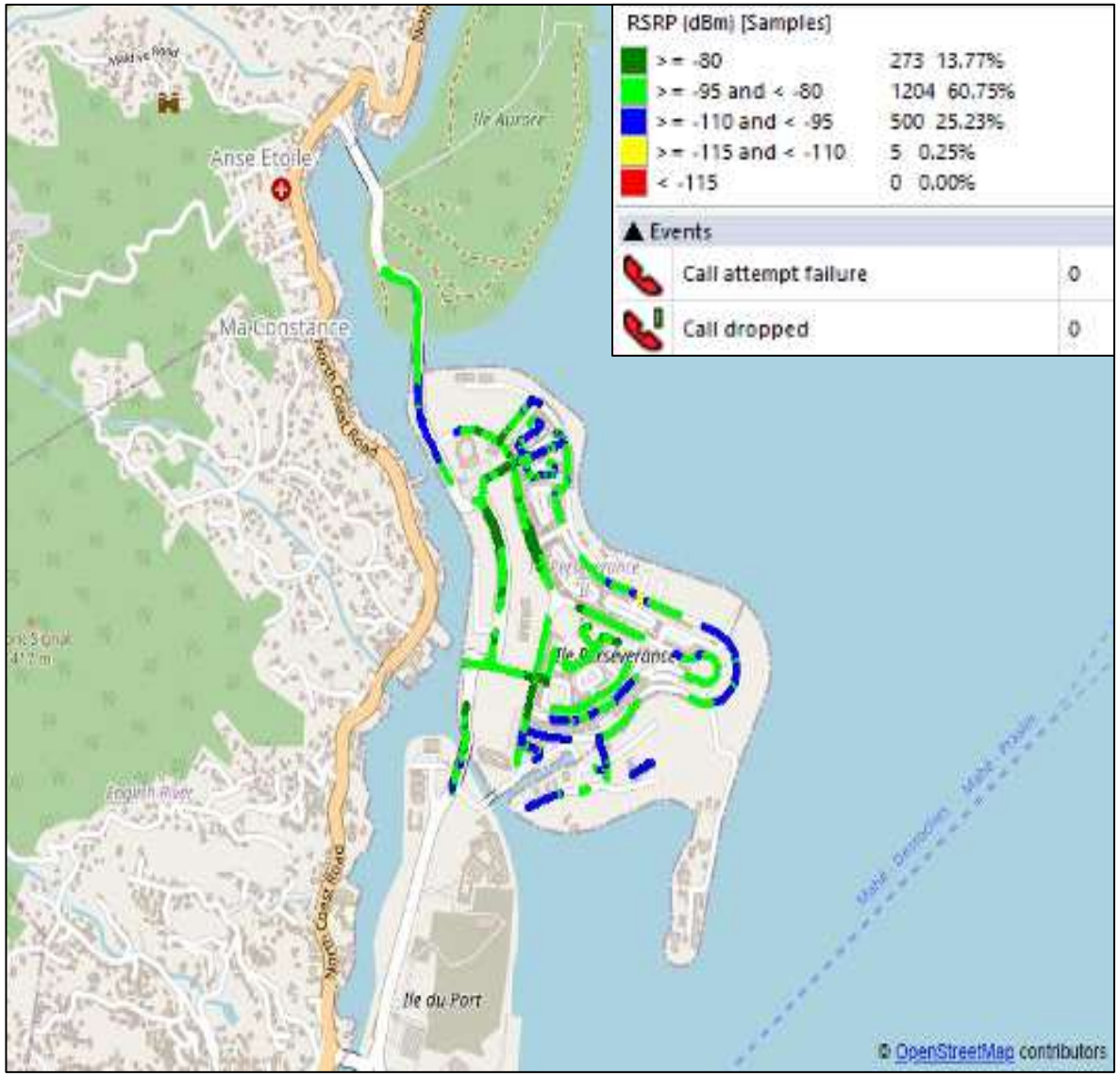


CWS SC MO

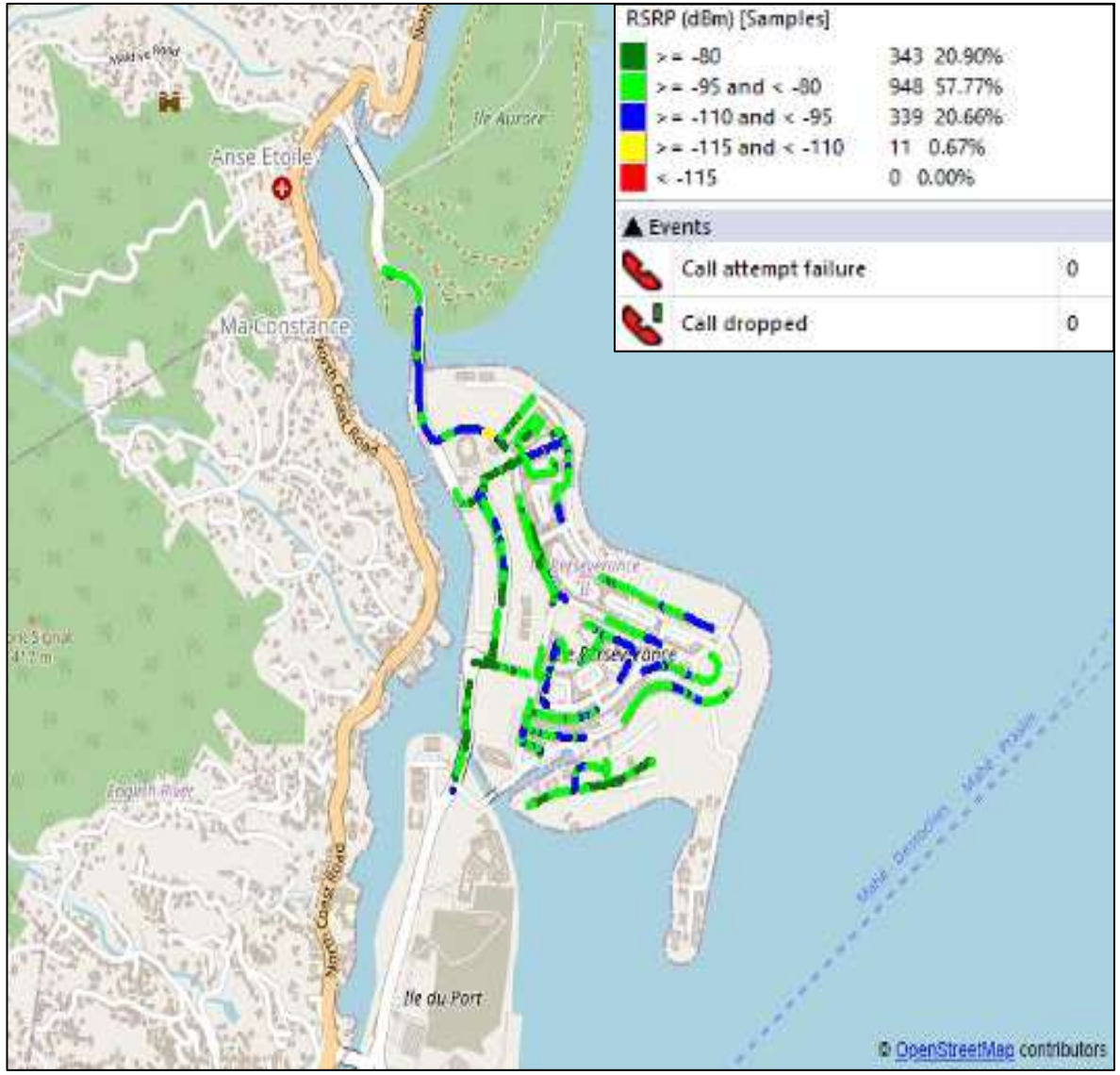


Phase-2 SHORT CALL FAILURE EVENTS LOCATION vs RSRP

Airtel SC MO

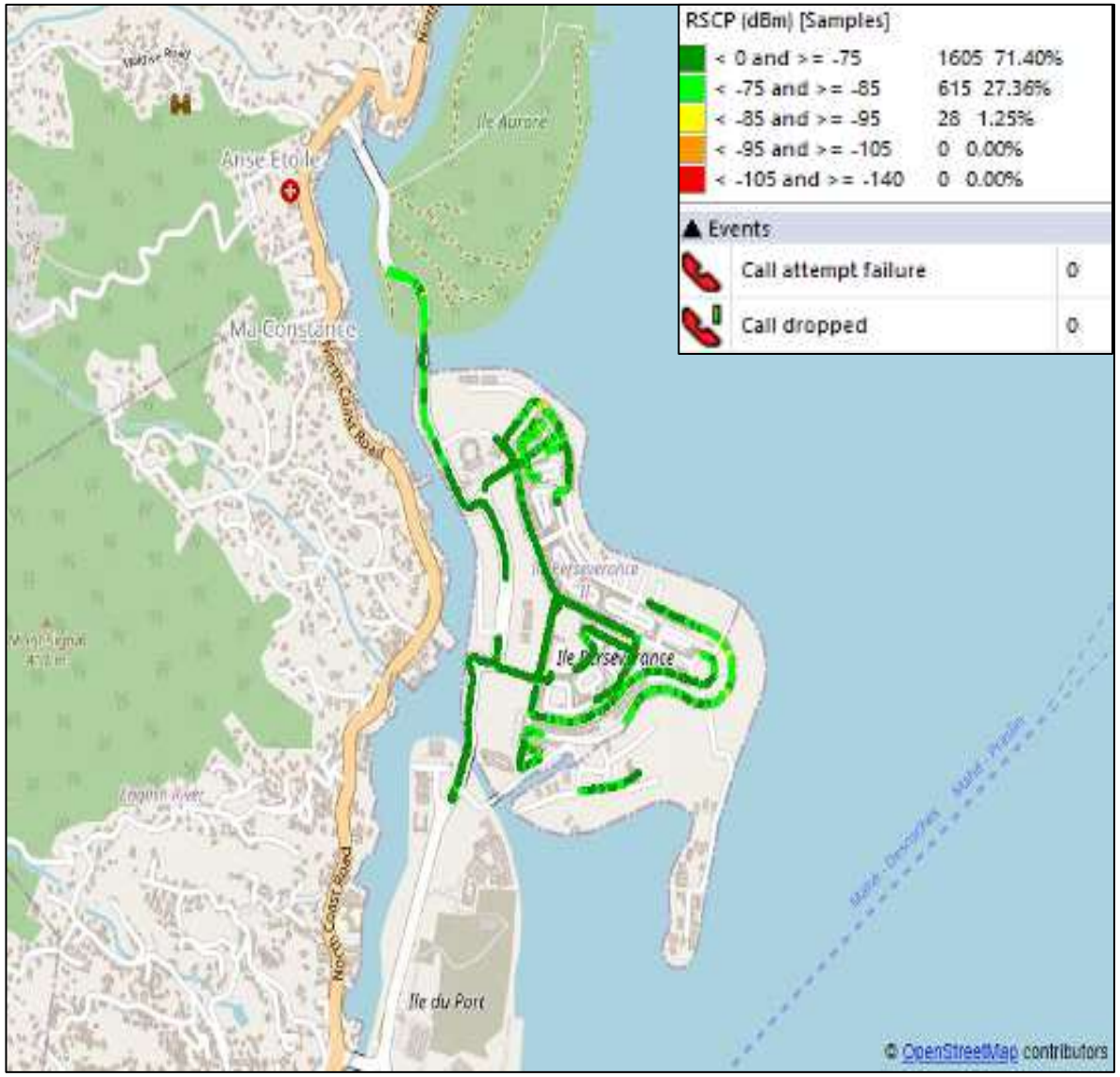


CWS SC MO

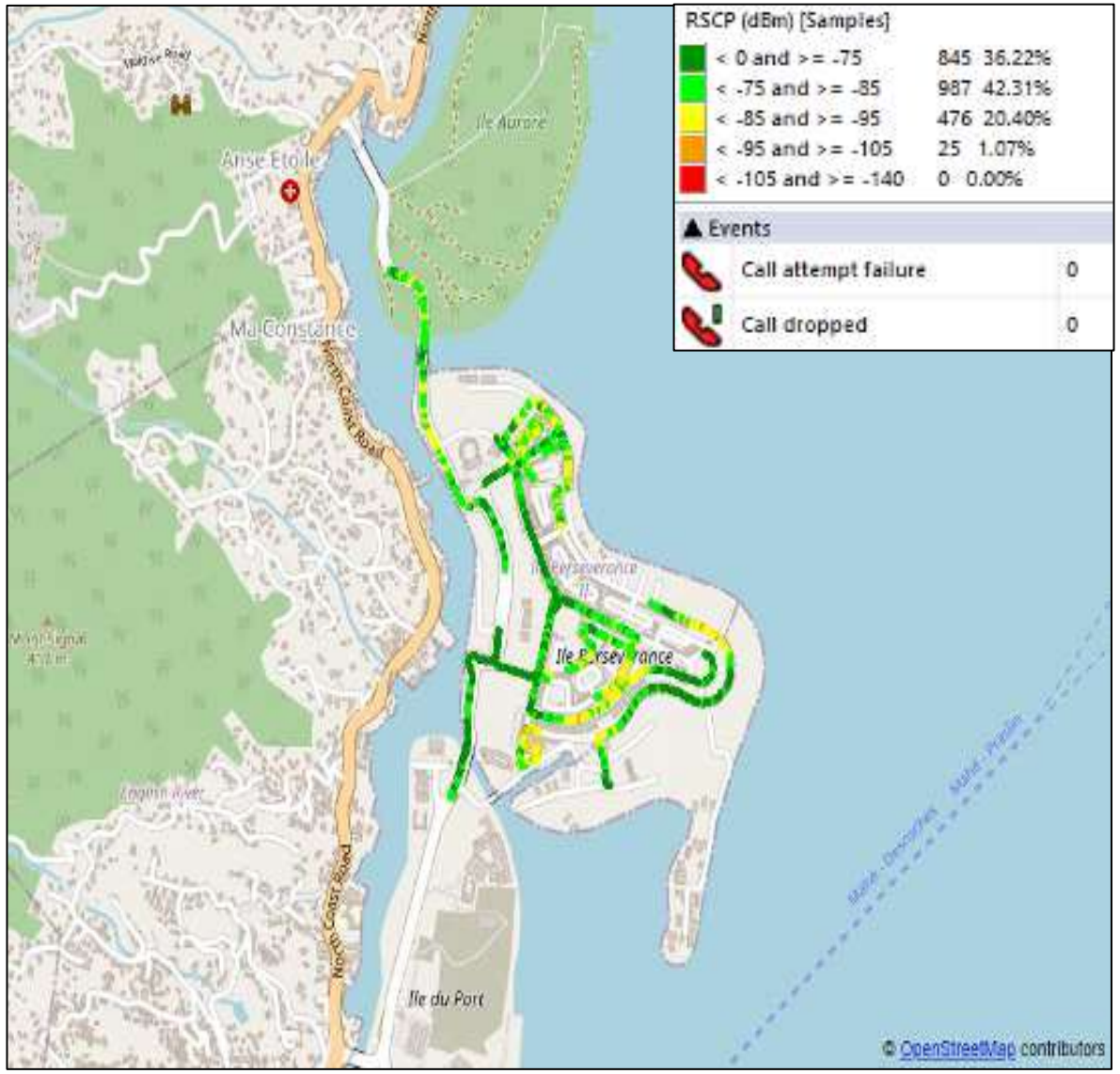


Phase-1 LONG CALL FAILURE EVENTS LOCATION vs RSCP

Airtel LC MO

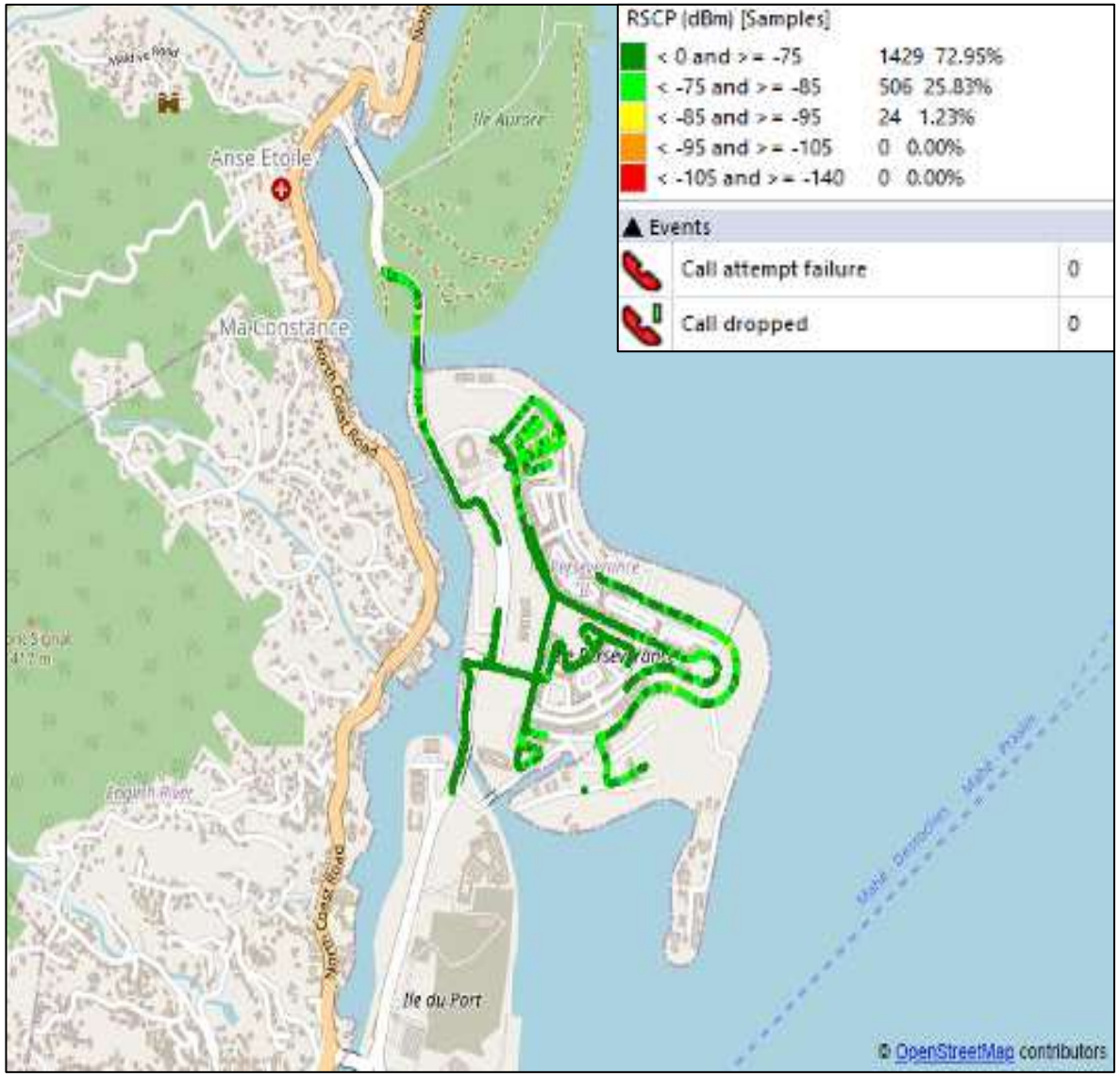


CWS LC MO

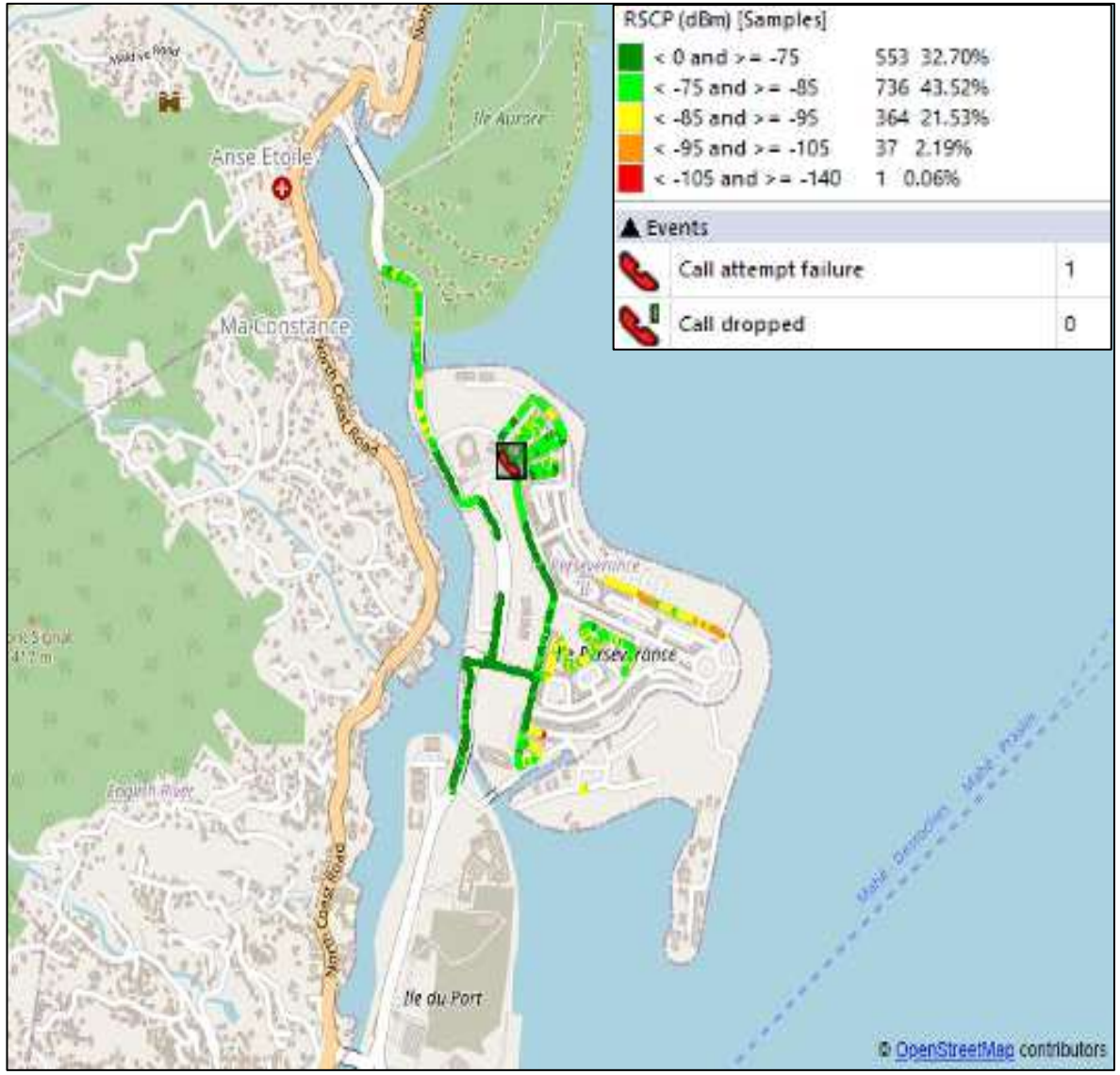


Phase-2 LONG CALL FAILURE EVENTS LOCATION vs RSCP

Airtel LC MO

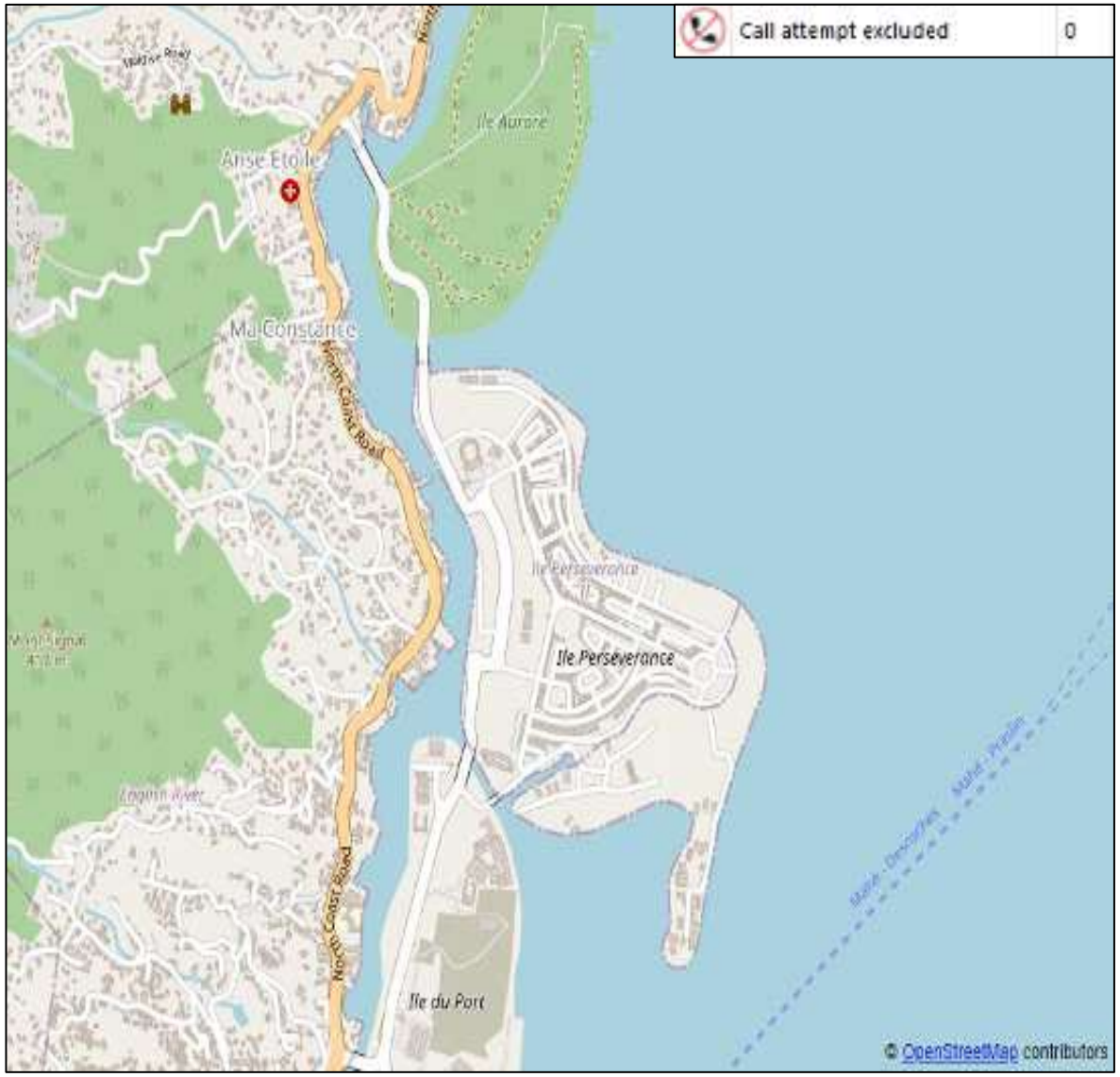


CWS LC MO

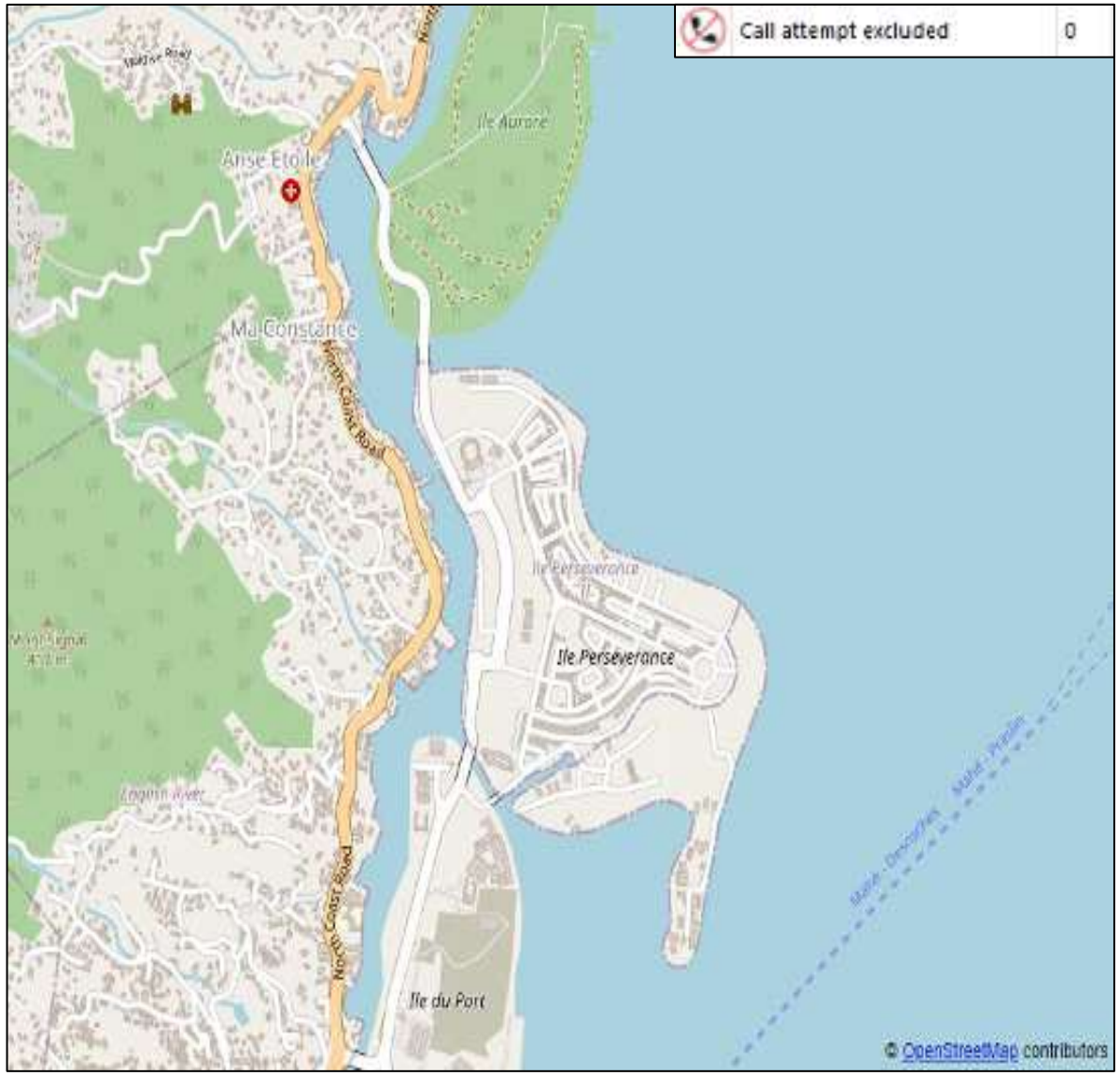


Phase-1 LONG CALL EXCLUDED EVENTS

Airtel LC MO

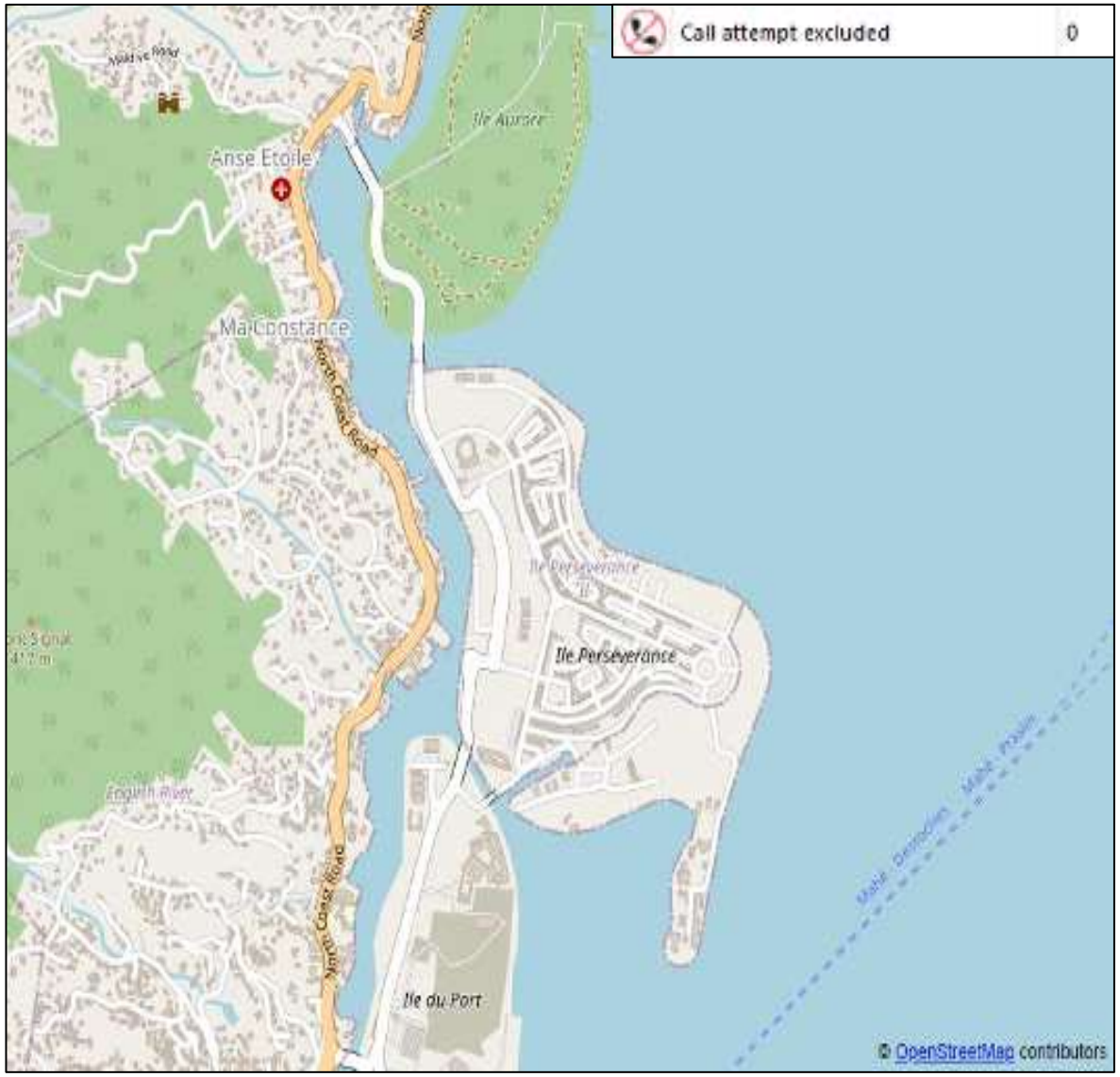


CWS LC MO

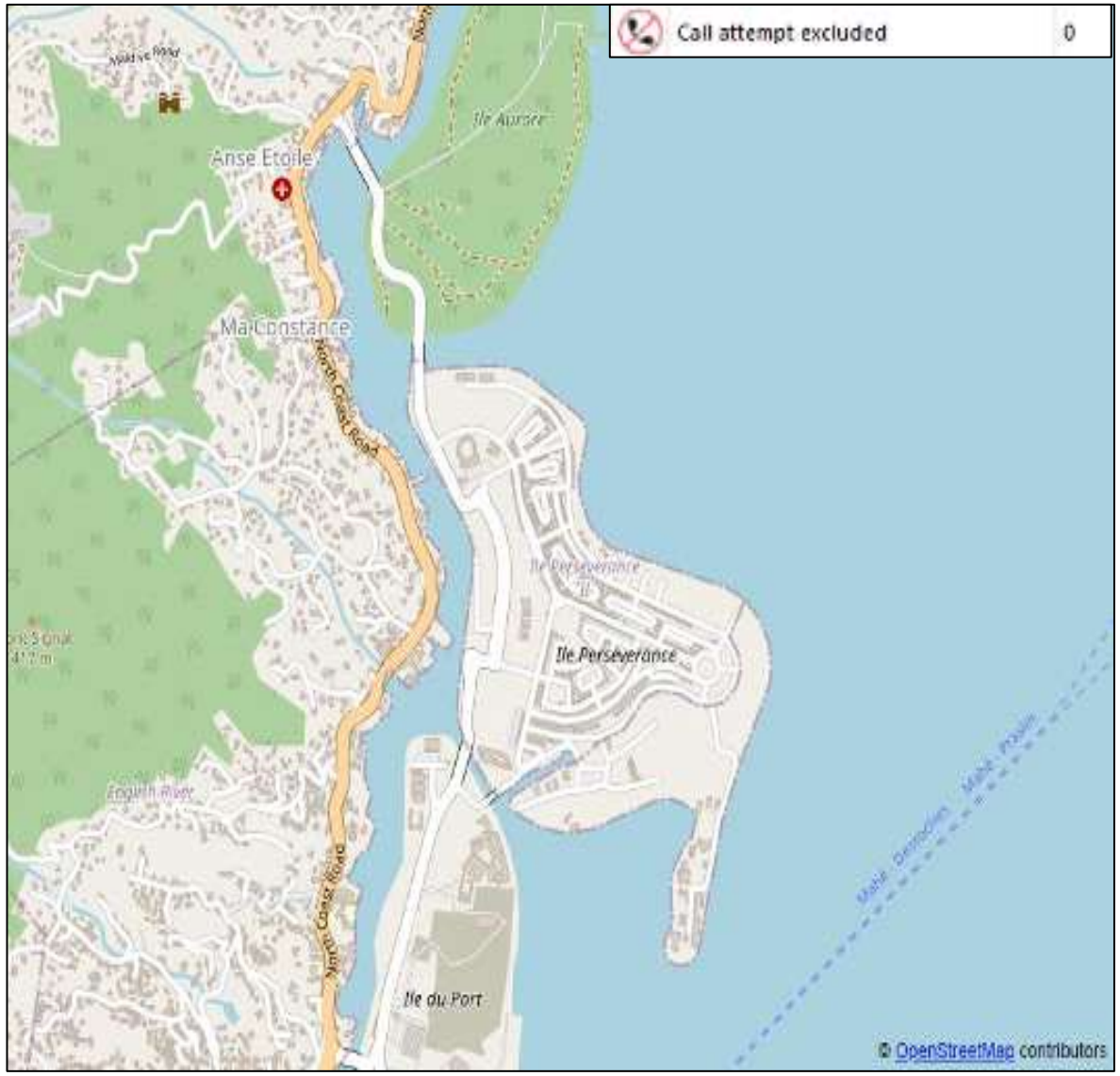


Phase-2 LONG CALL EXCLUDED EVENTS

Airtel LC MO

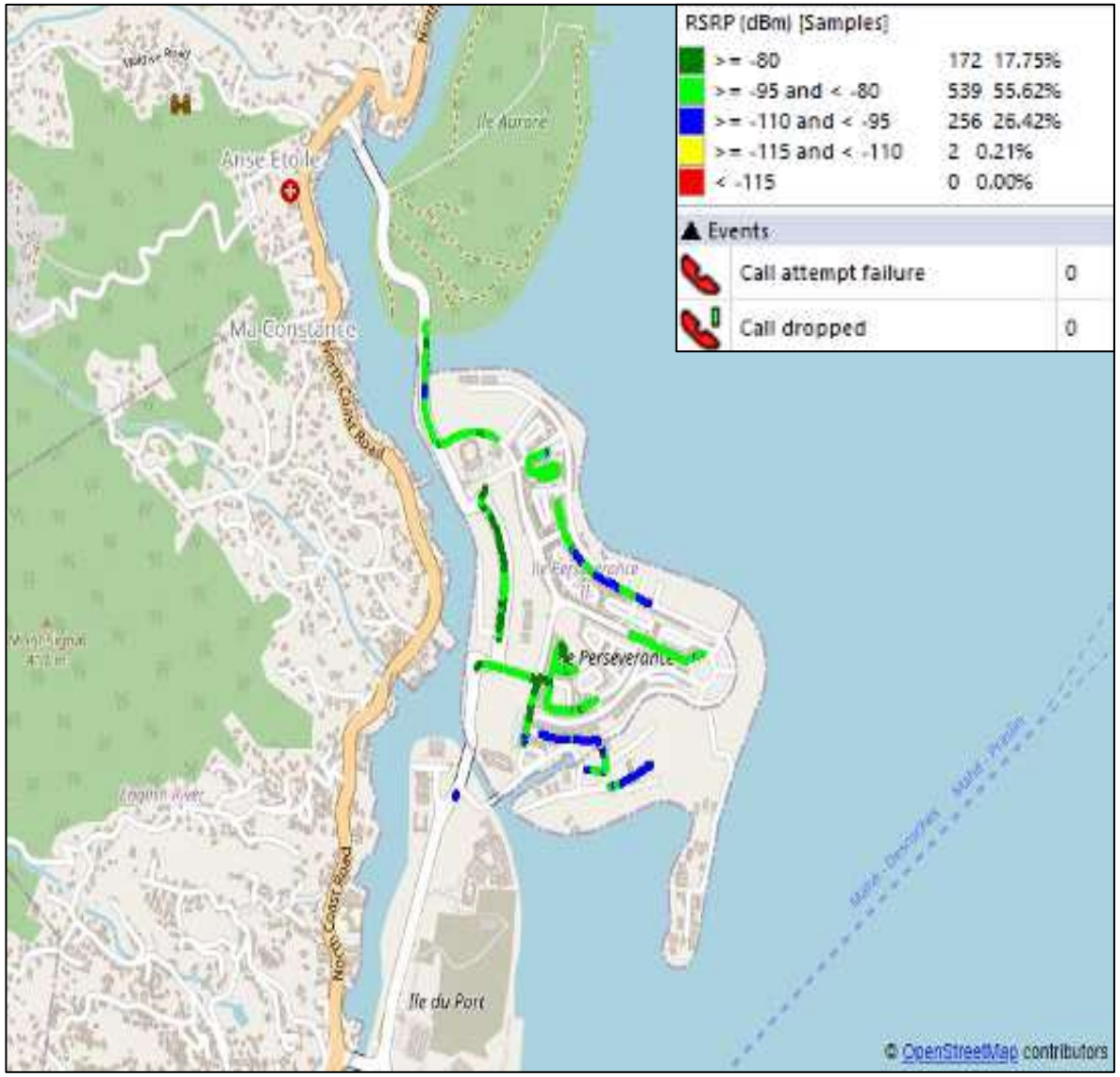


CWS LC MO

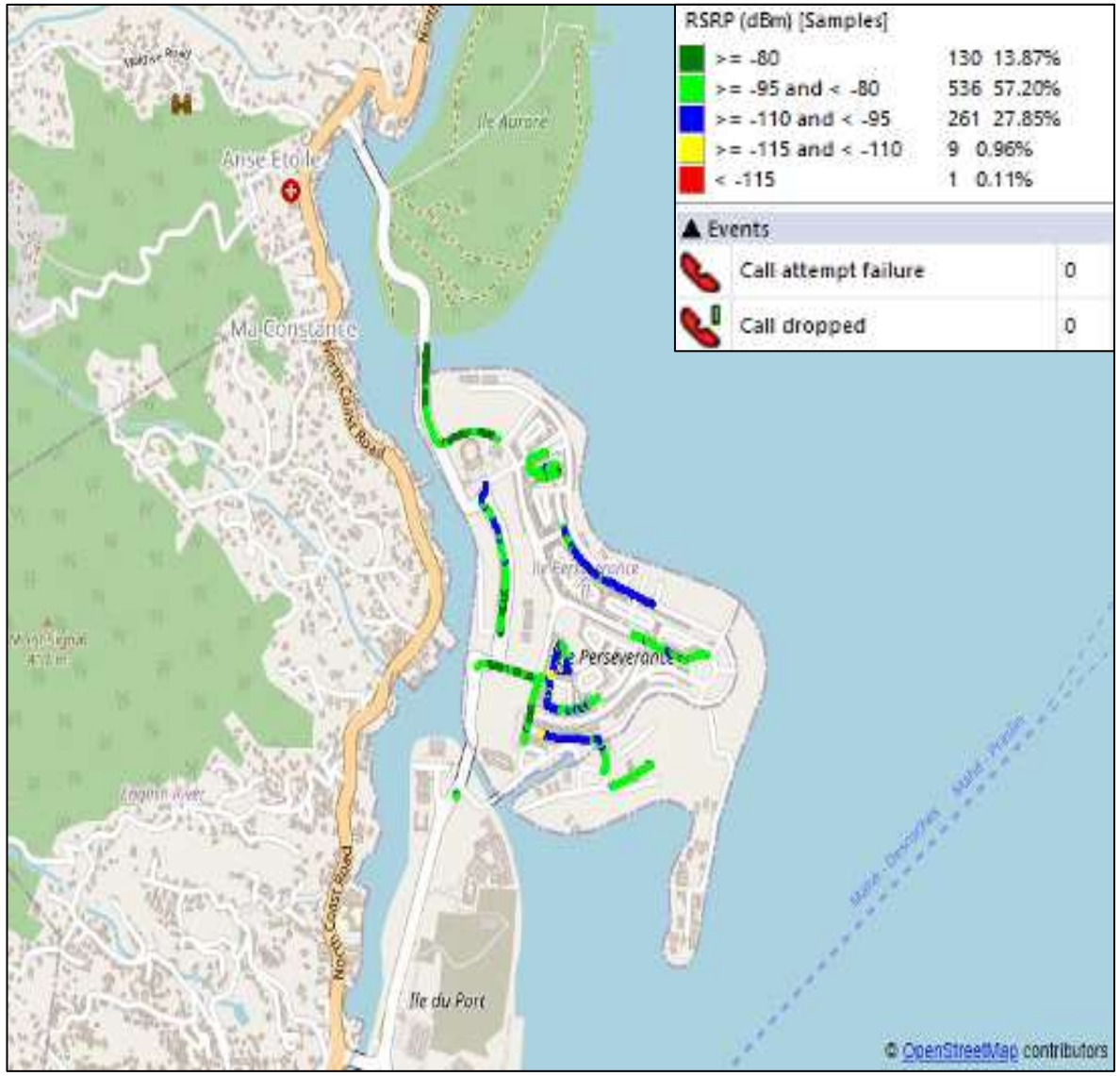


Phase-1 LONG CALL FAILURE EVENTS LOCATION vs RSRP

Airtel LC MO

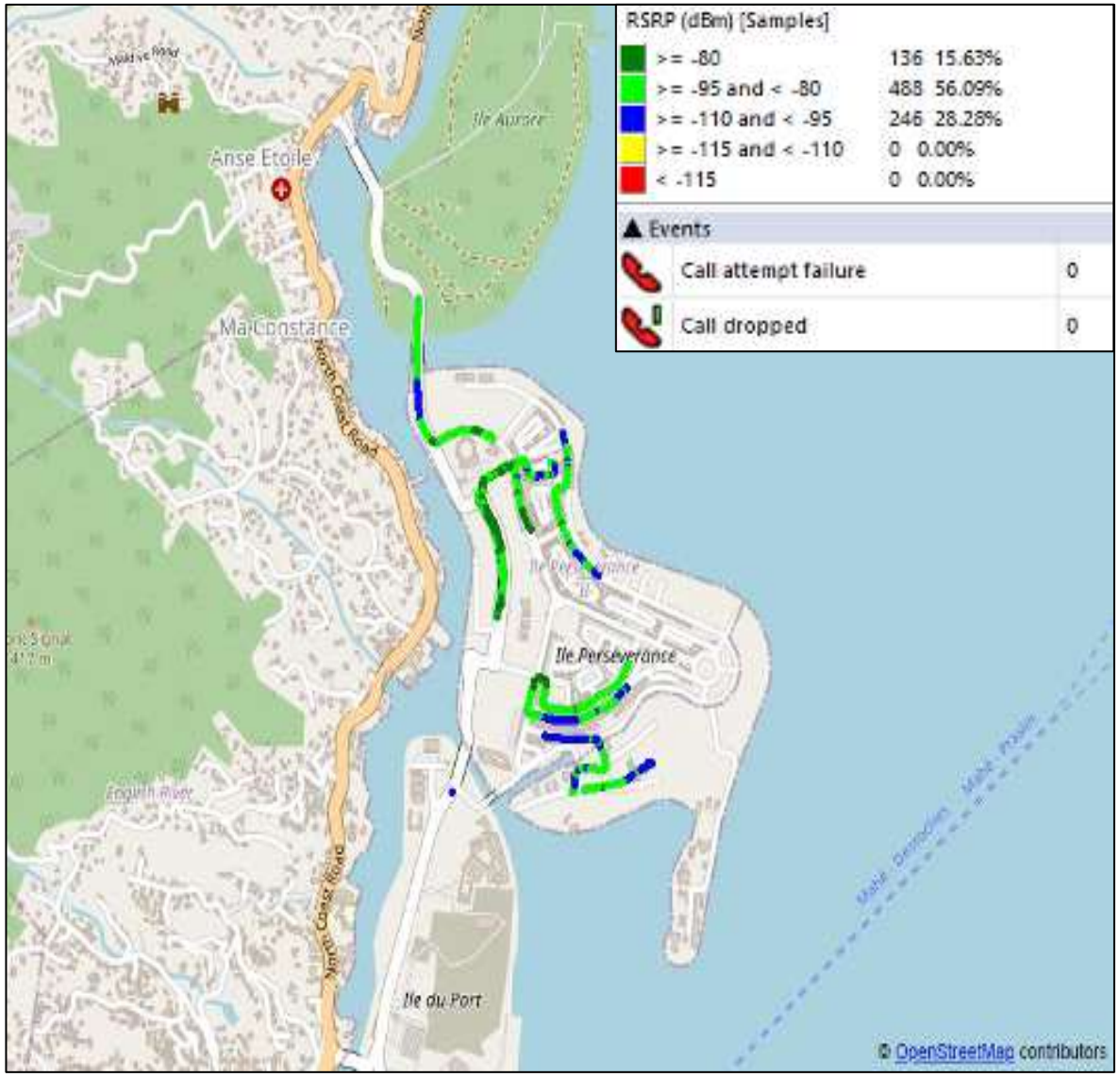


CWS LC MO

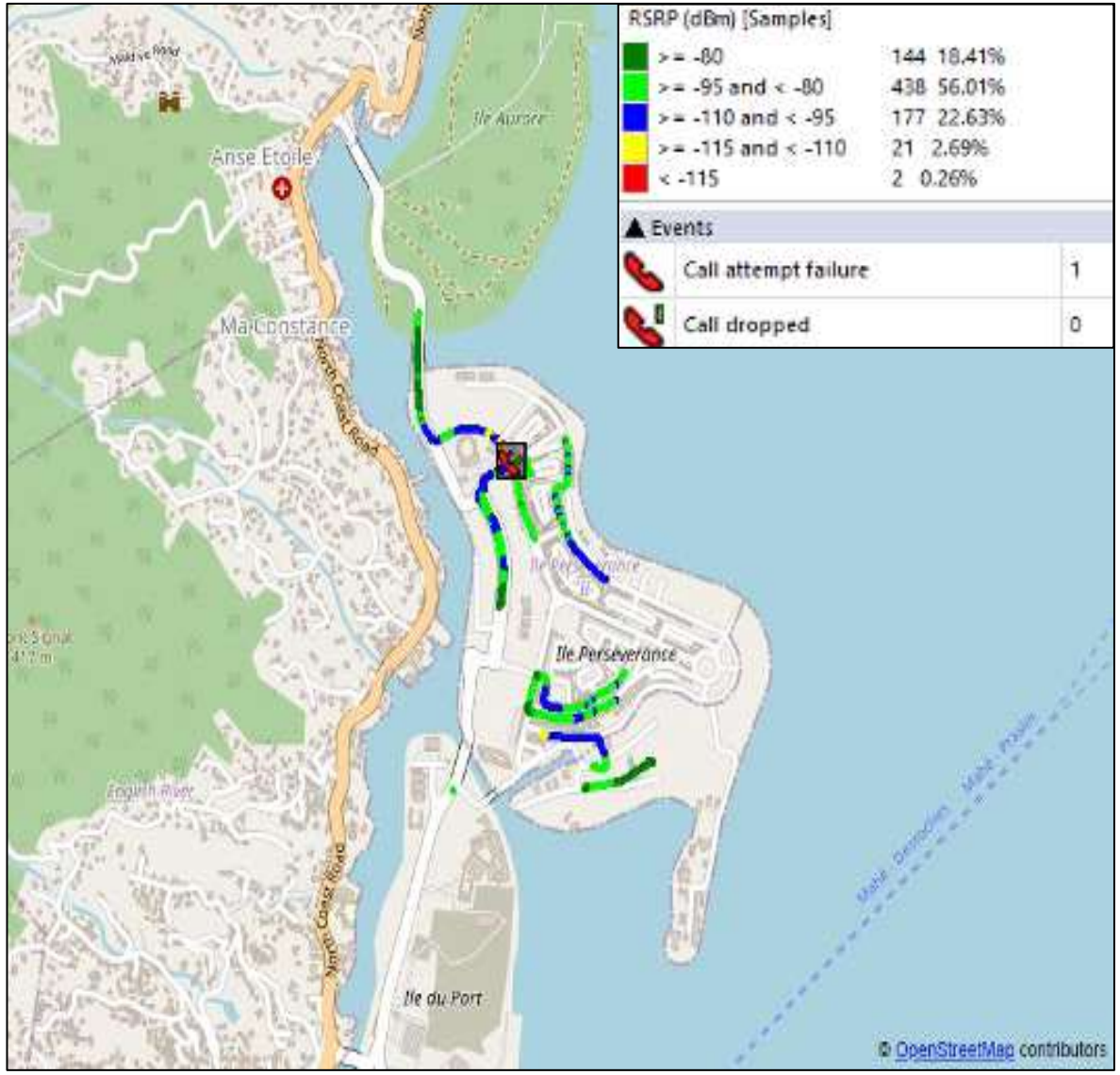


Phase-2 LONG CALL FAILURE EVENTS LOCATION vs RSRP

Airtel LC MO



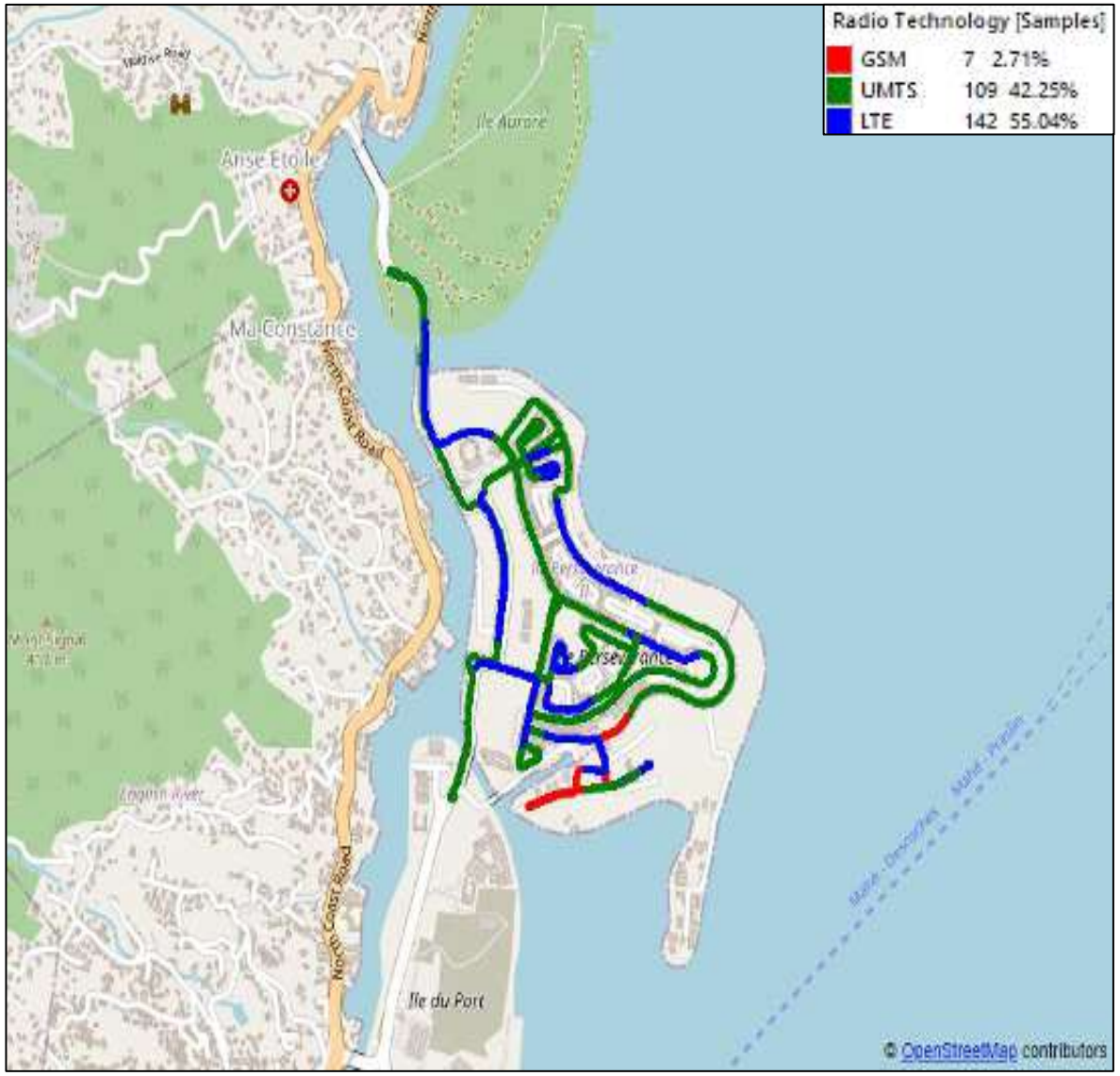
CWS LC MO



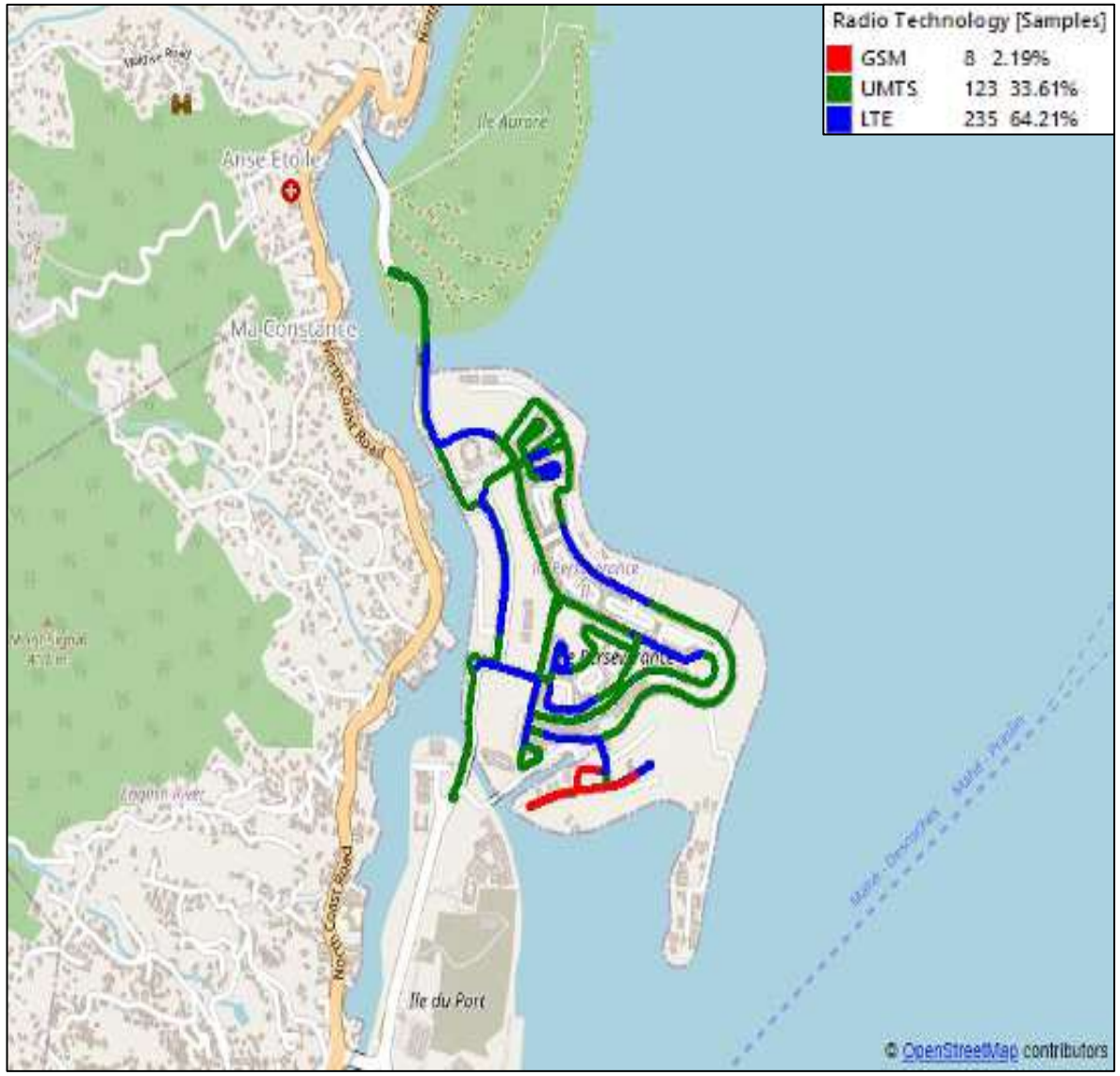
LONG CALL DRIVE PLOTS

Phase-1 Long Call RADIO TECHNOLOGY PLOT

Airtel LC MO

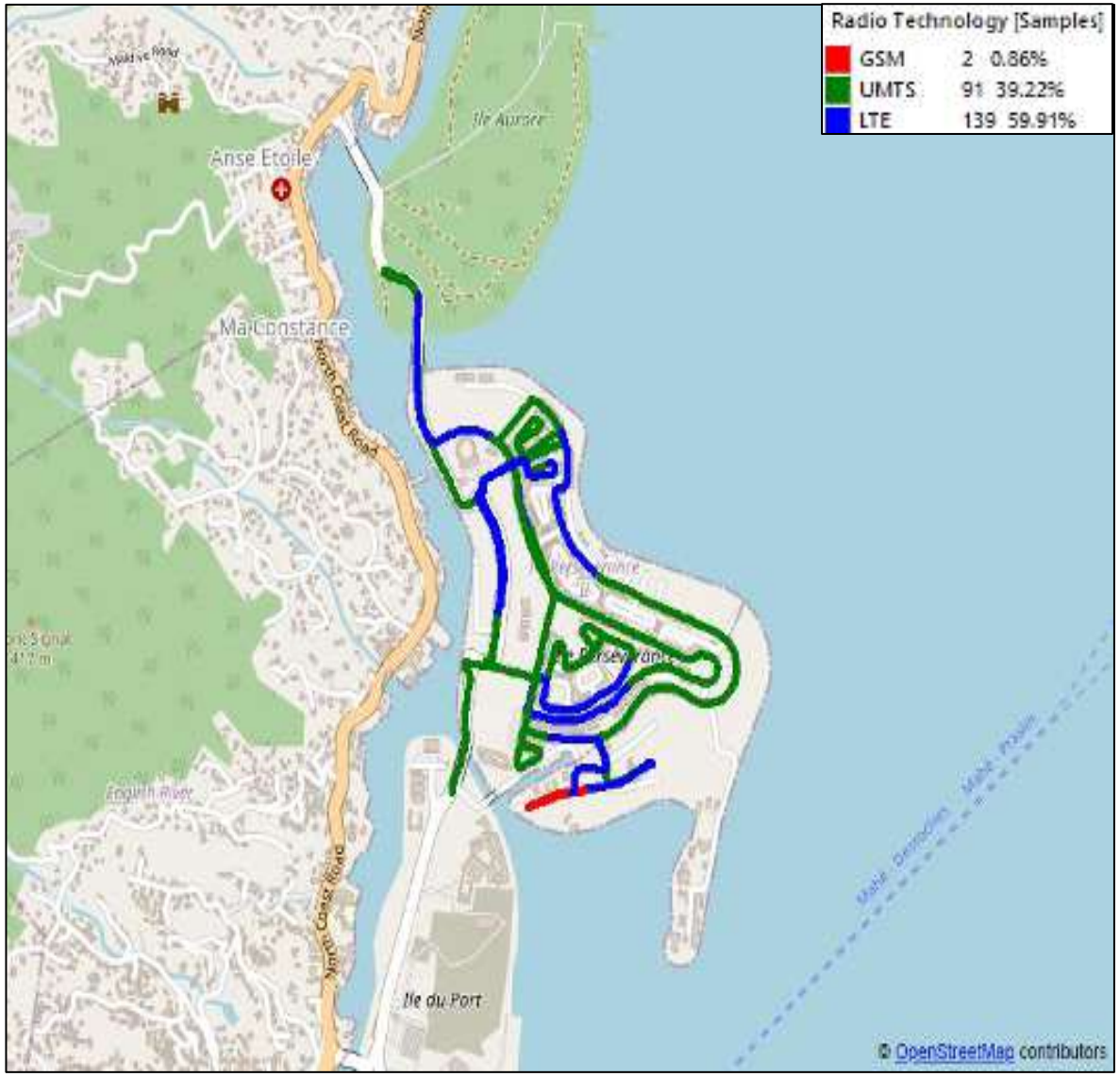


CWS LC MO

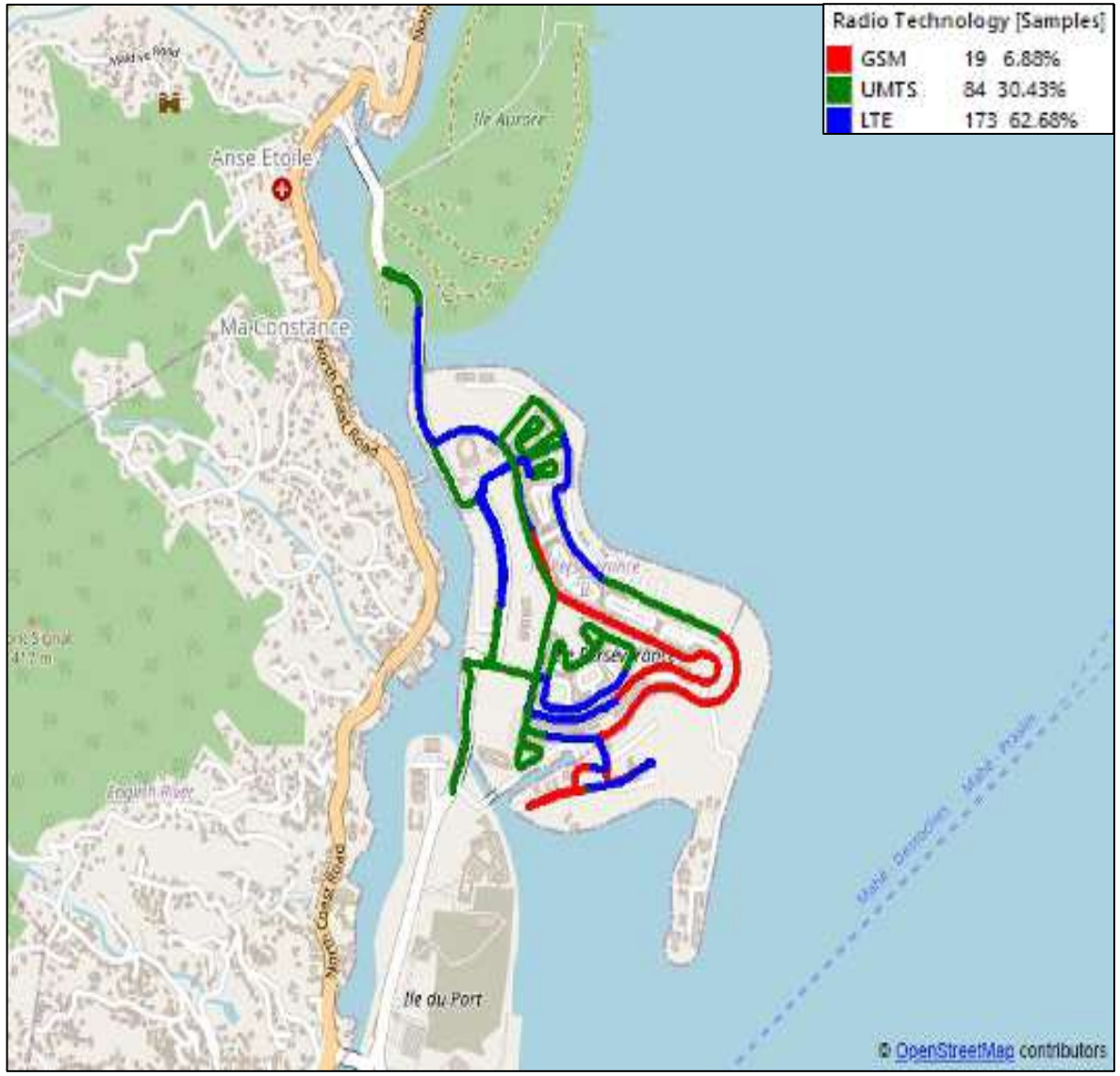


Phase-2 Long Call RADIO TECHNOLOGY PLOT

Airtel LC MO

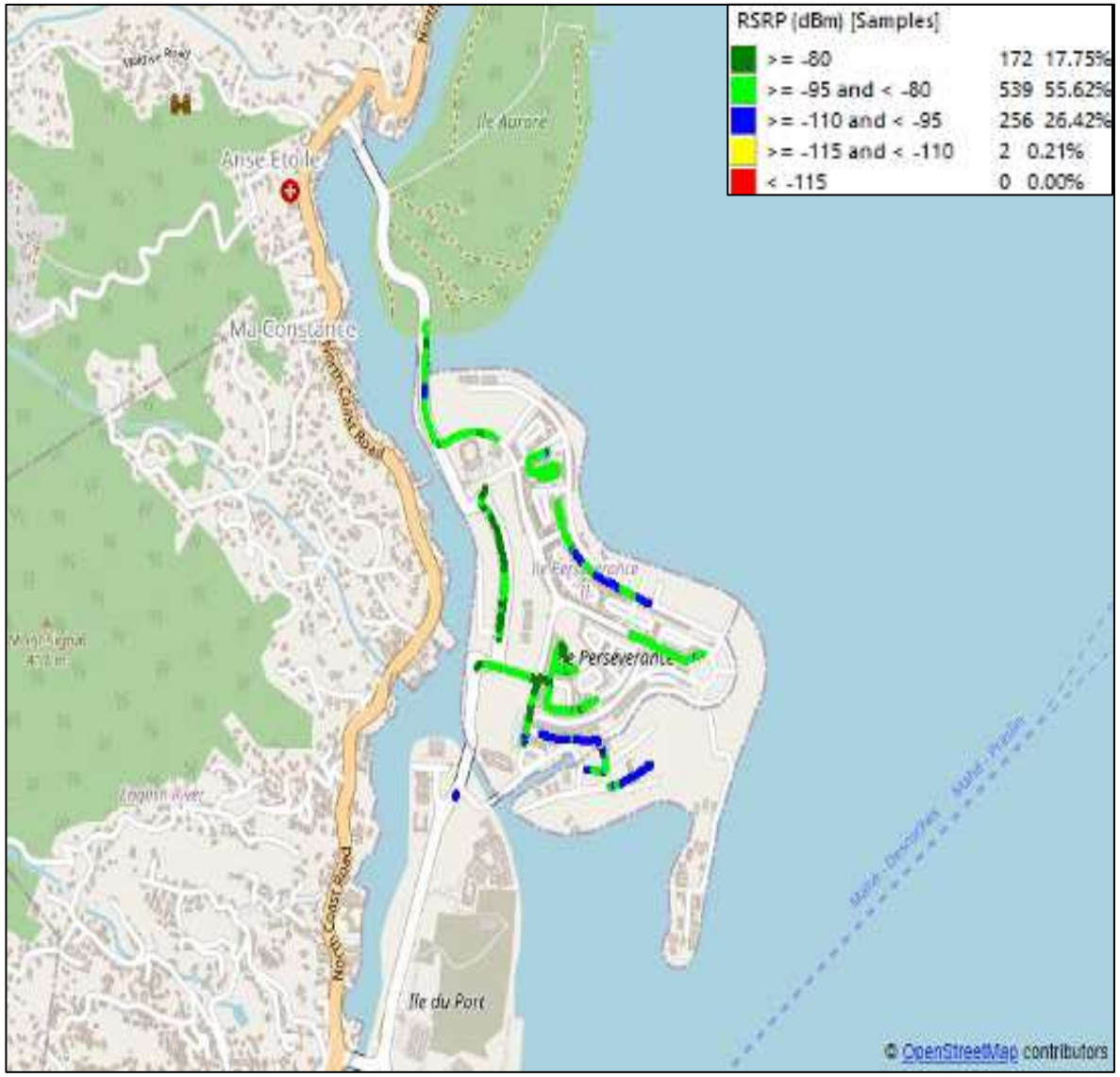


CWS LC MO

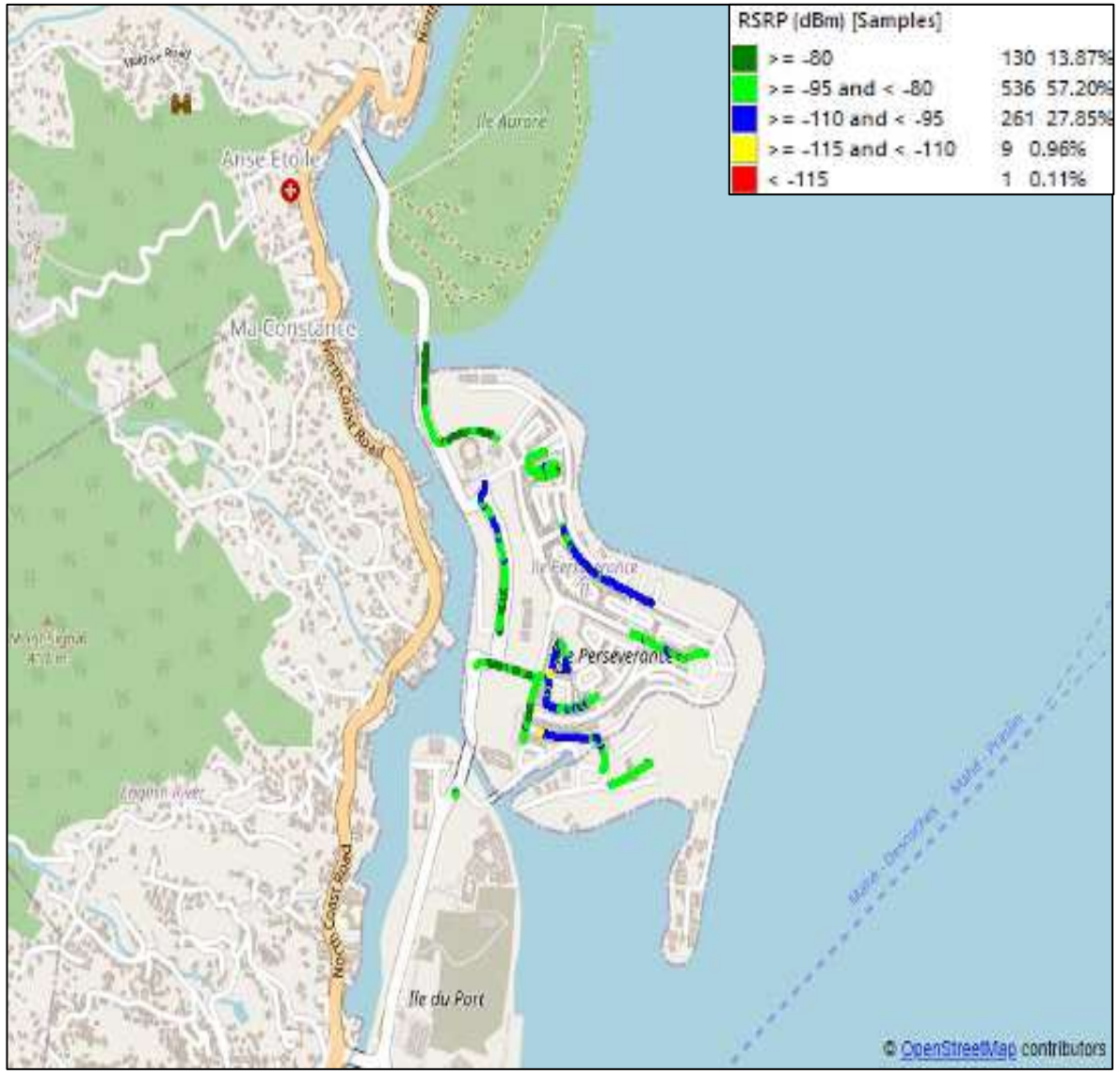


Phase-1 Long Call RSRP PLOT

Airtel LC MO

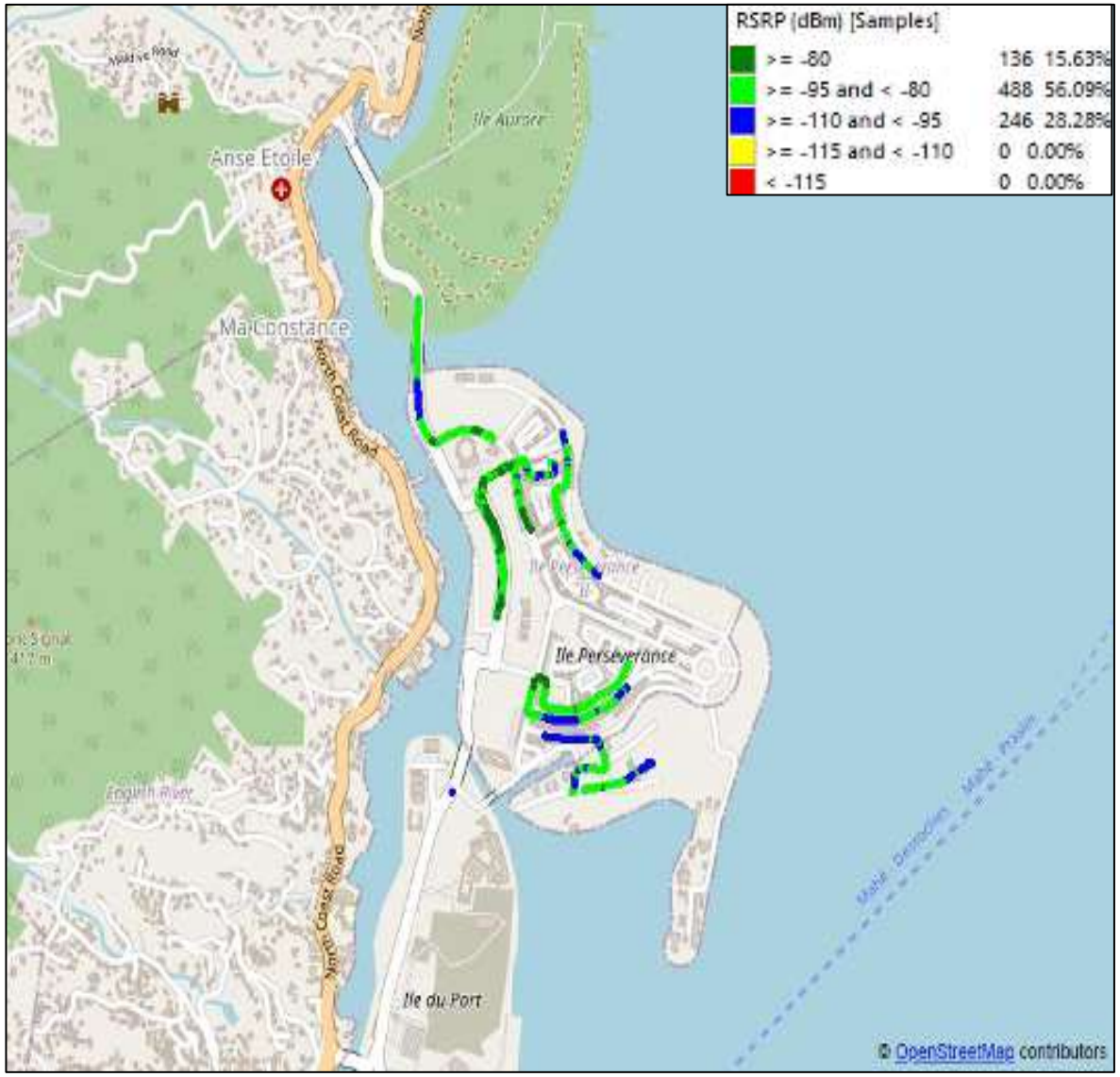


CWS LC MO

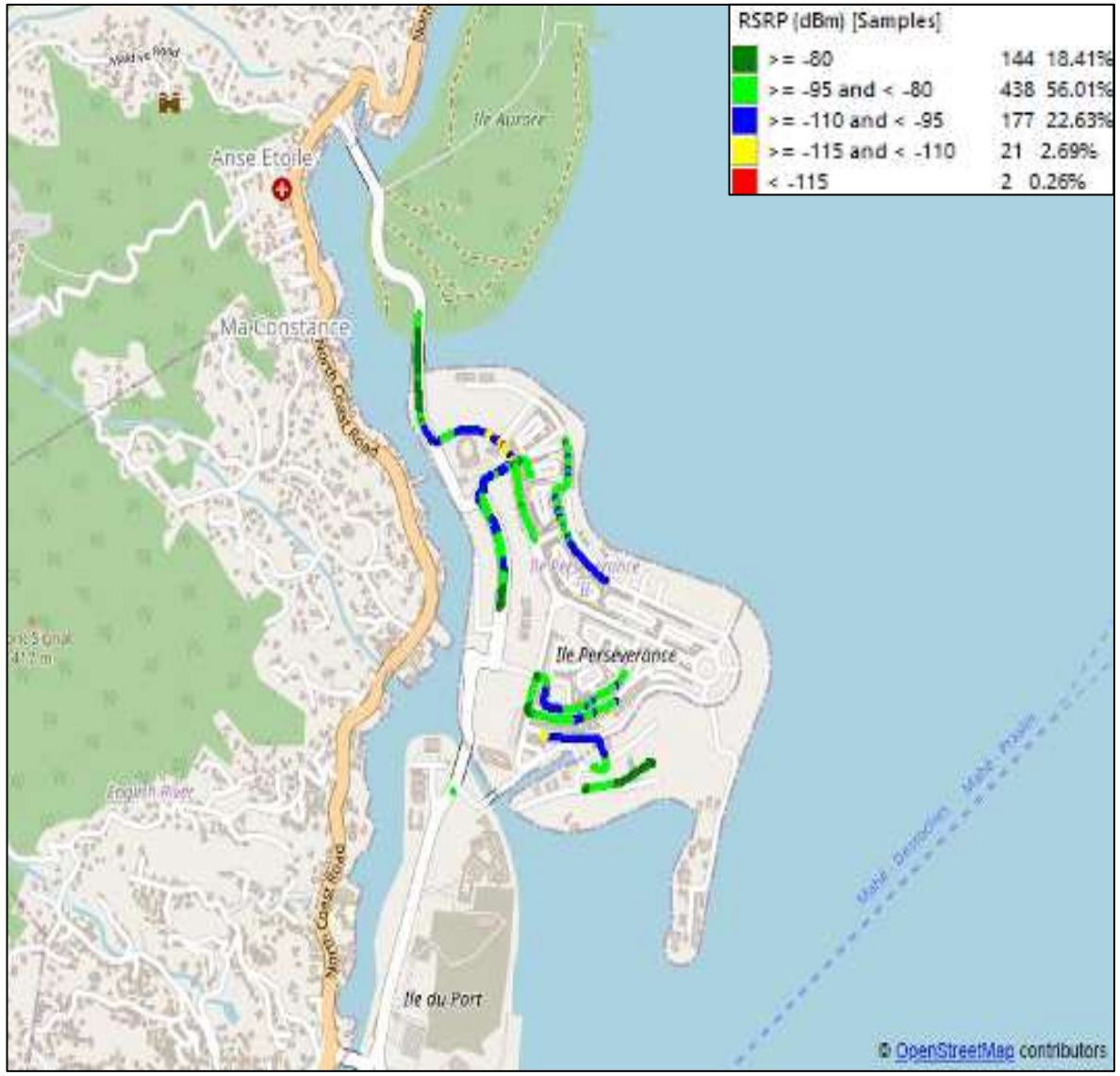


Phase-2 Long Call RSRP PLOT

Airtel LC MO

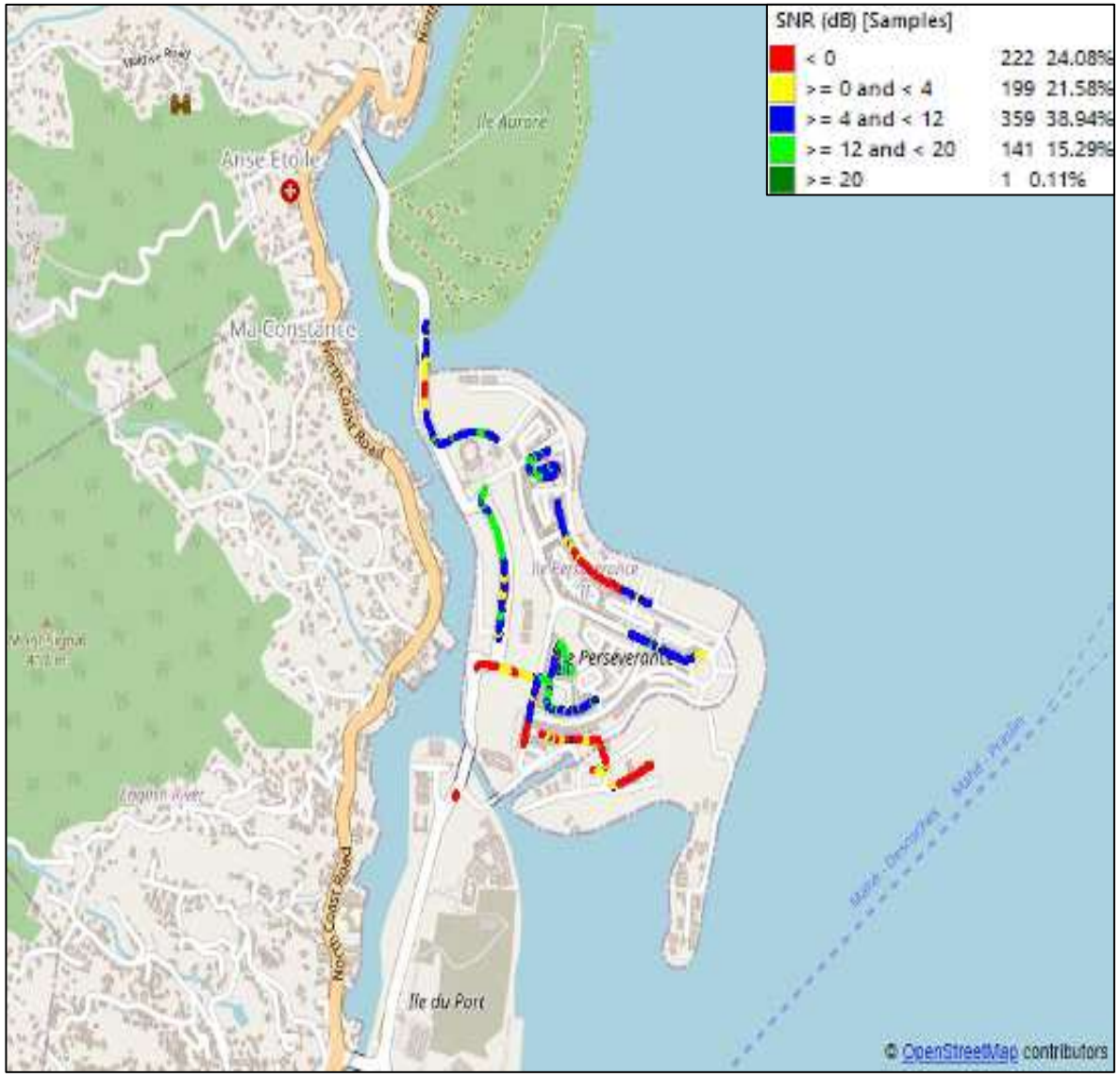


CWS LC MO

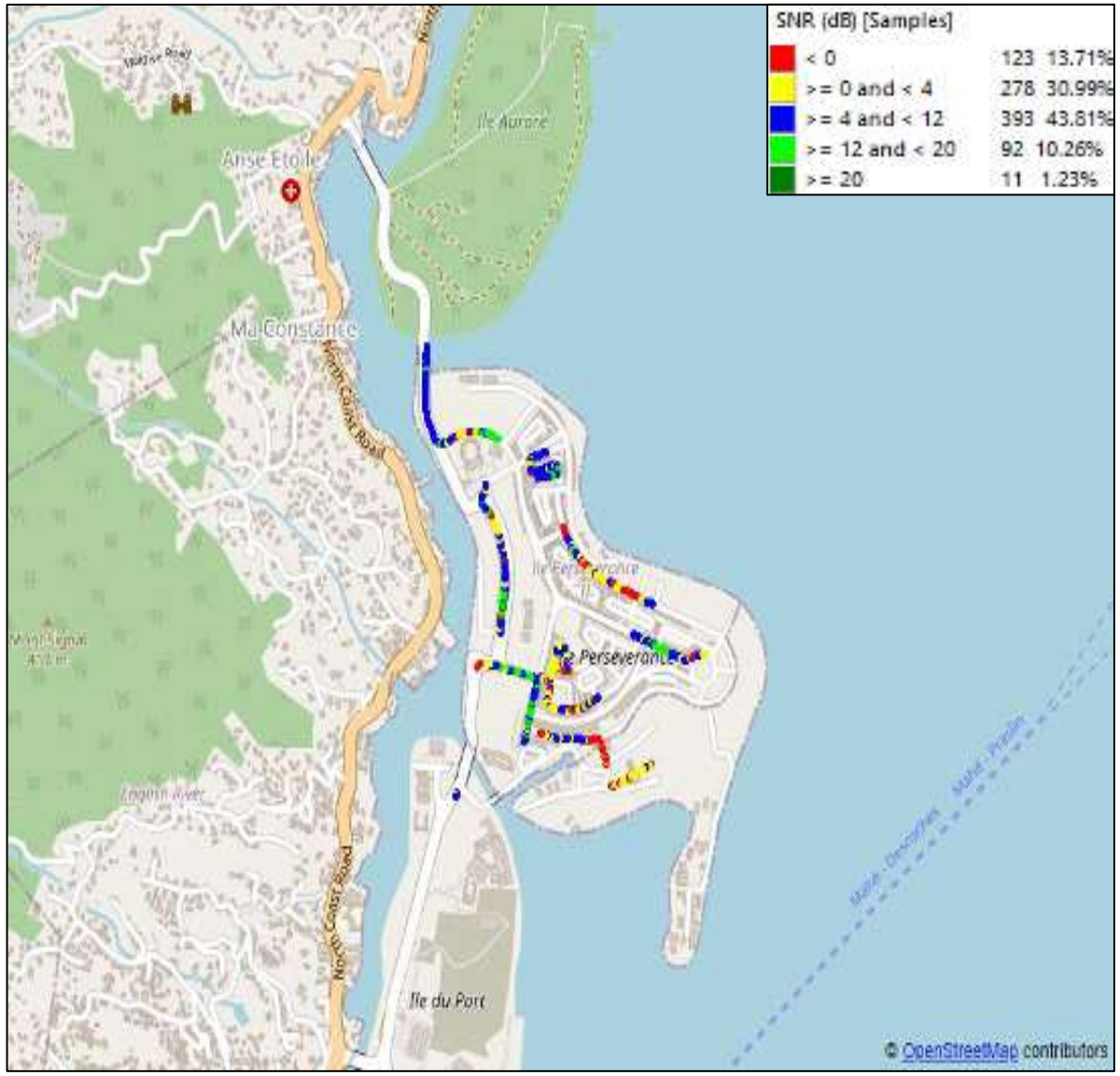


Phase-1 Long Call SINR PLOT

Airtel LC MO

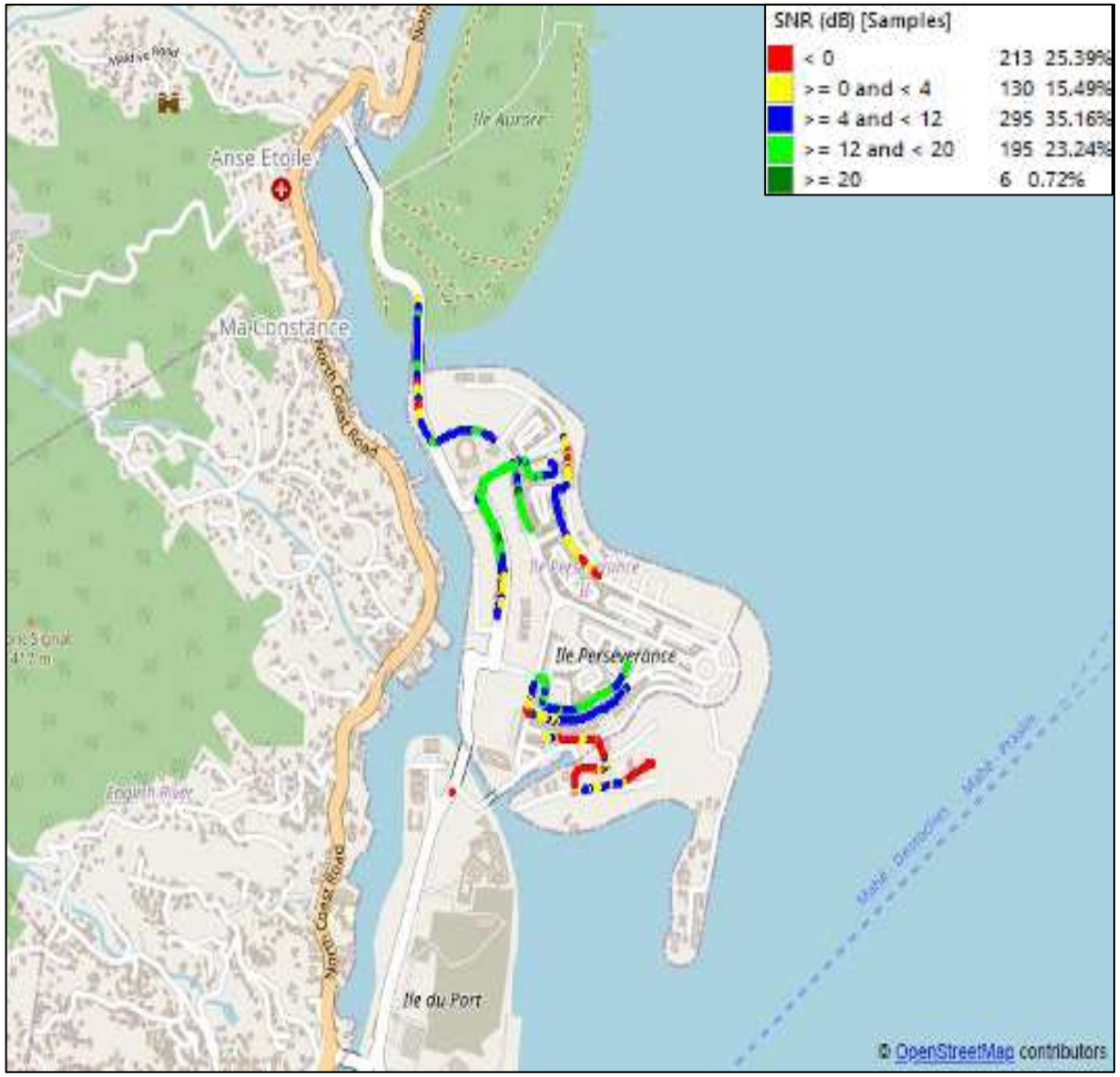


CWS LC MO

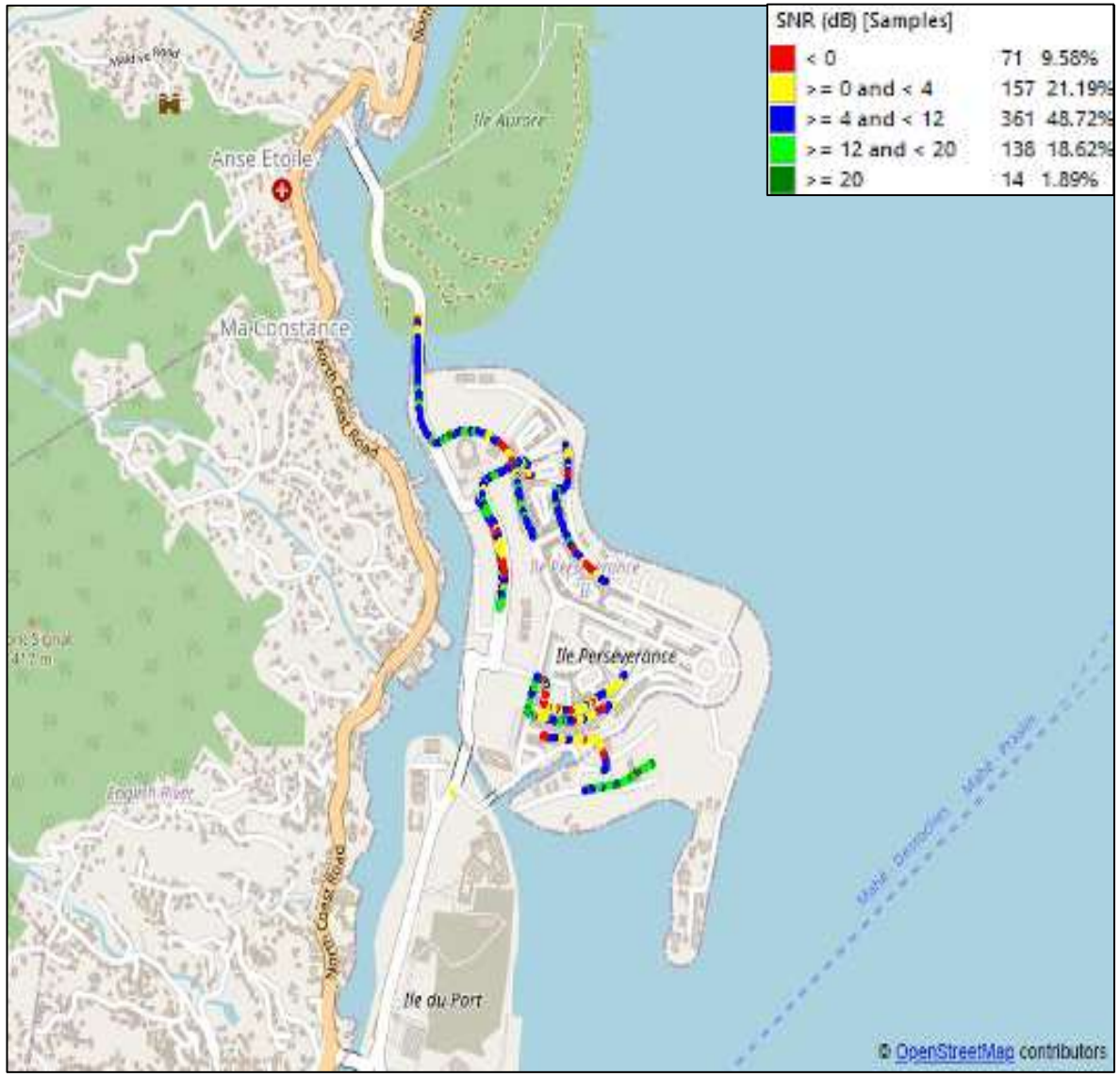


Phase-2 Long Call SINR PLOT

Airtel LC MO

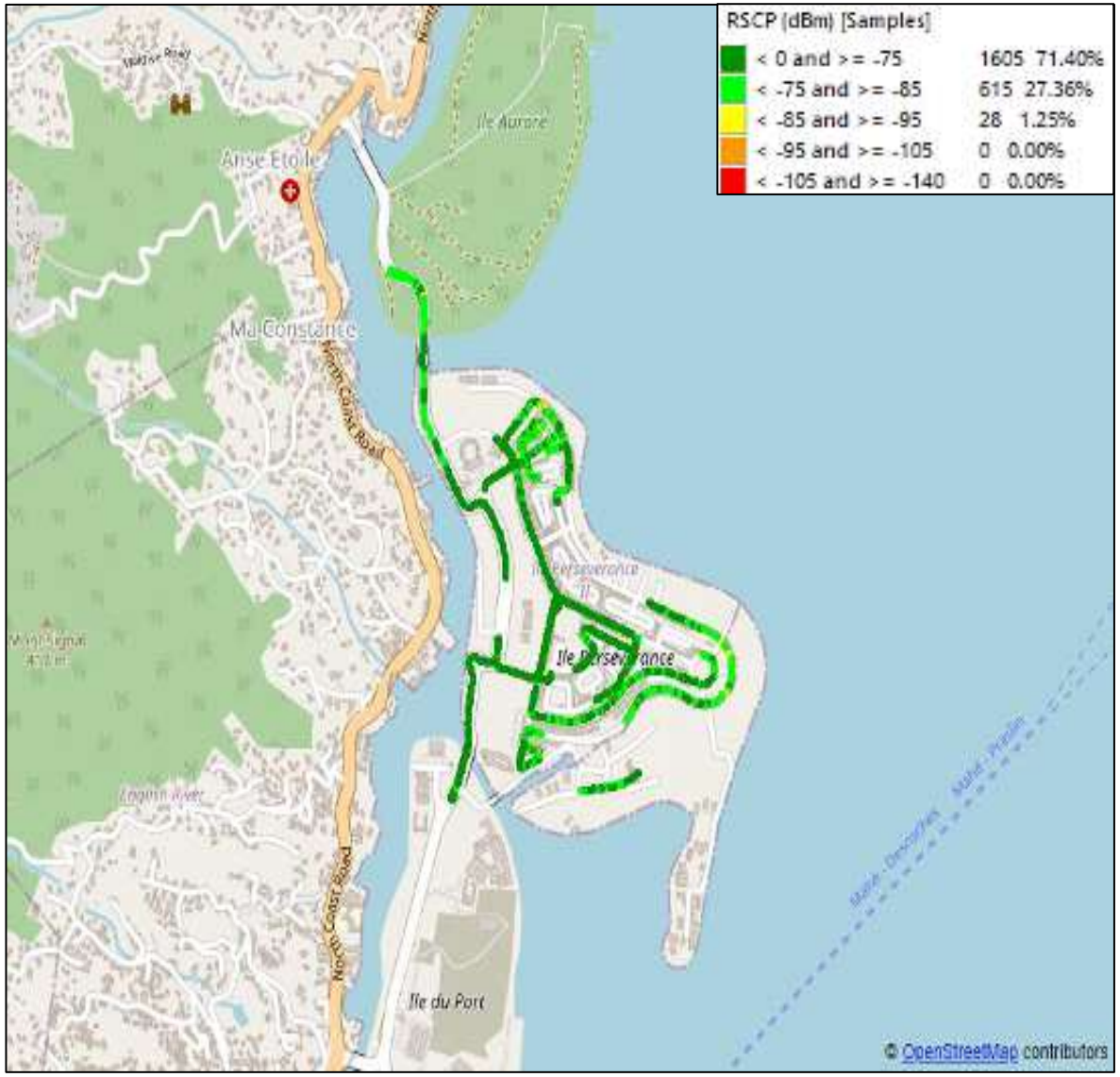


CWS LC MO

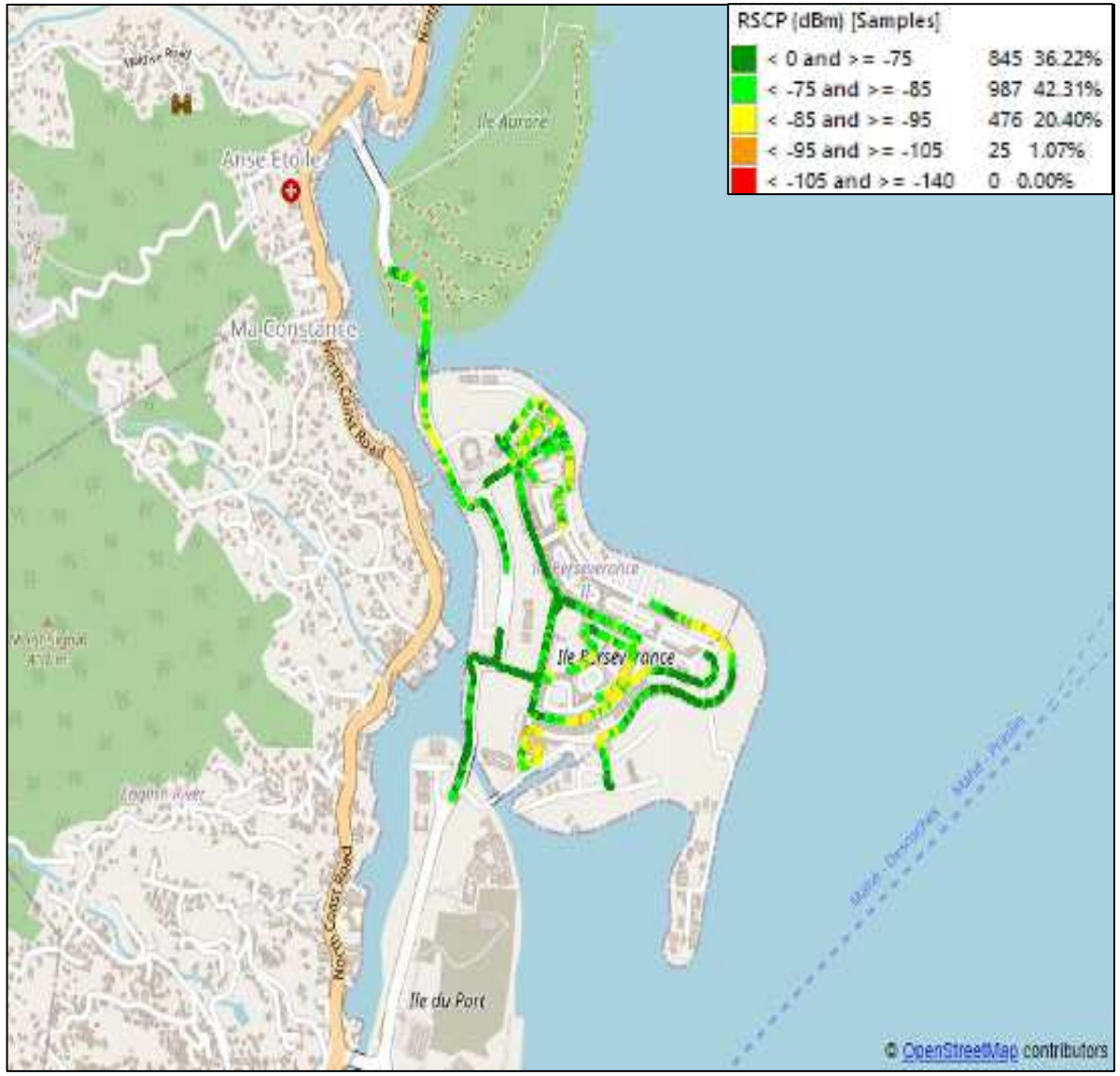


Phase-1 Long Call RSCP PLOT

Airtel LC MO

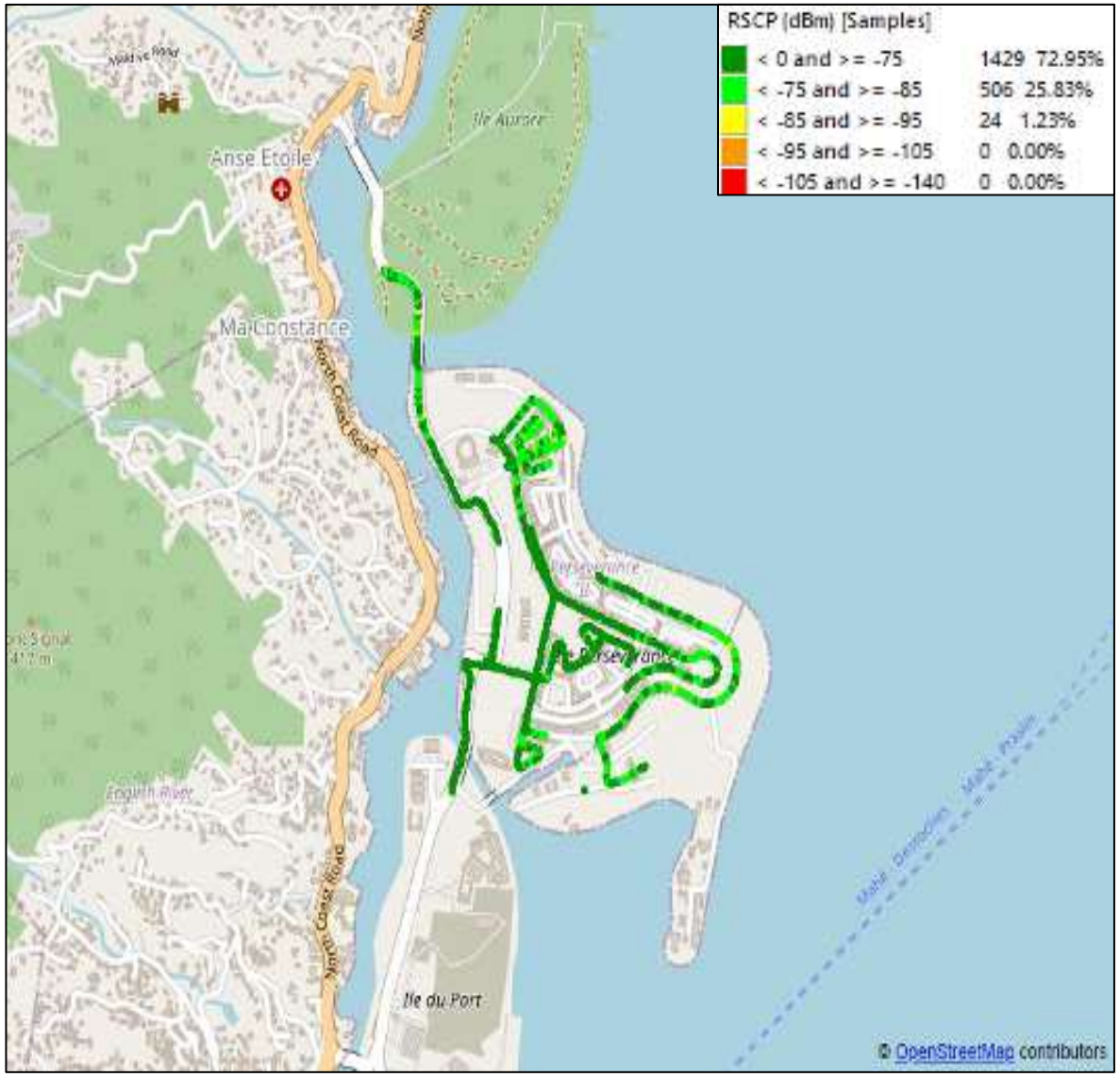


CWS LC MO

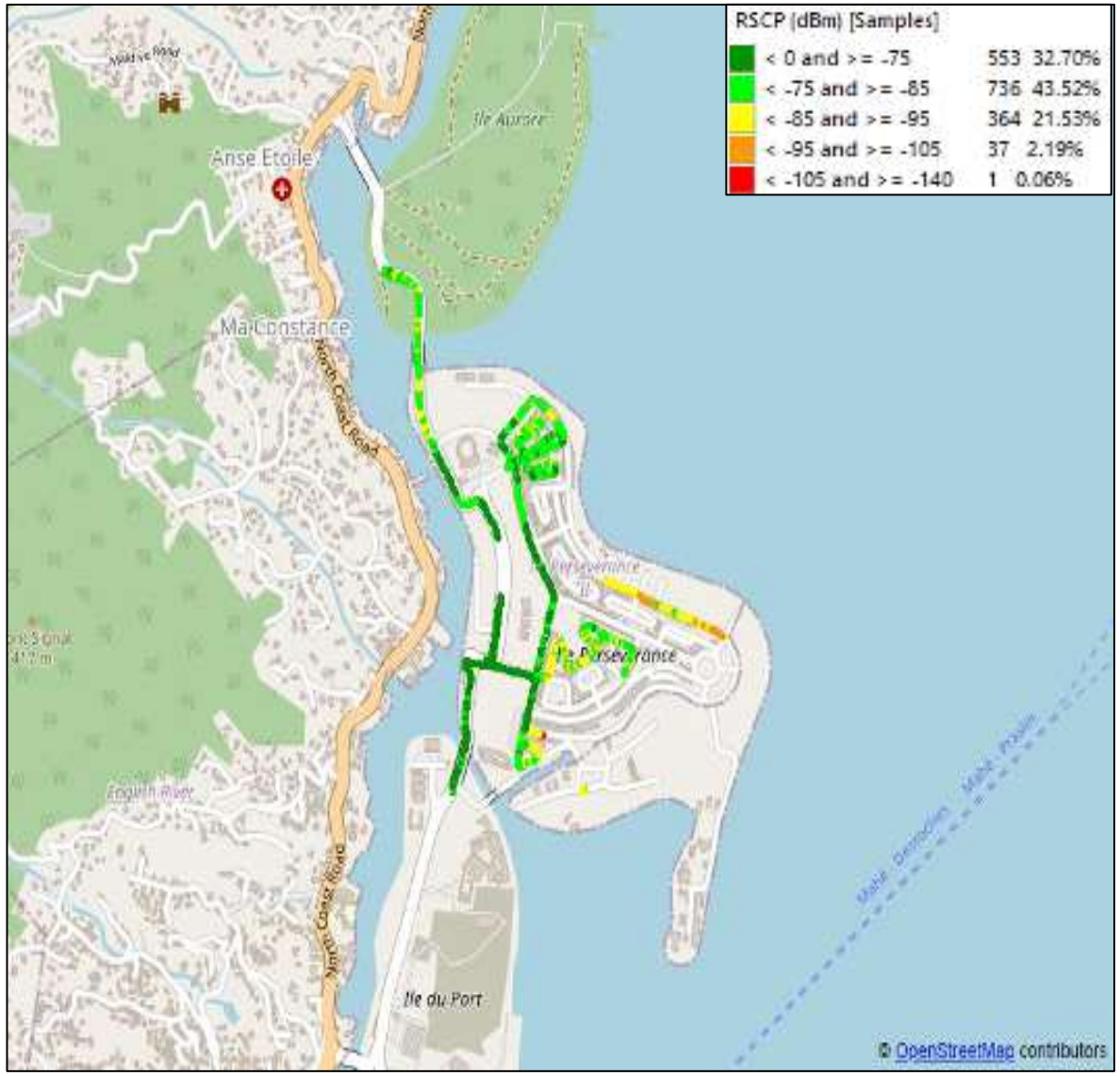


Phase-2 Long Call RSCP PLOT

Airtel LC MO

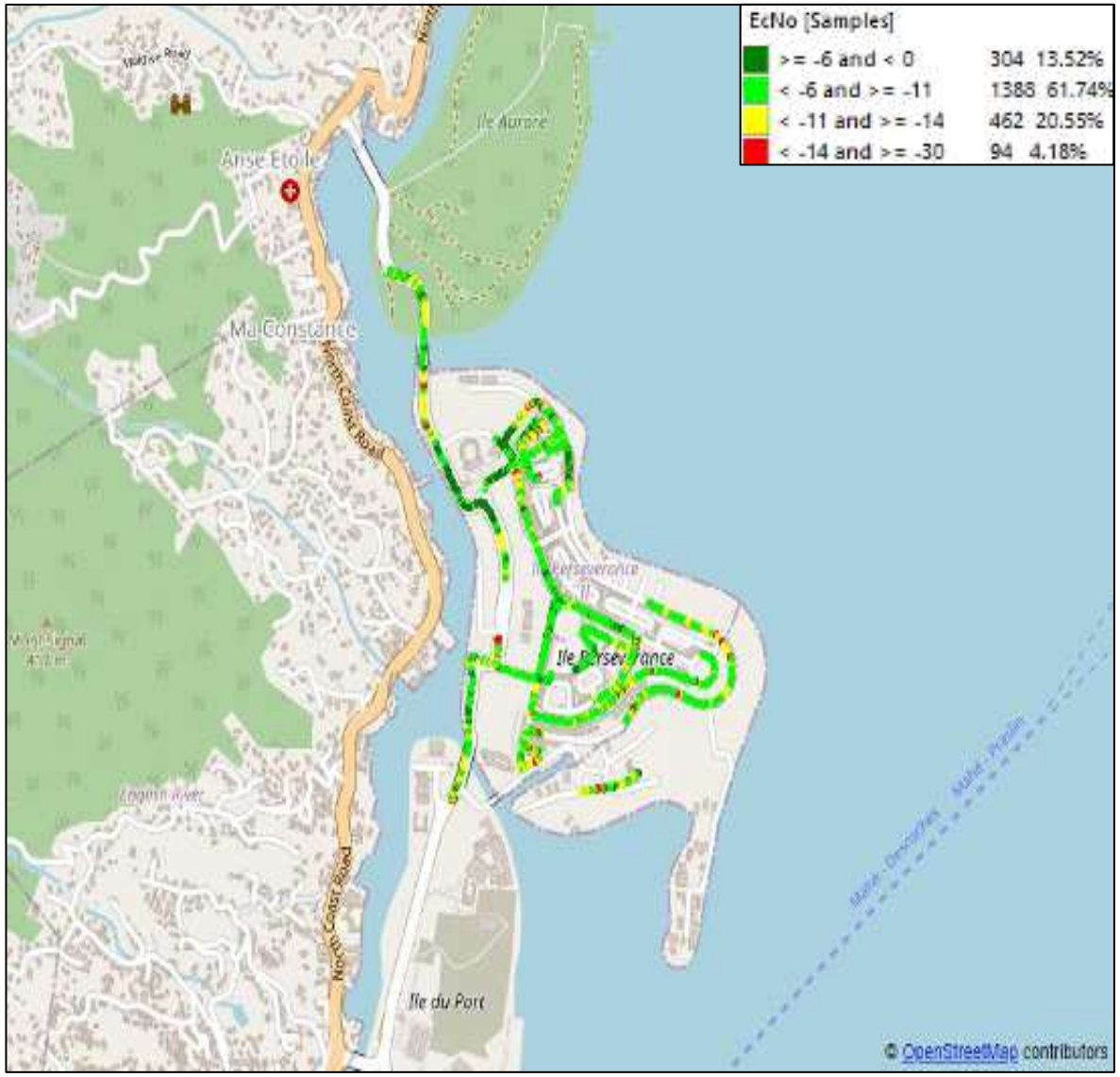


CWS LC MO

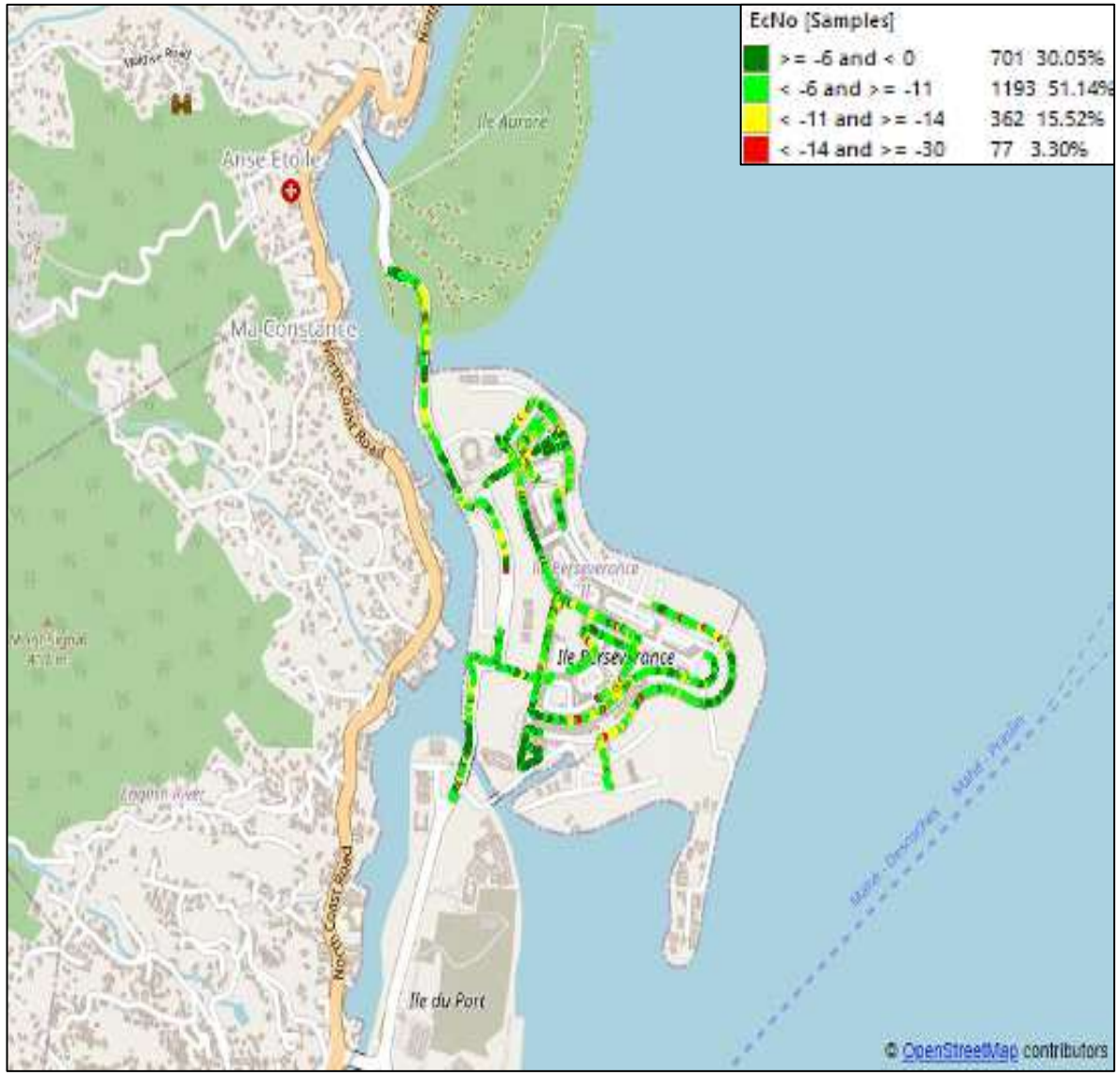


Phase-1 Long Call EC/NO PLOT

Airtel LC MO

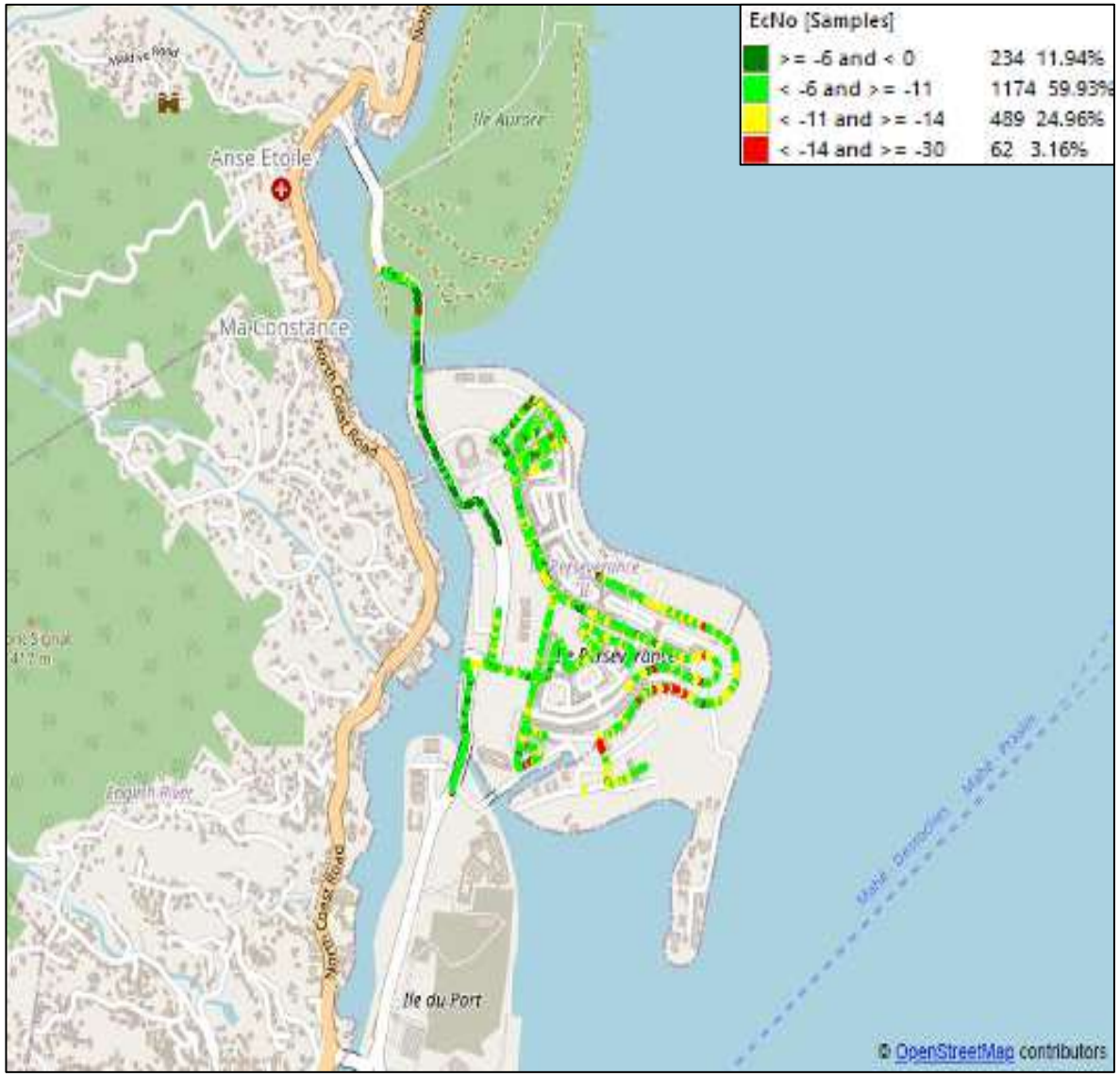


CWS LC MO

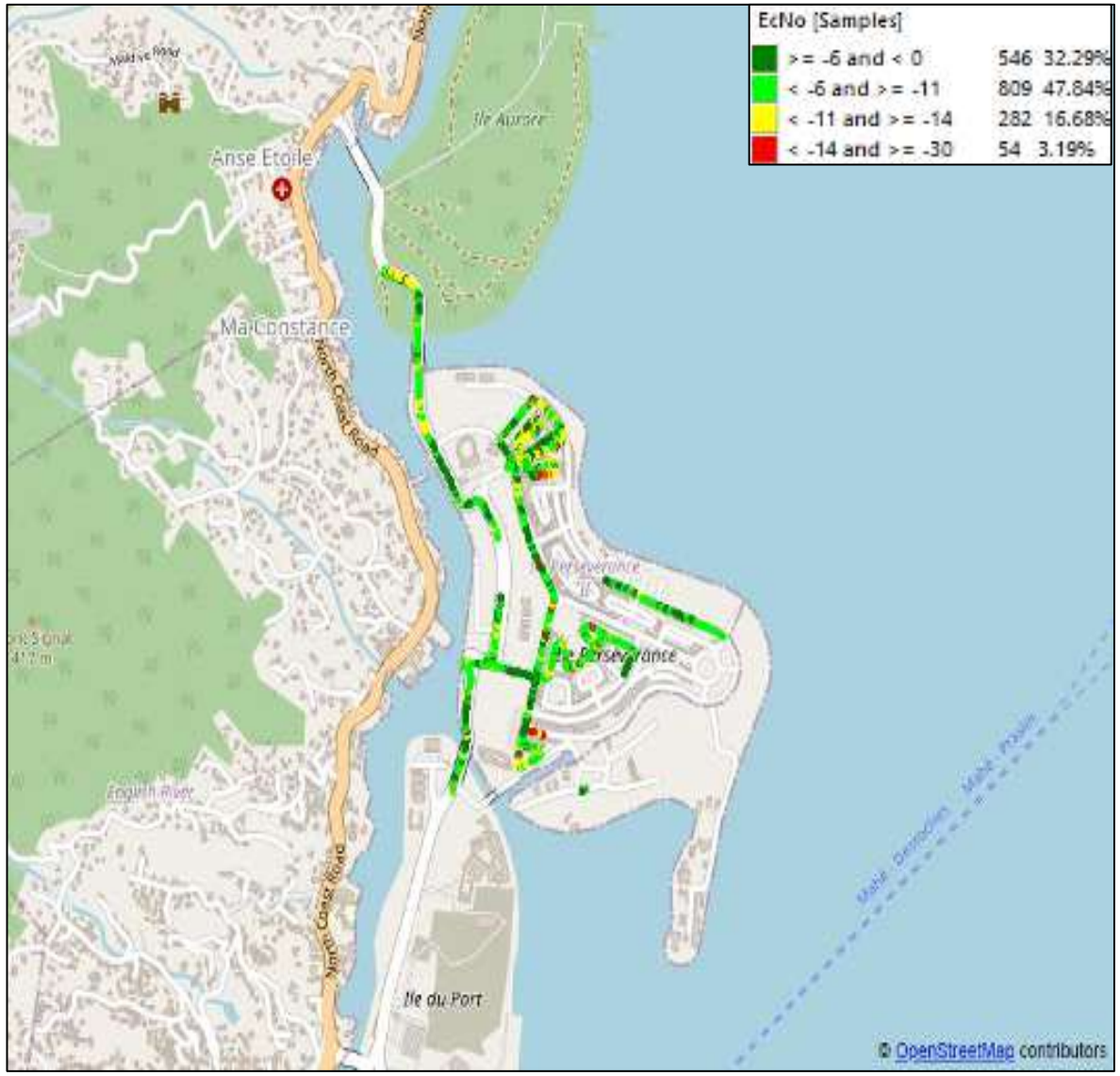


Phase-2 Long Call EC/NO PLOT

Airtel LC MO

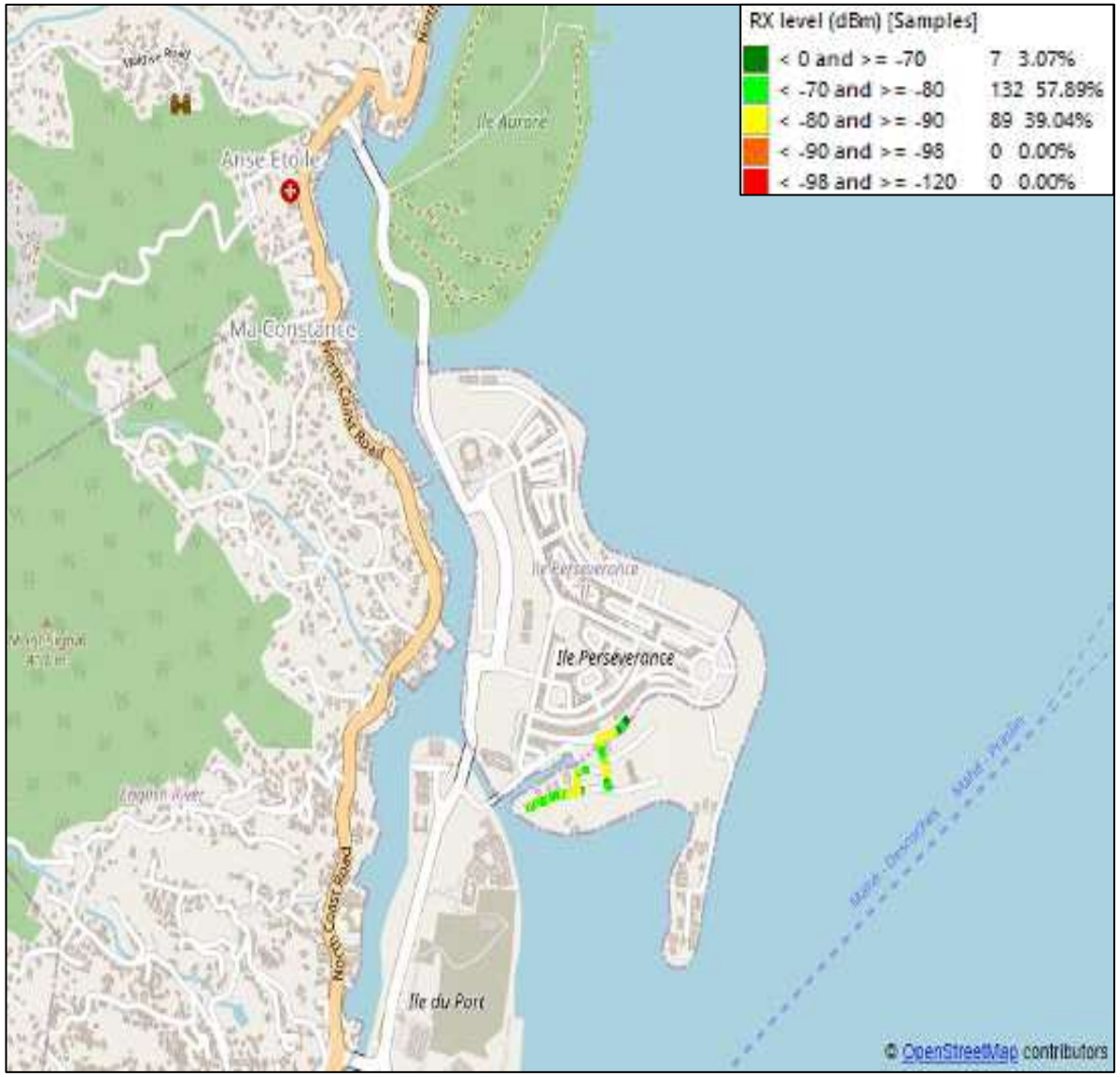


CWS LC MO

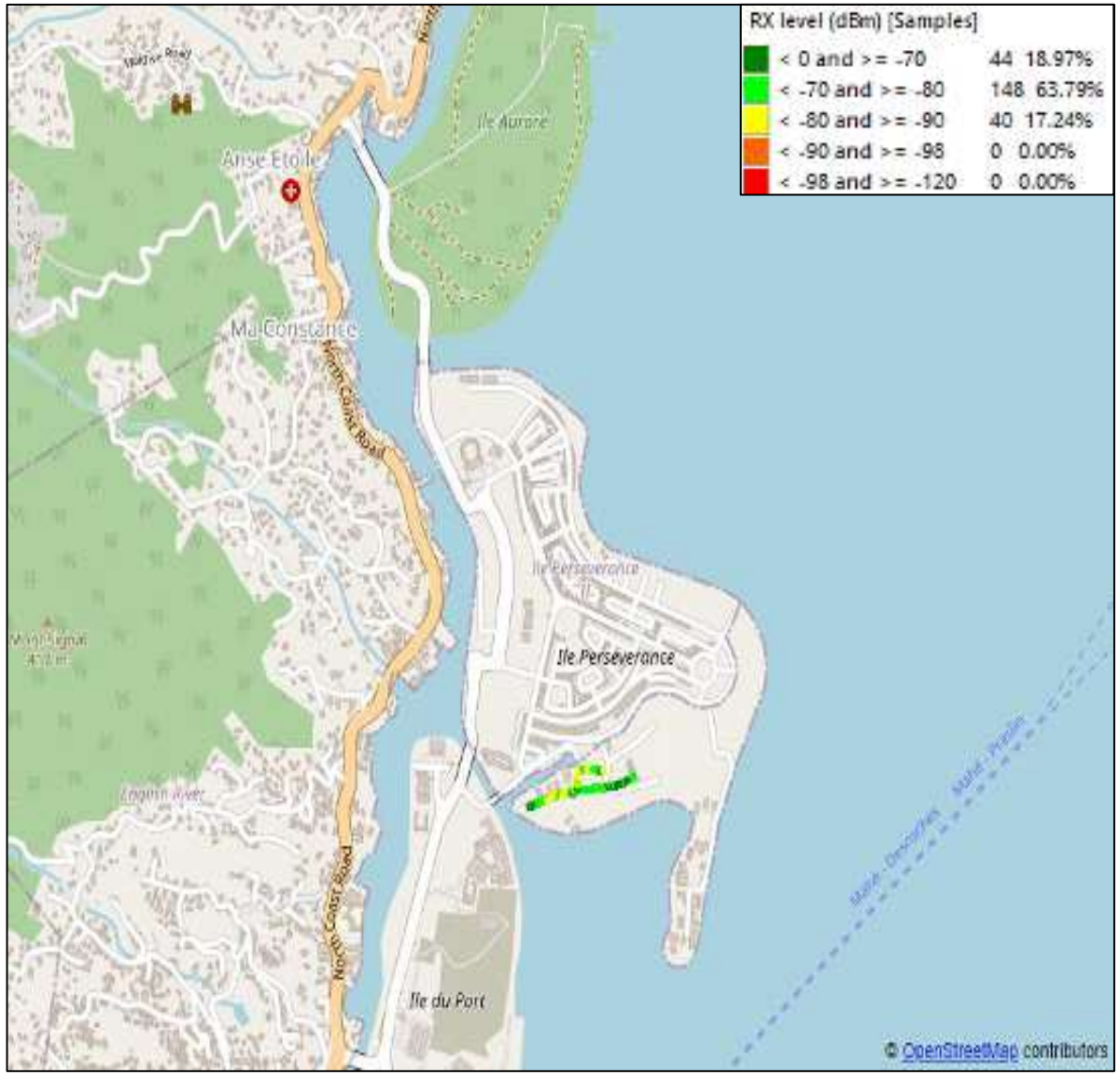


Phase-1 Long Call RX level sub PLOT

Airtel LC MO

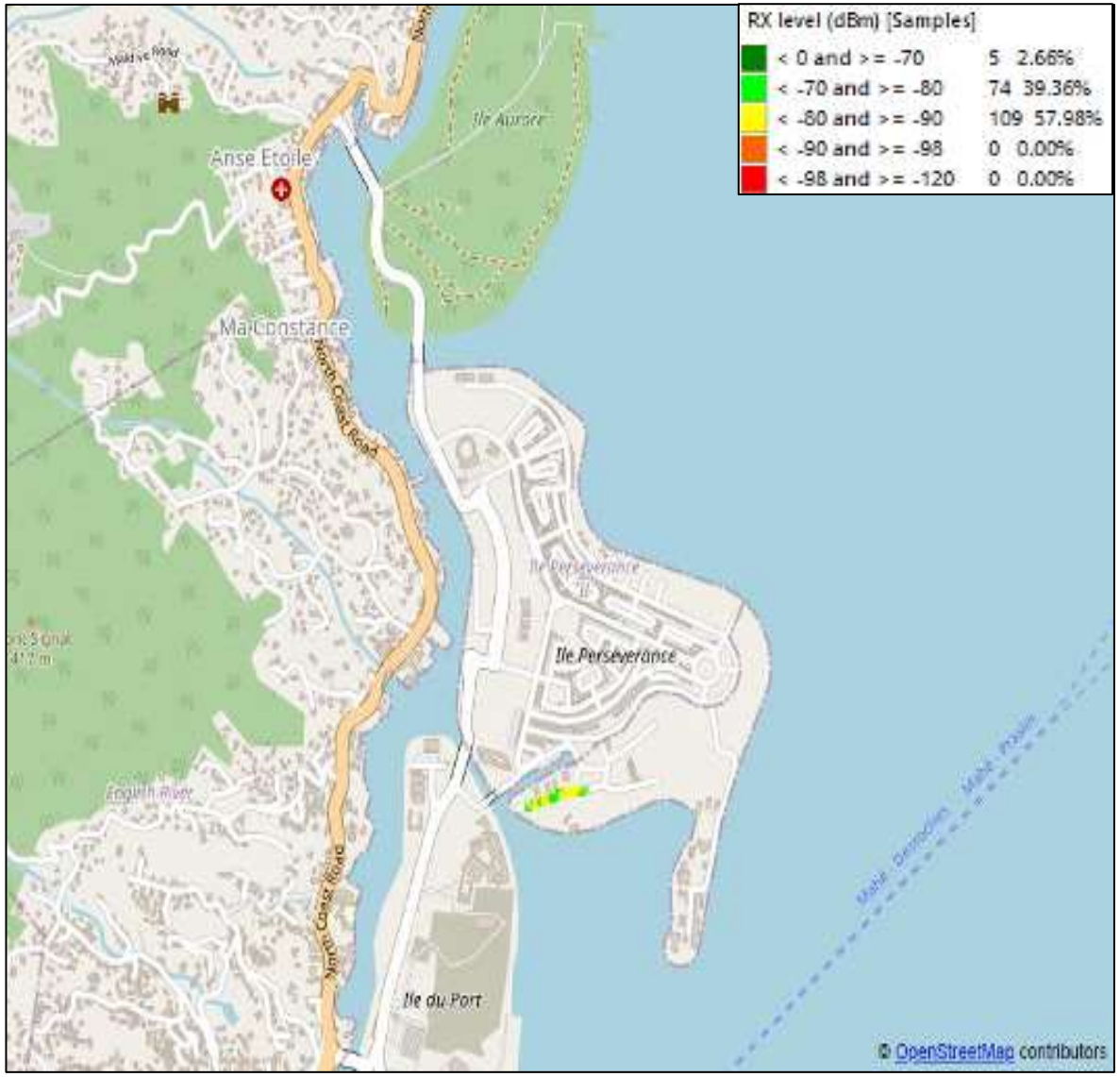


CWS LC MO

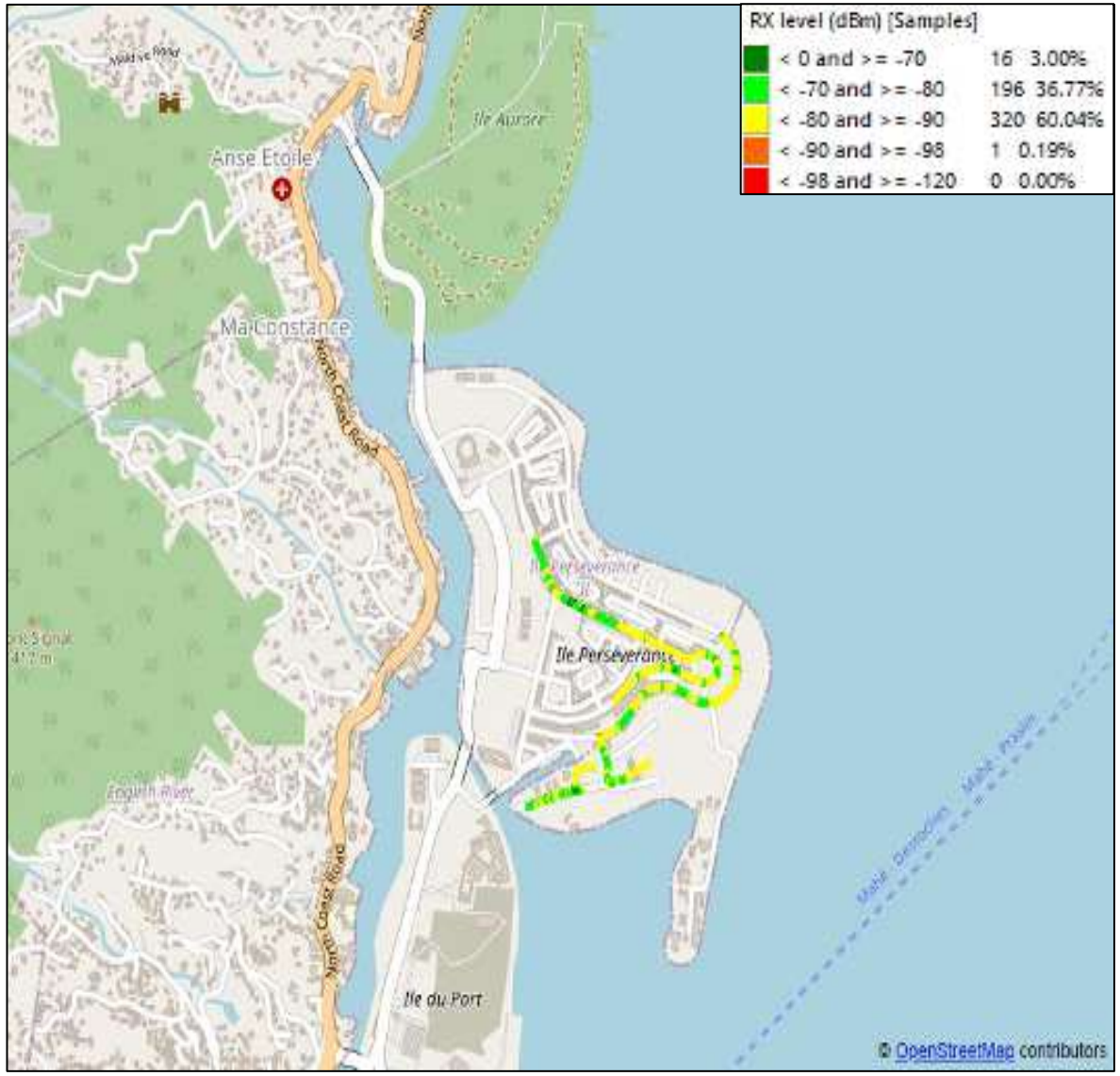


Phase-2 Long Call RX level sub PLOT

Airtel LC MO

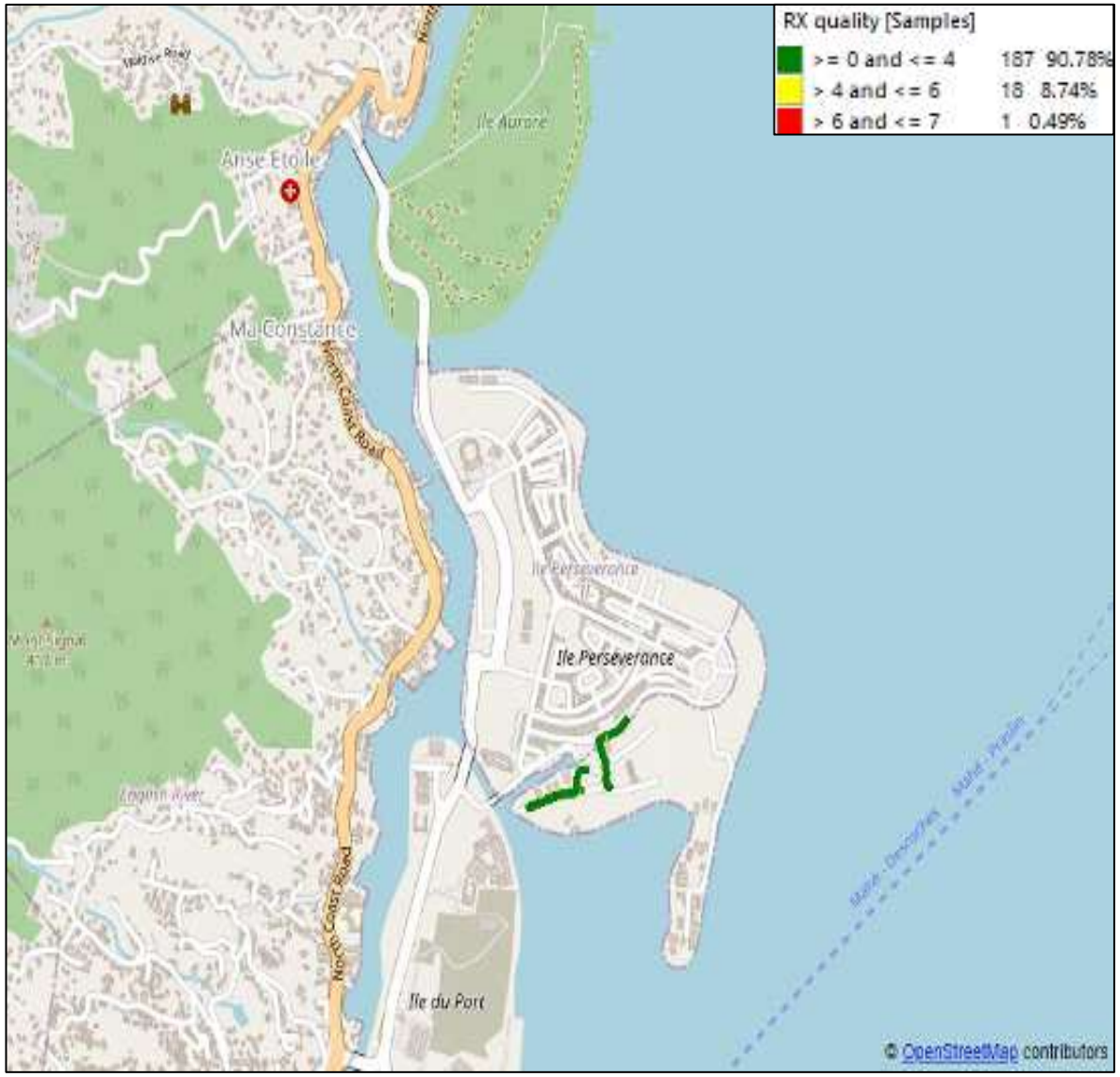


CWS LC MO

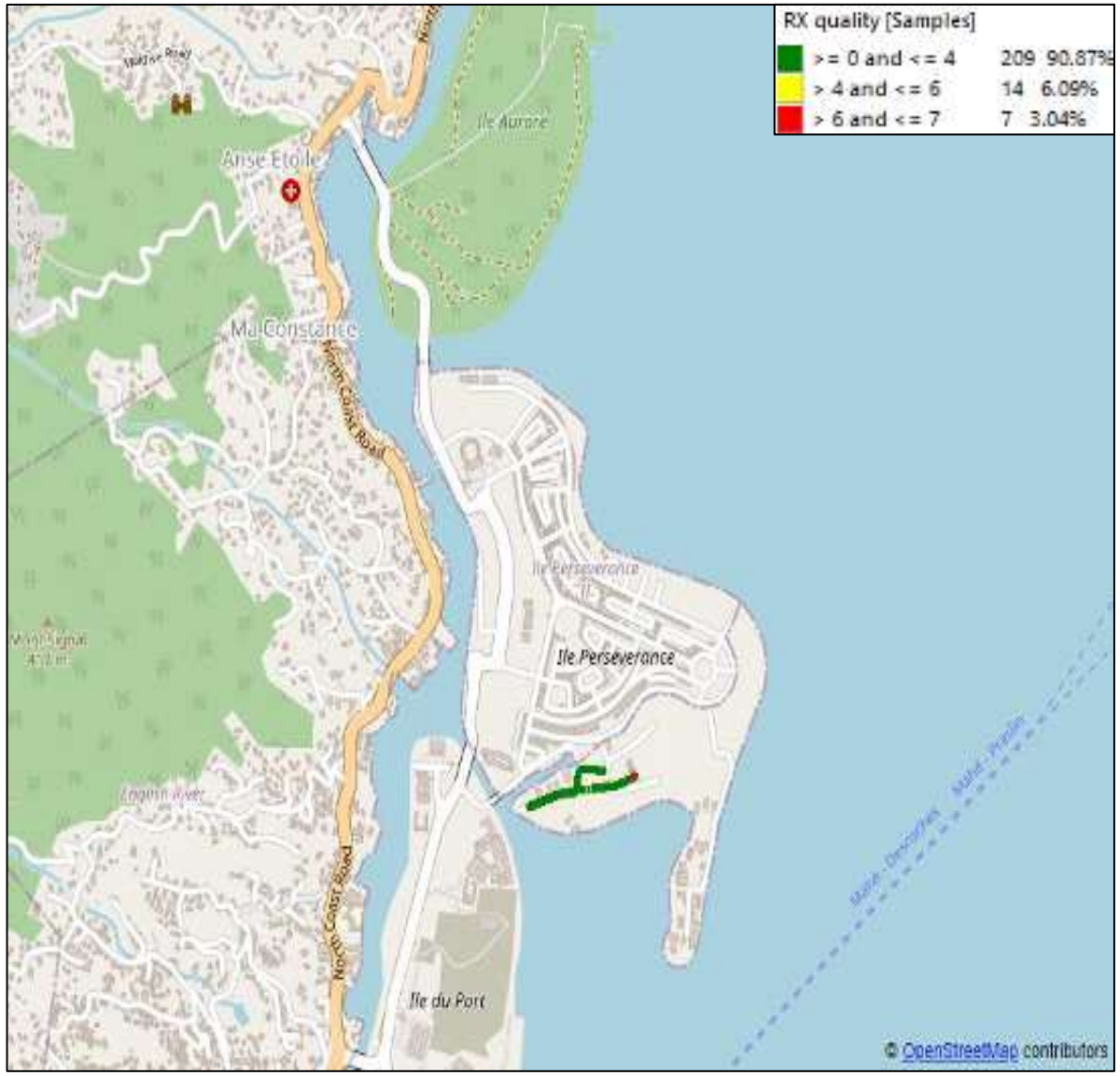


Phase-1 Long Call RX quality sub PLOT

Airtel LC MO

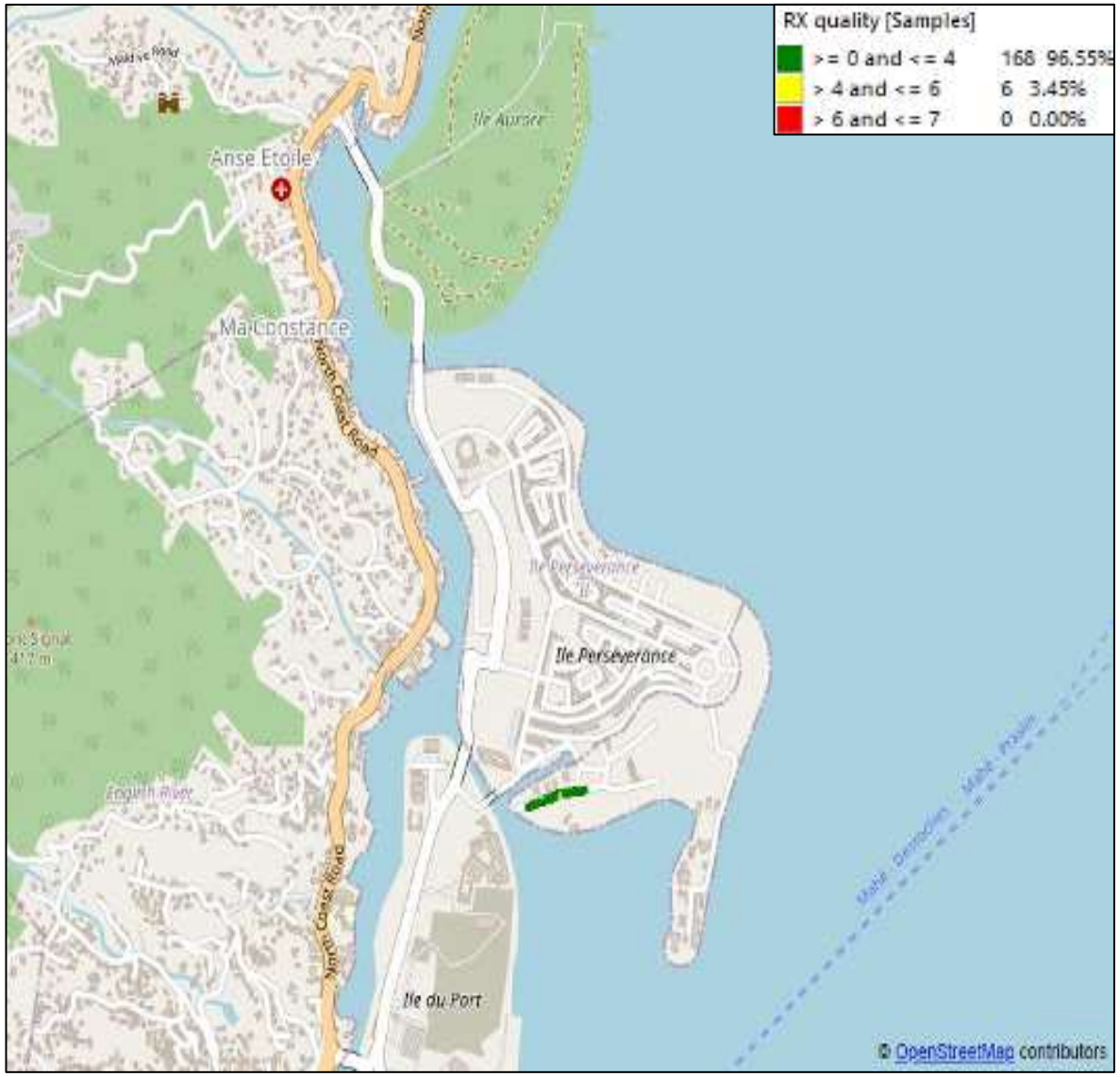


CWS LC MO

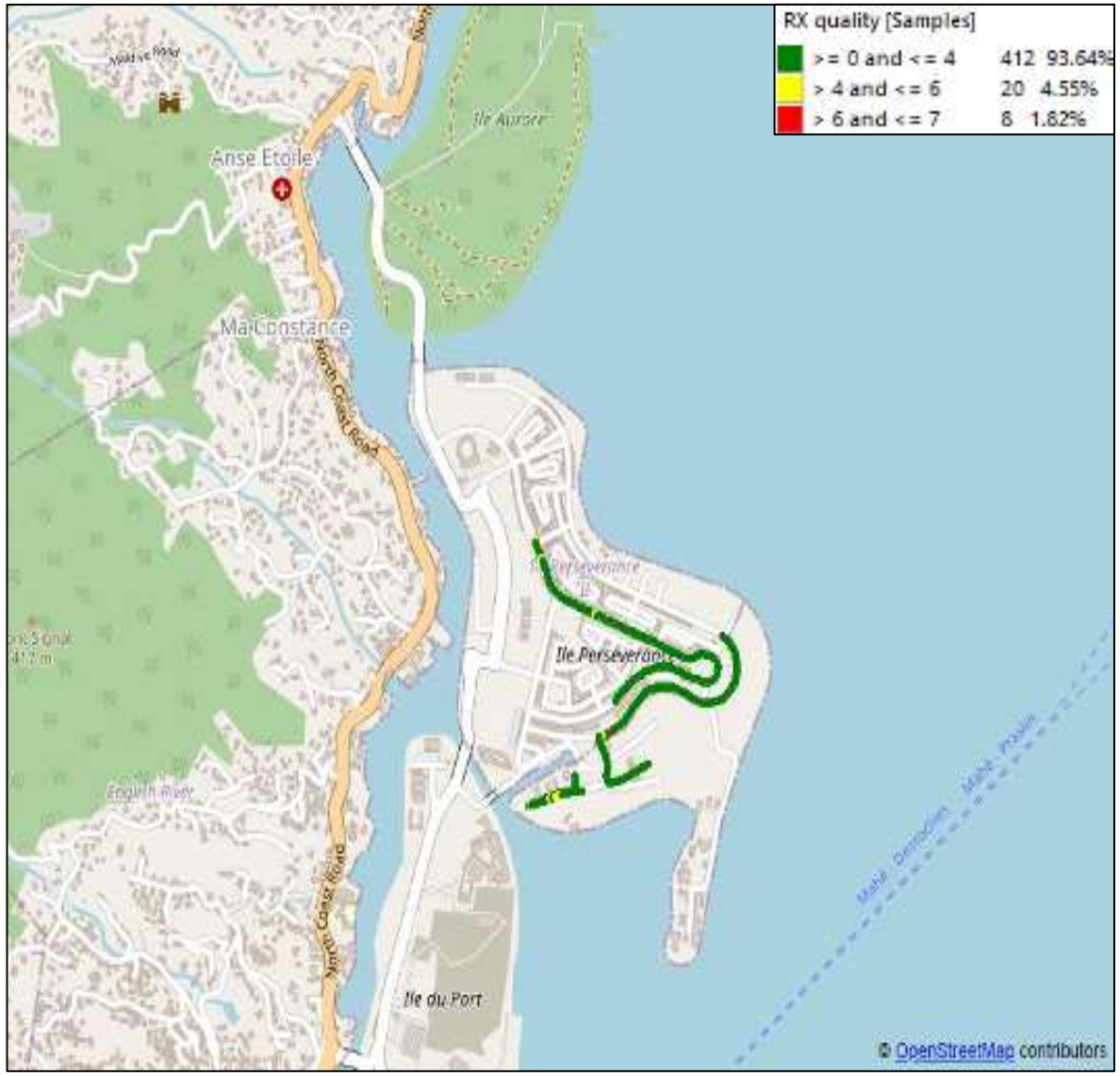


Phase-2 Long Call RX quality sub PLOT

Airtel LC MO



CWS LC MO

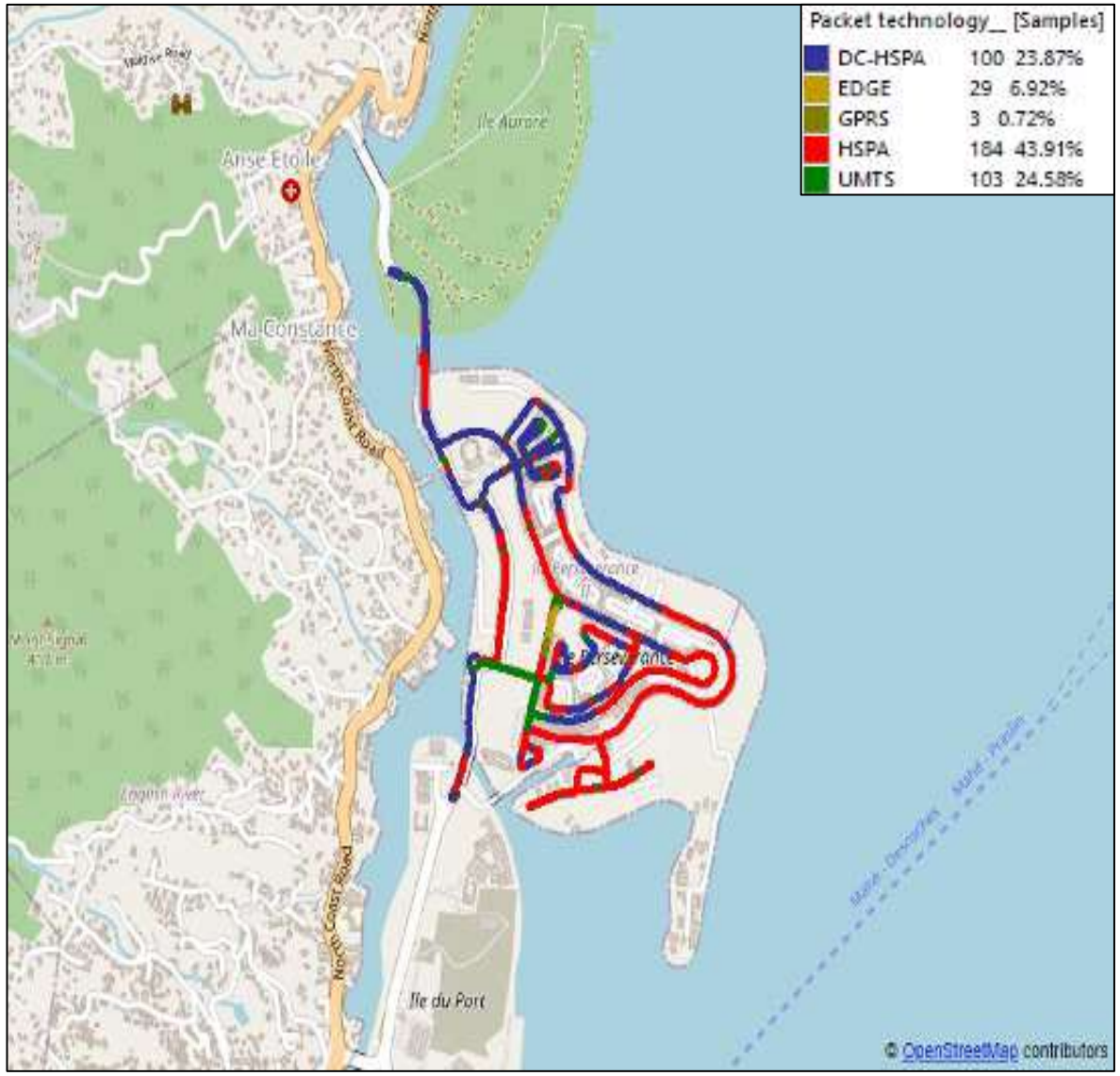


3G PREFERRED DATA DRIVE PLOTS

Phase-1 3G PREFERRED DATA TEST - TECHNOLOGY PLOT

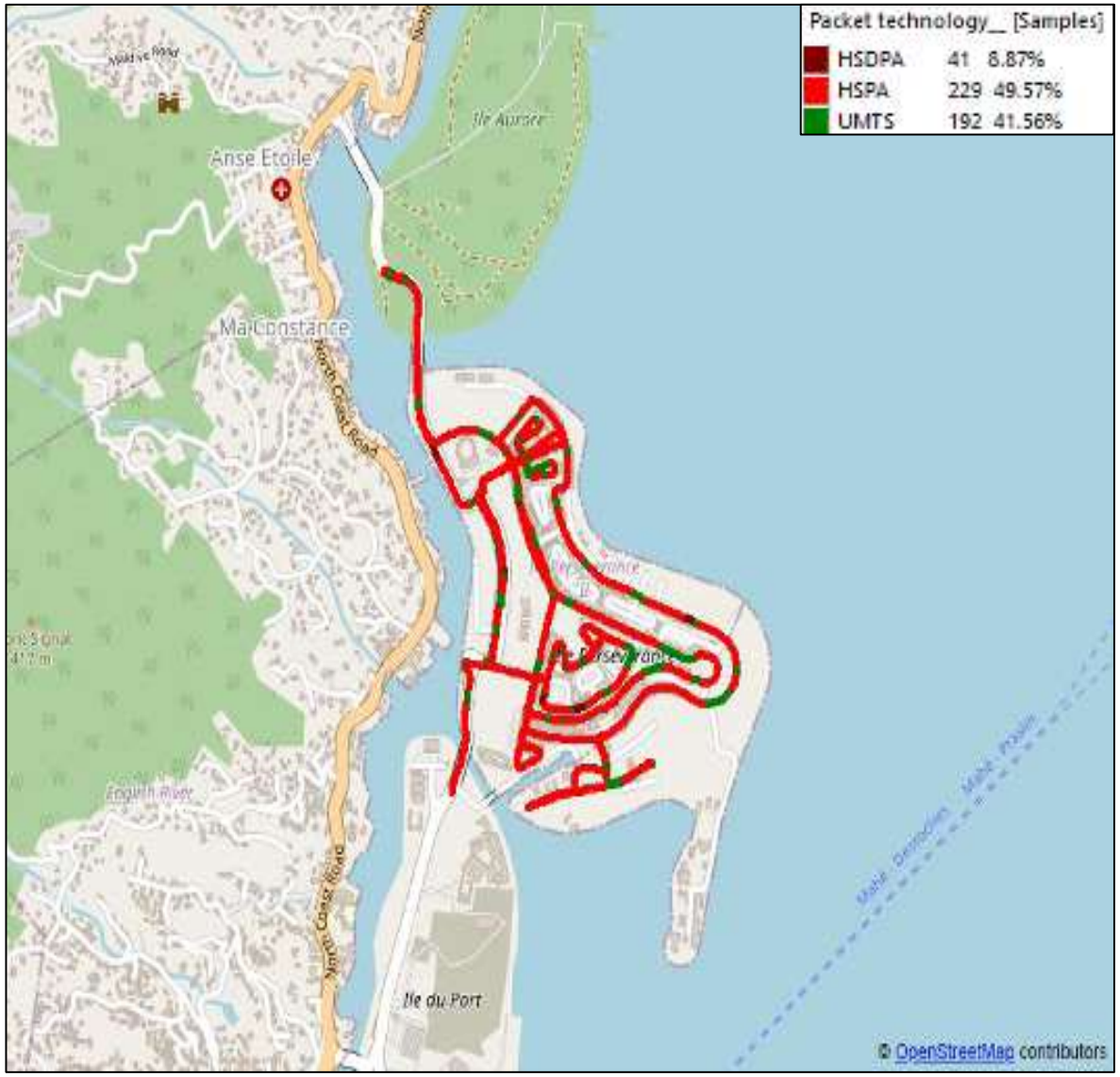
Airtel Data 3G

CWS Data 3G

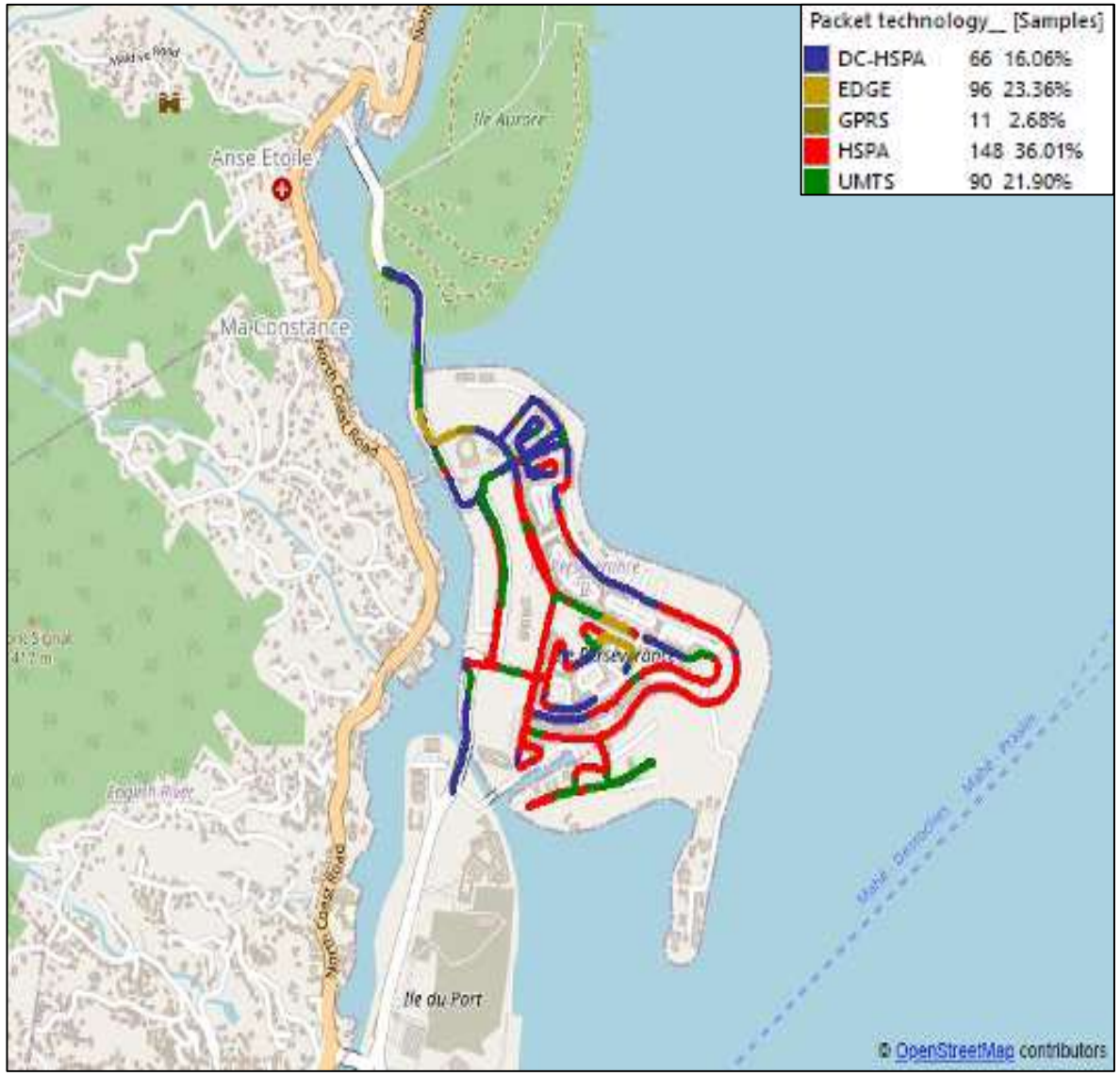


Phase-2 3G PREFERRED DATA TEST - TECHNOLOGY PLOT

Airtel Data 3G

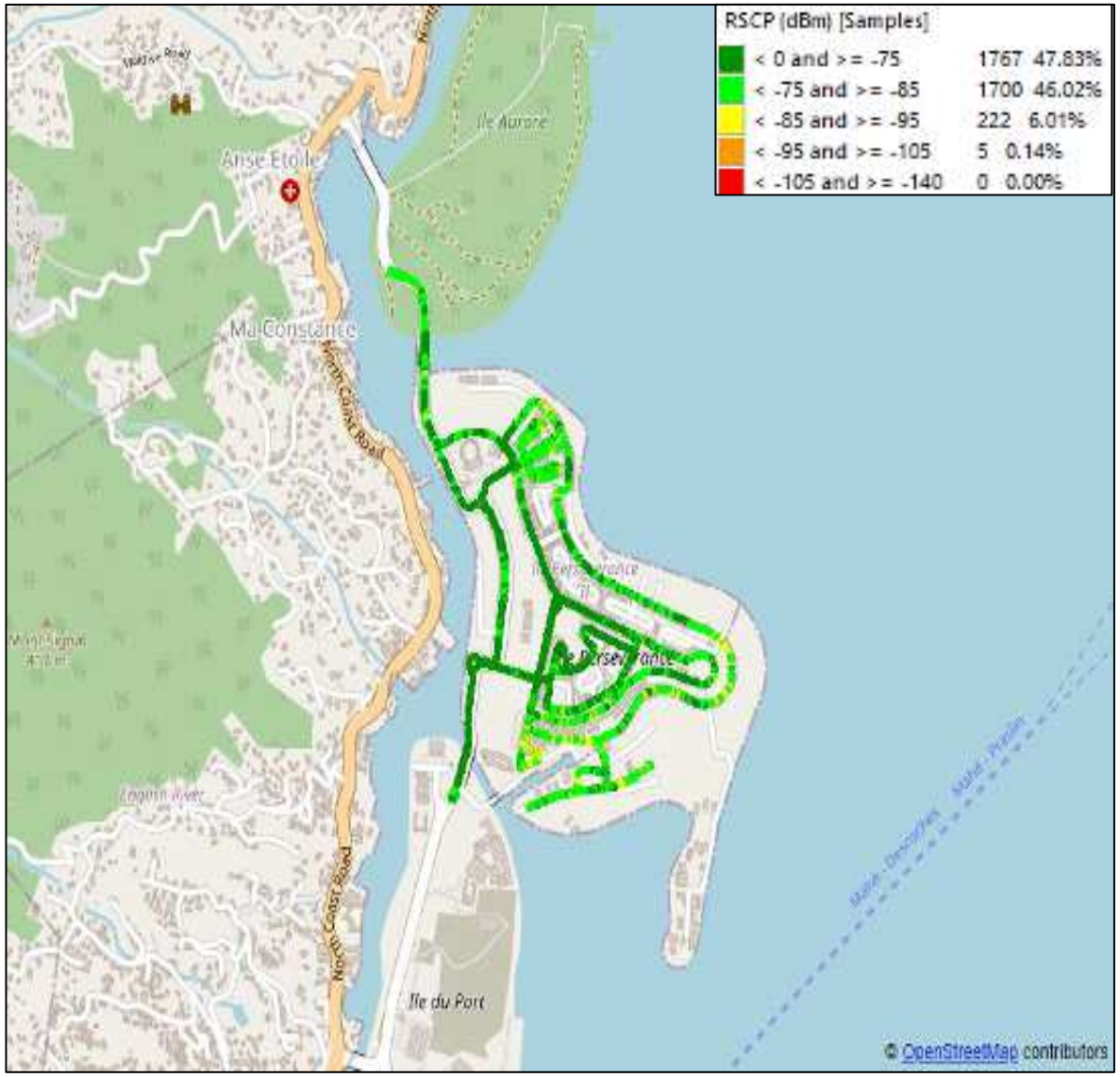


CWS Data 3G

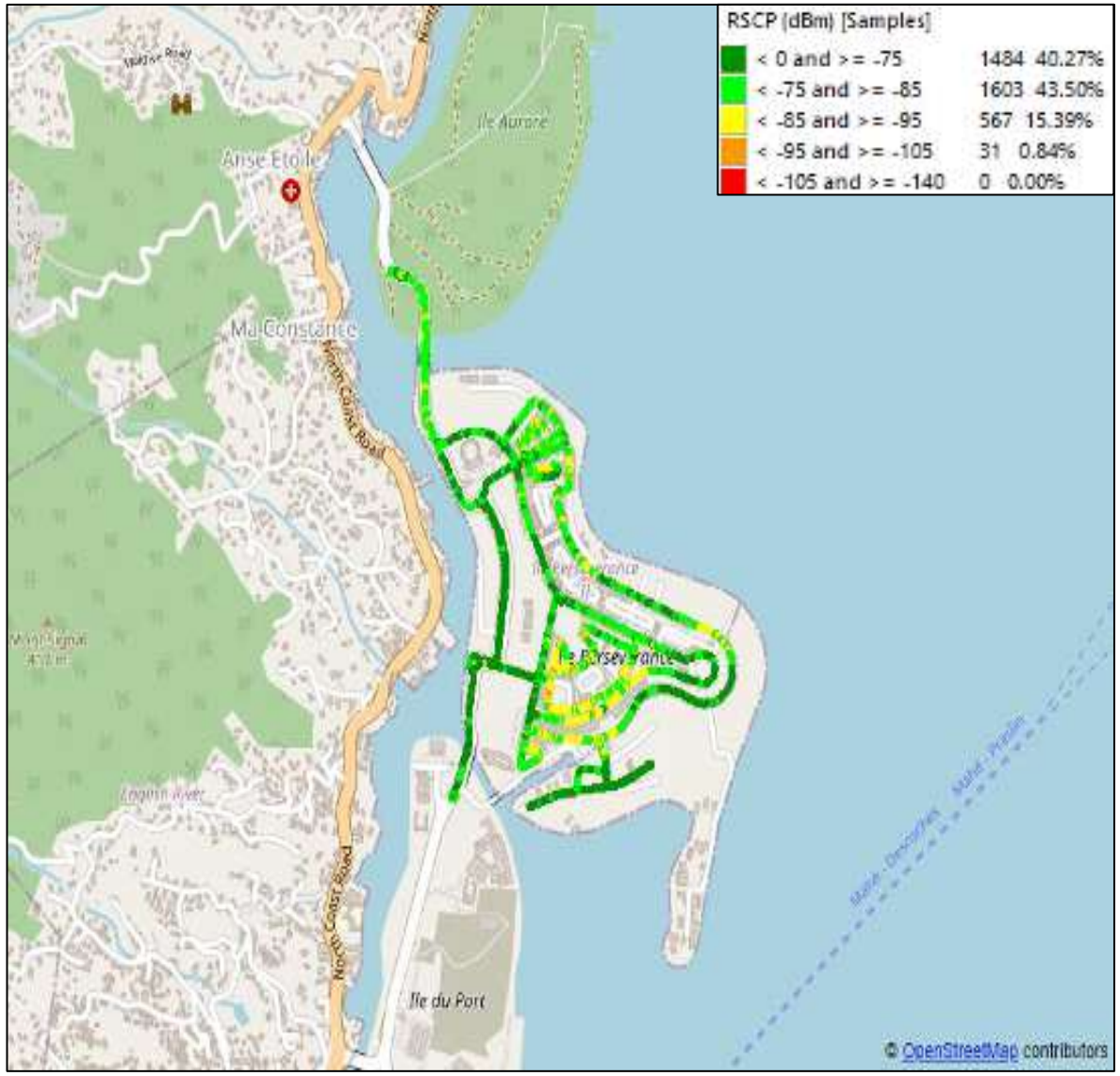


Phase-1 3G PREFERRED DATA TEST - RSCP PLOT

Airtel Data 3G

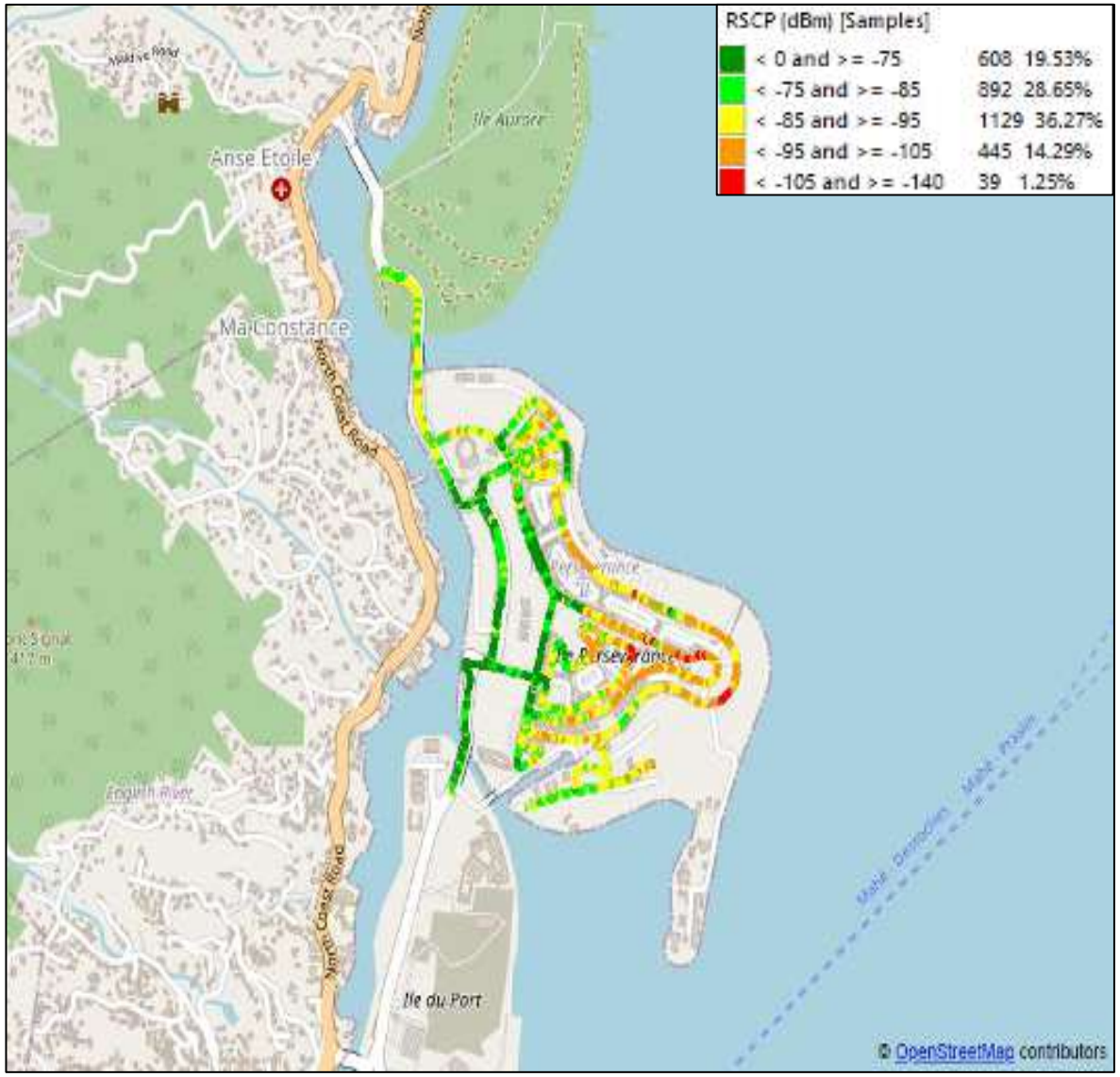


CWS Data 3G

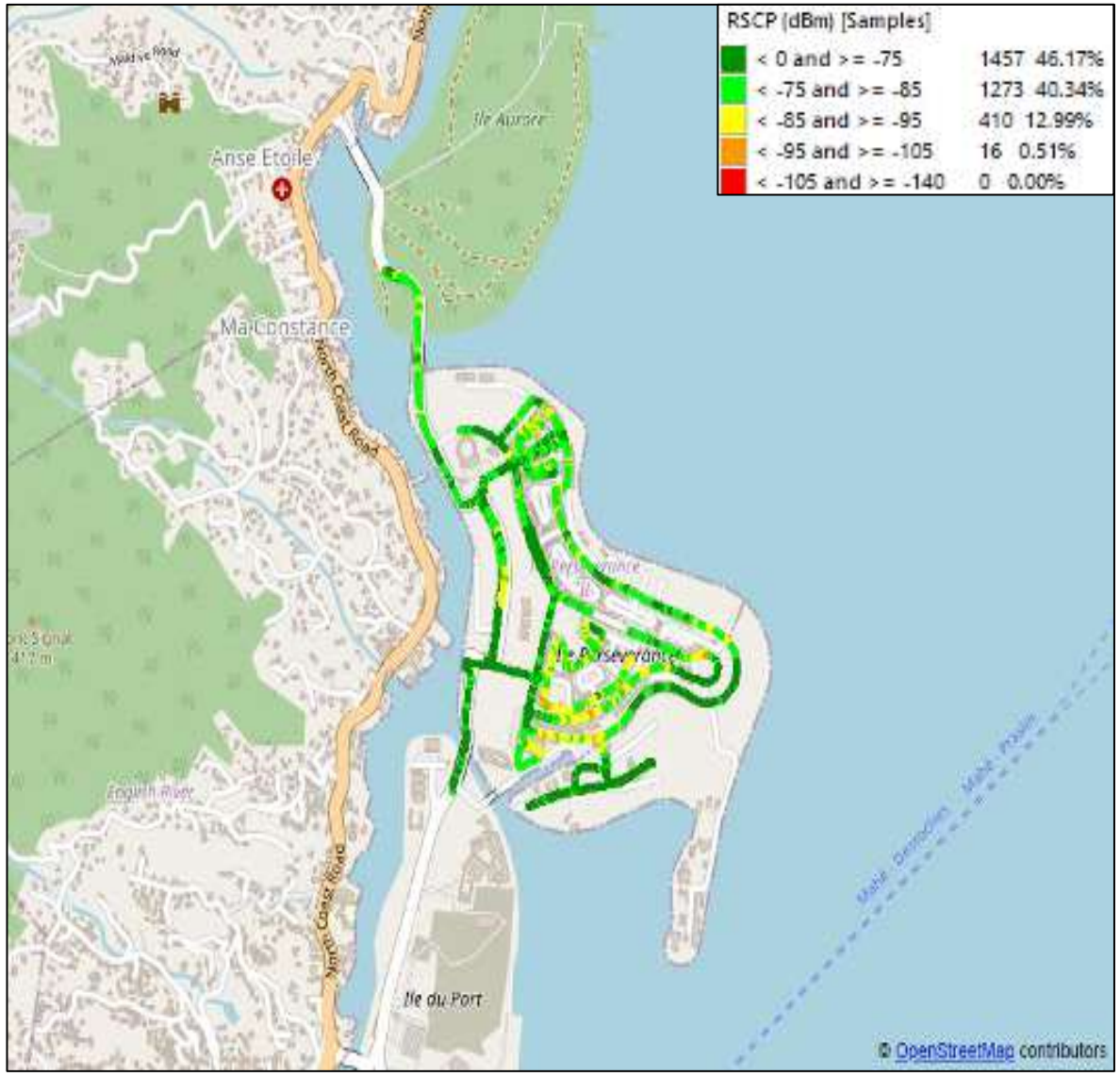


Phase-2 3G PREFERRED DATA TEST - RSCP PLOT

Airtel Data 3G

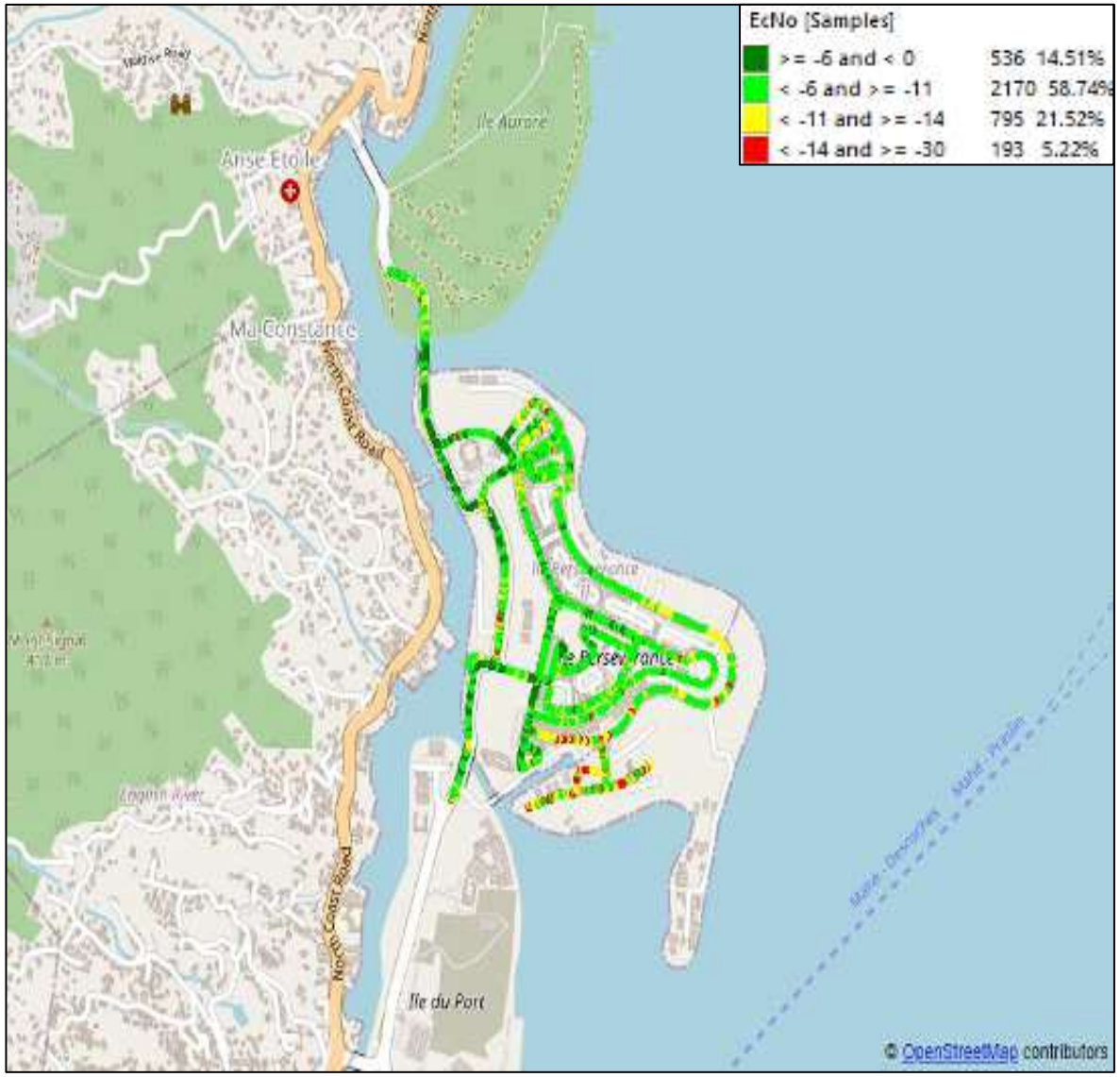


CWS Data 3G

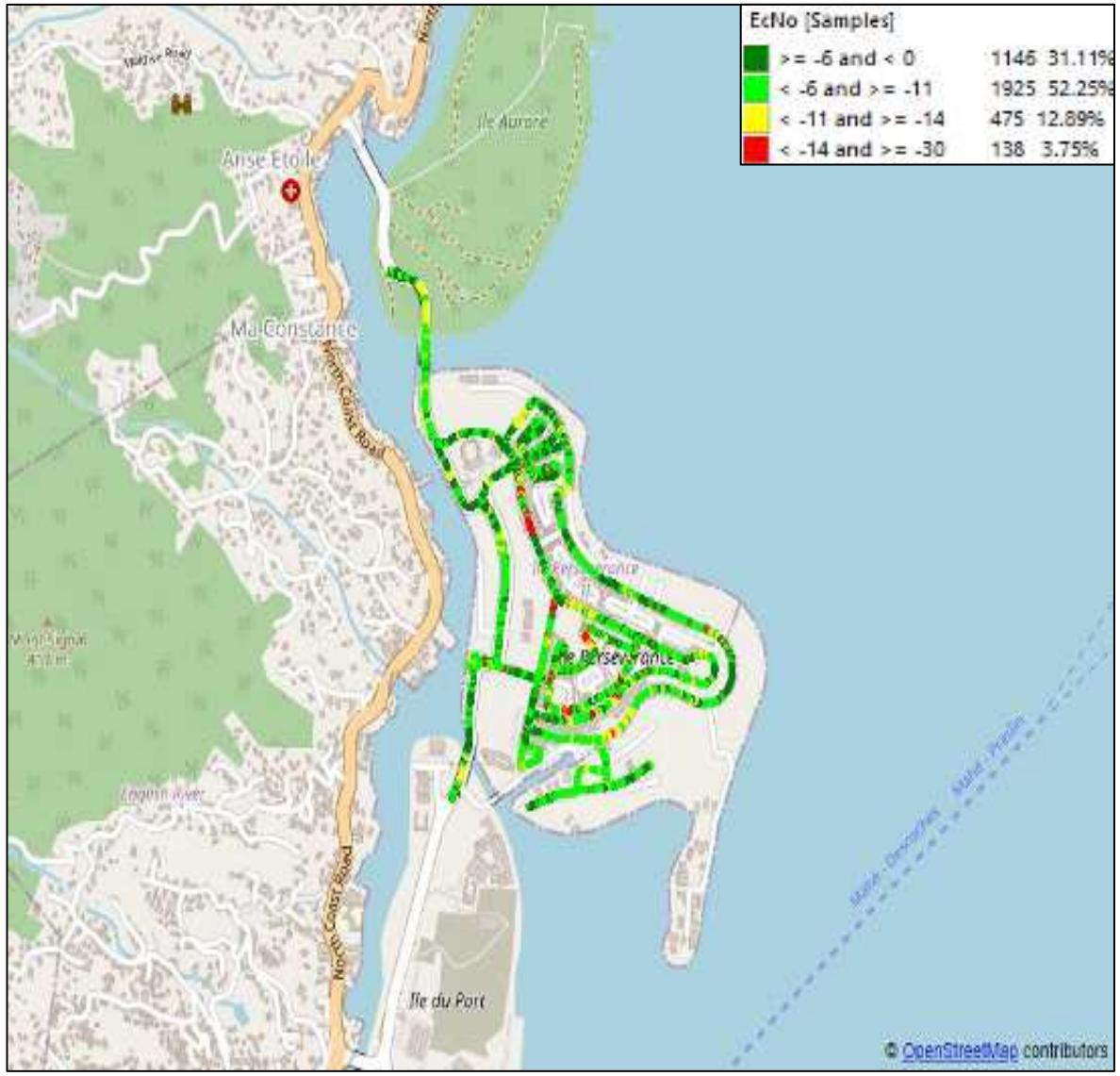


Phase-1 3G PREFERRED DATA TEST - EC/NO PLOT

Airtel Data 3G

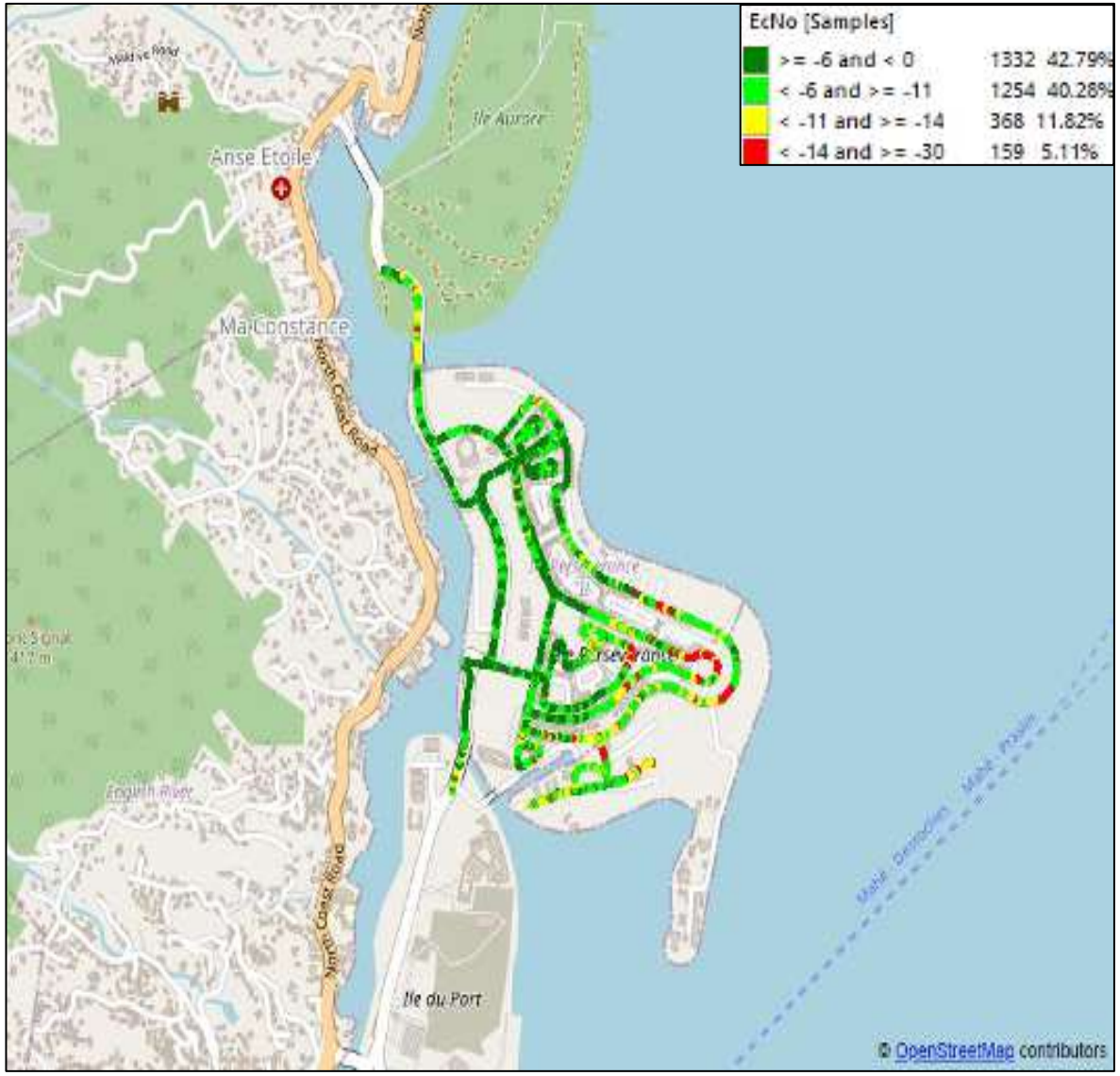


CWS Data 3G

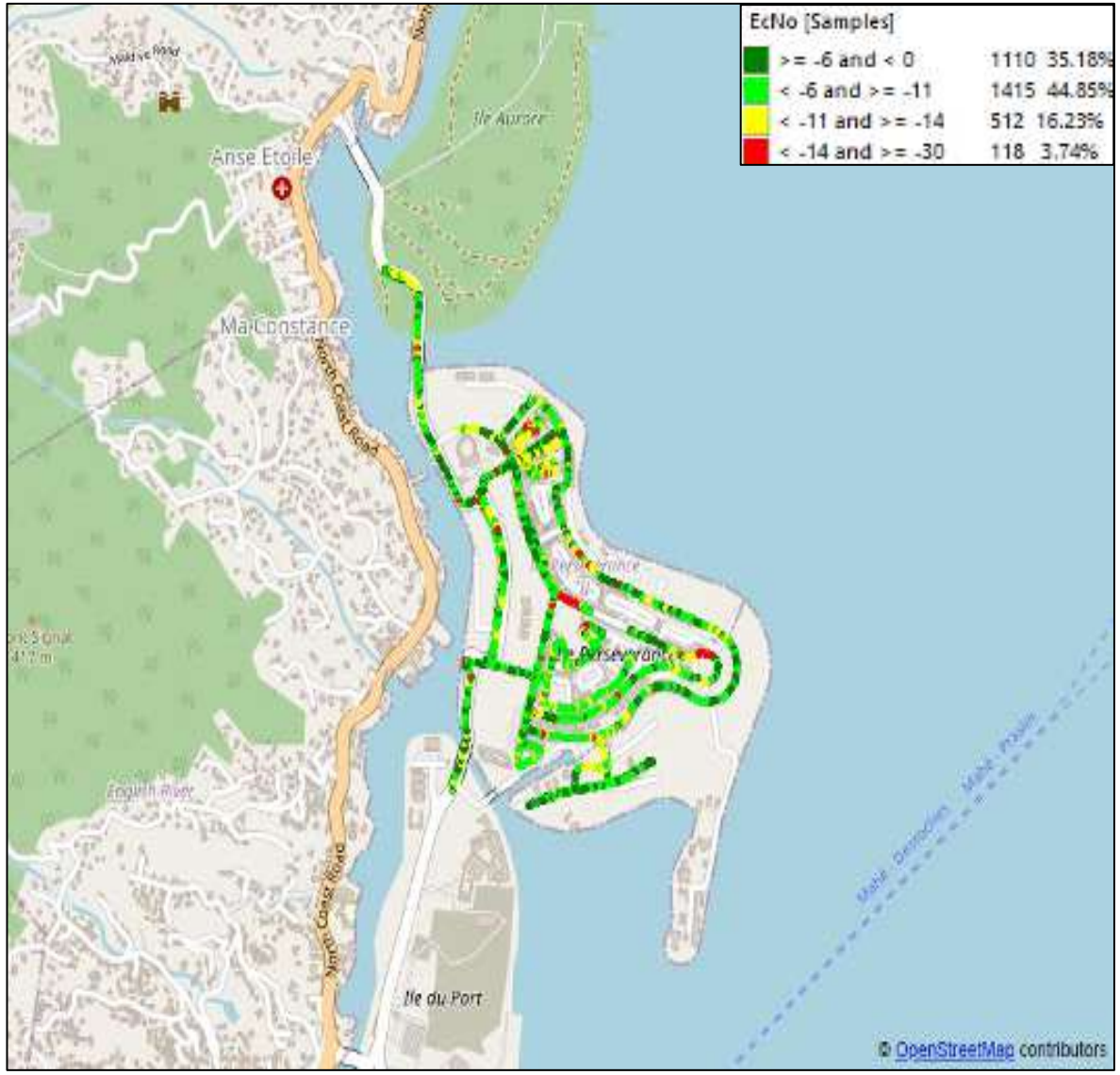


Phase-2 3G PREFERRED DATA TEST - EC/NO PLOT

Airtel Data 3G

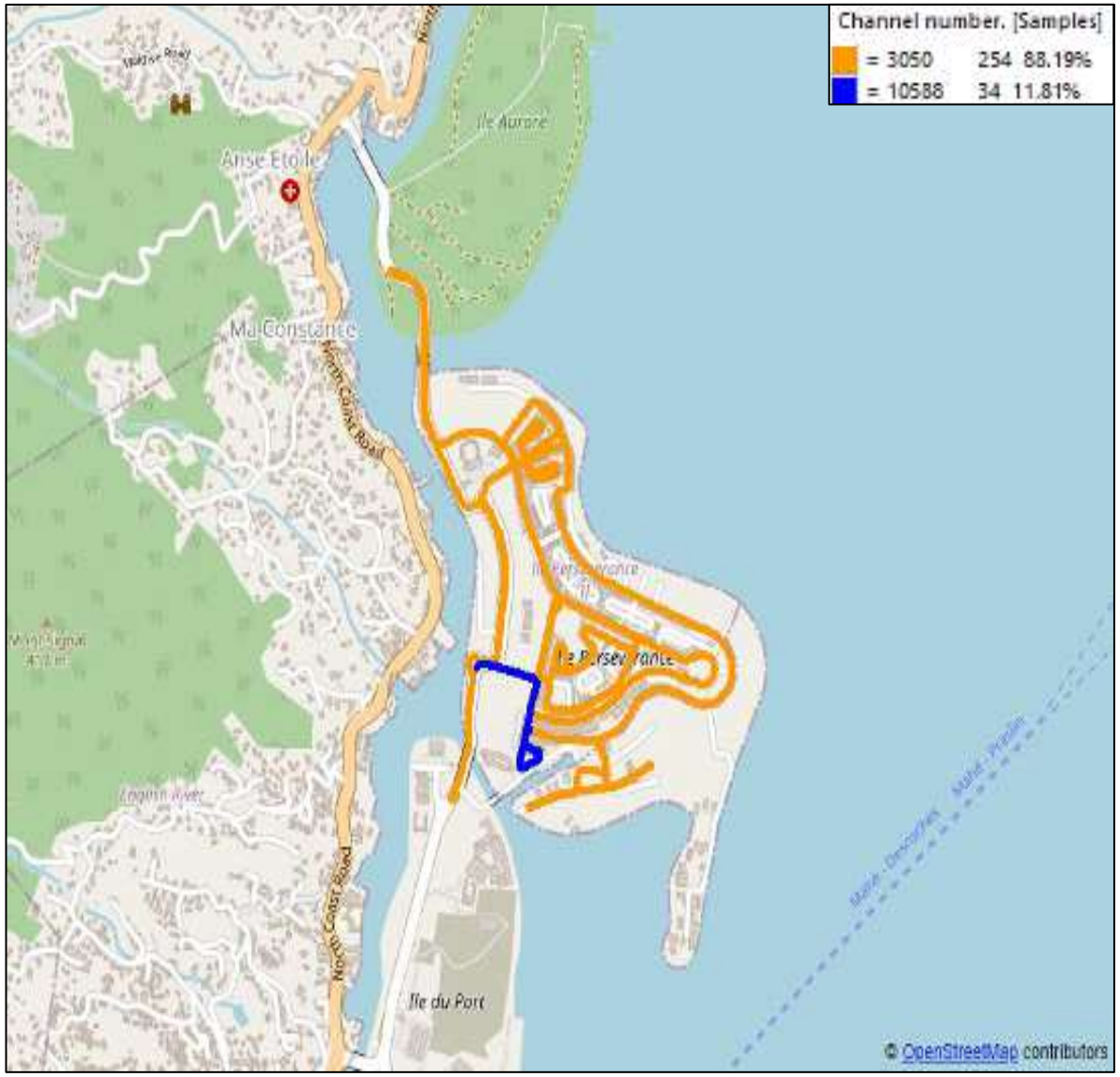


CWS Data 3G

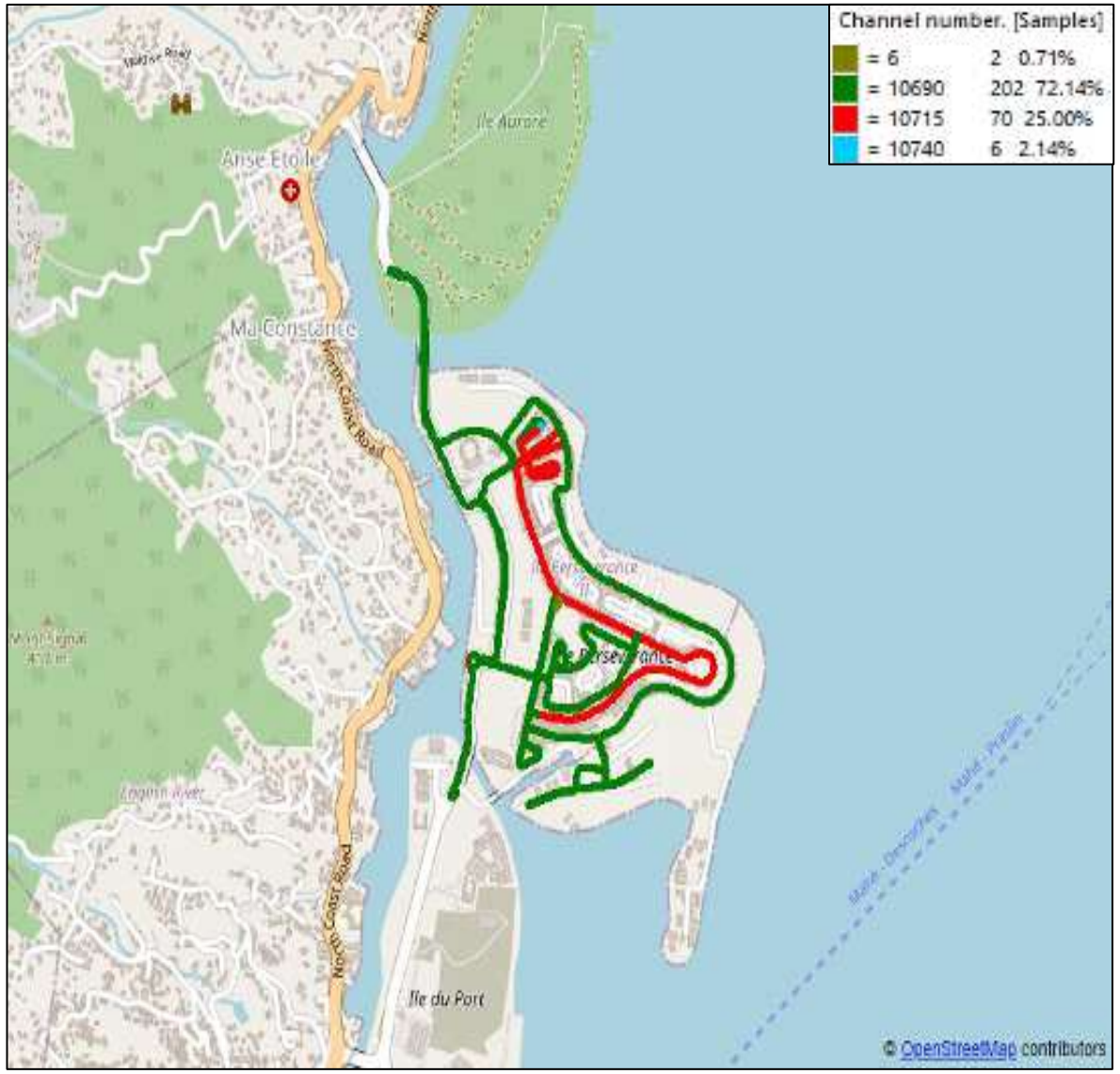


Phase-1 3G PREFERRED DATA TEST - UARFCN PLOT

Airtel Data 3G

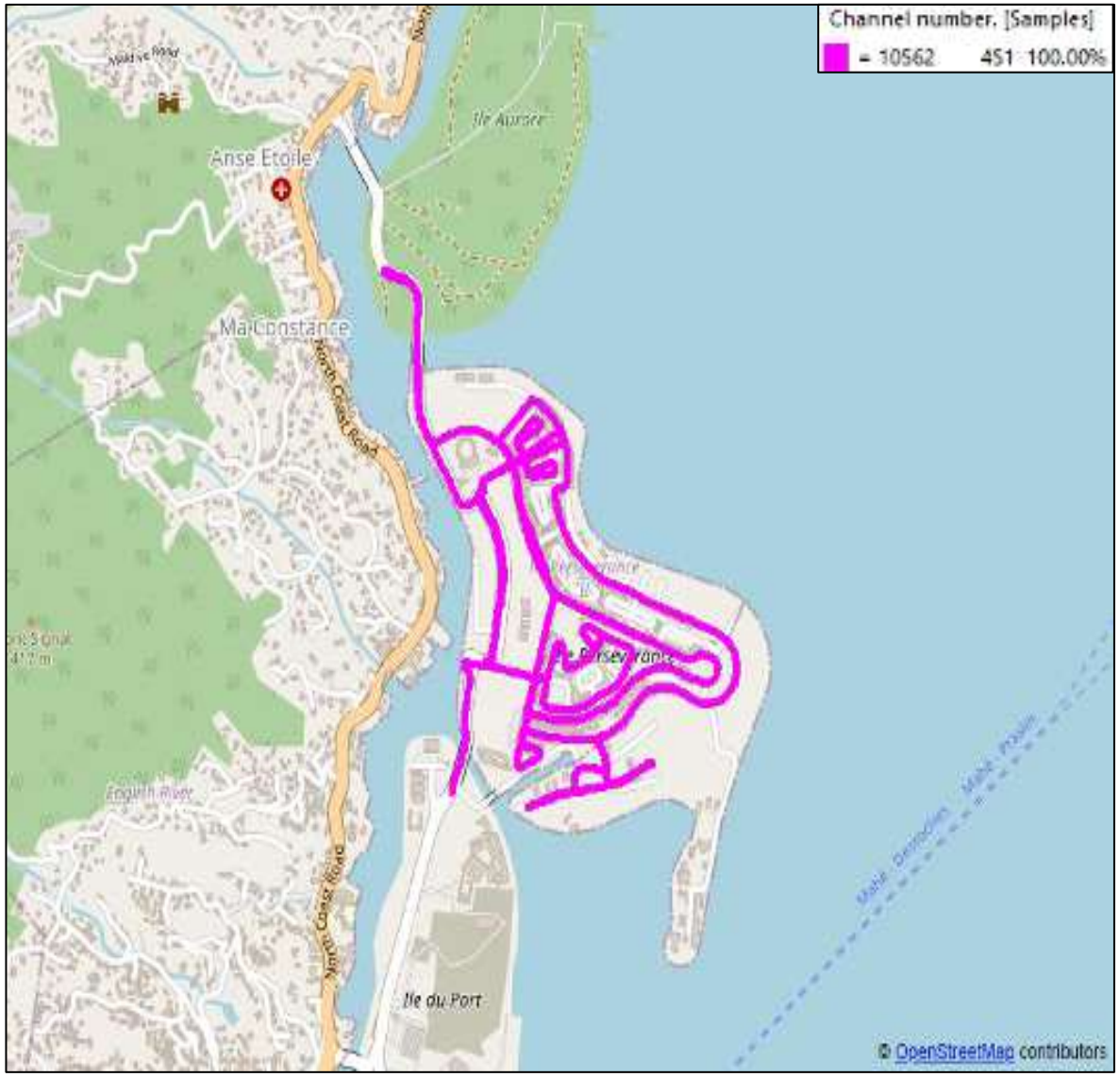


CWS Data 3G

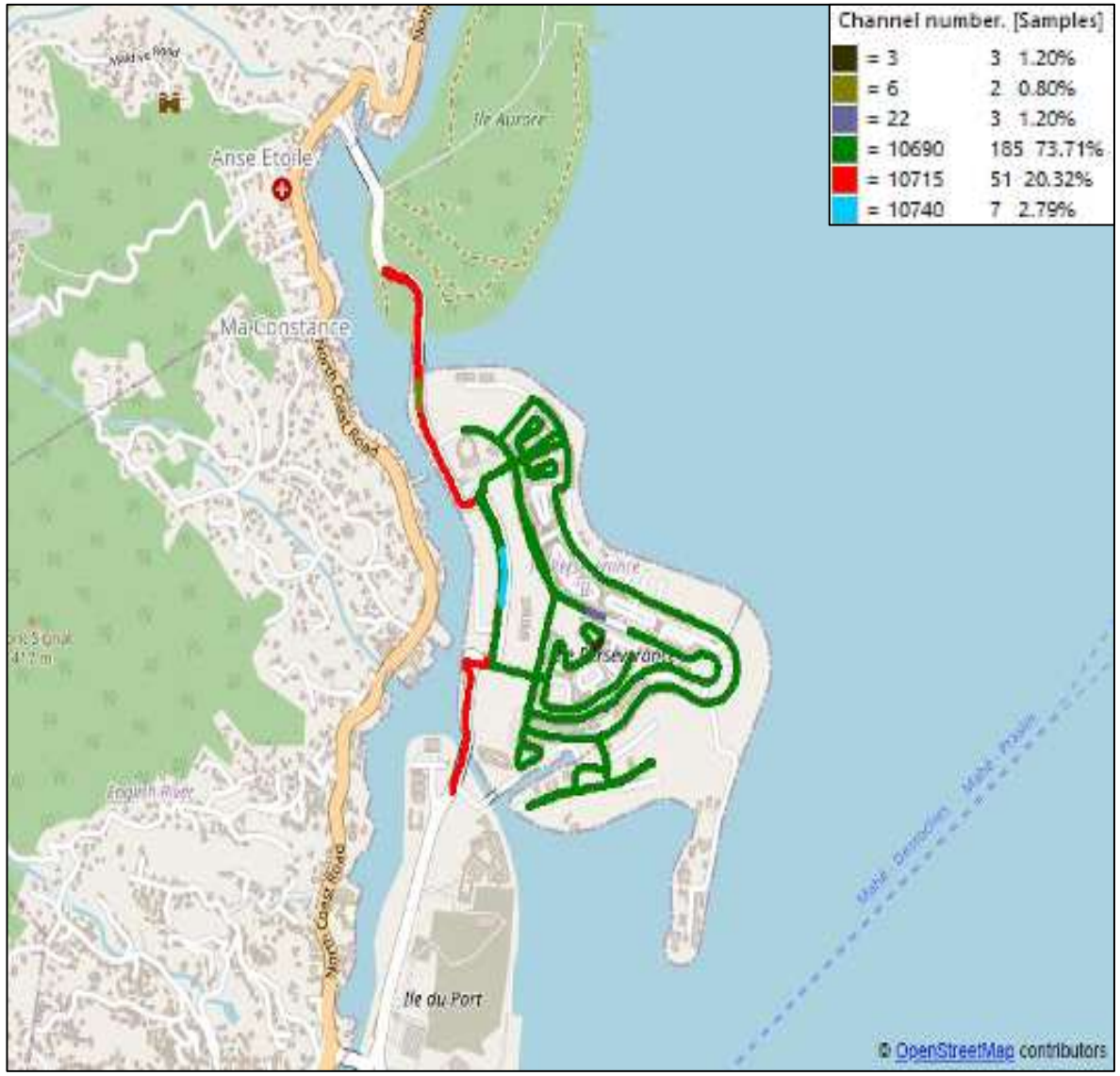


Phase-2 3G PREFERRED DATA TEST - UARFCN PLOT

Airtel Data 3G



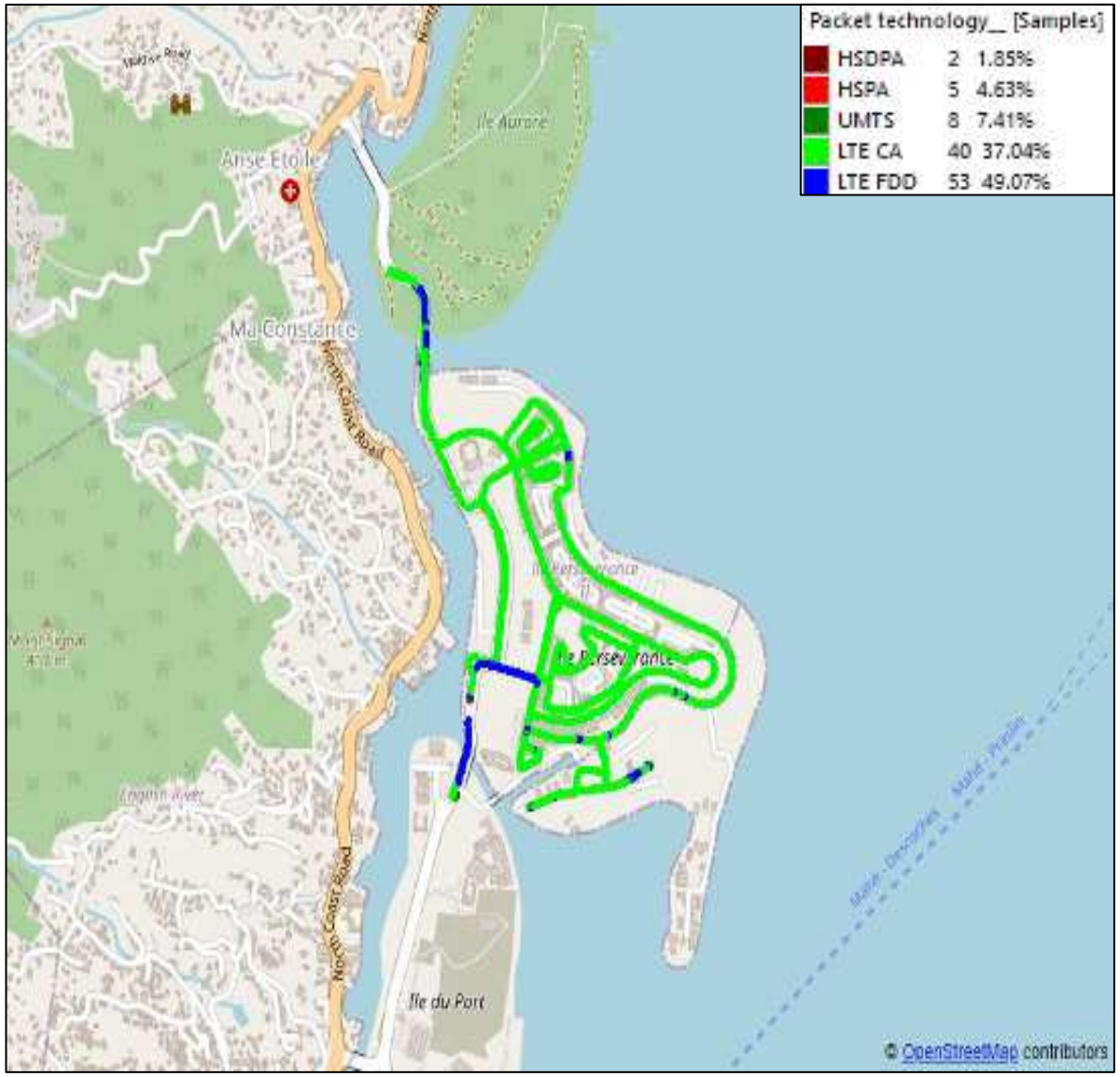
CWS Data 3G



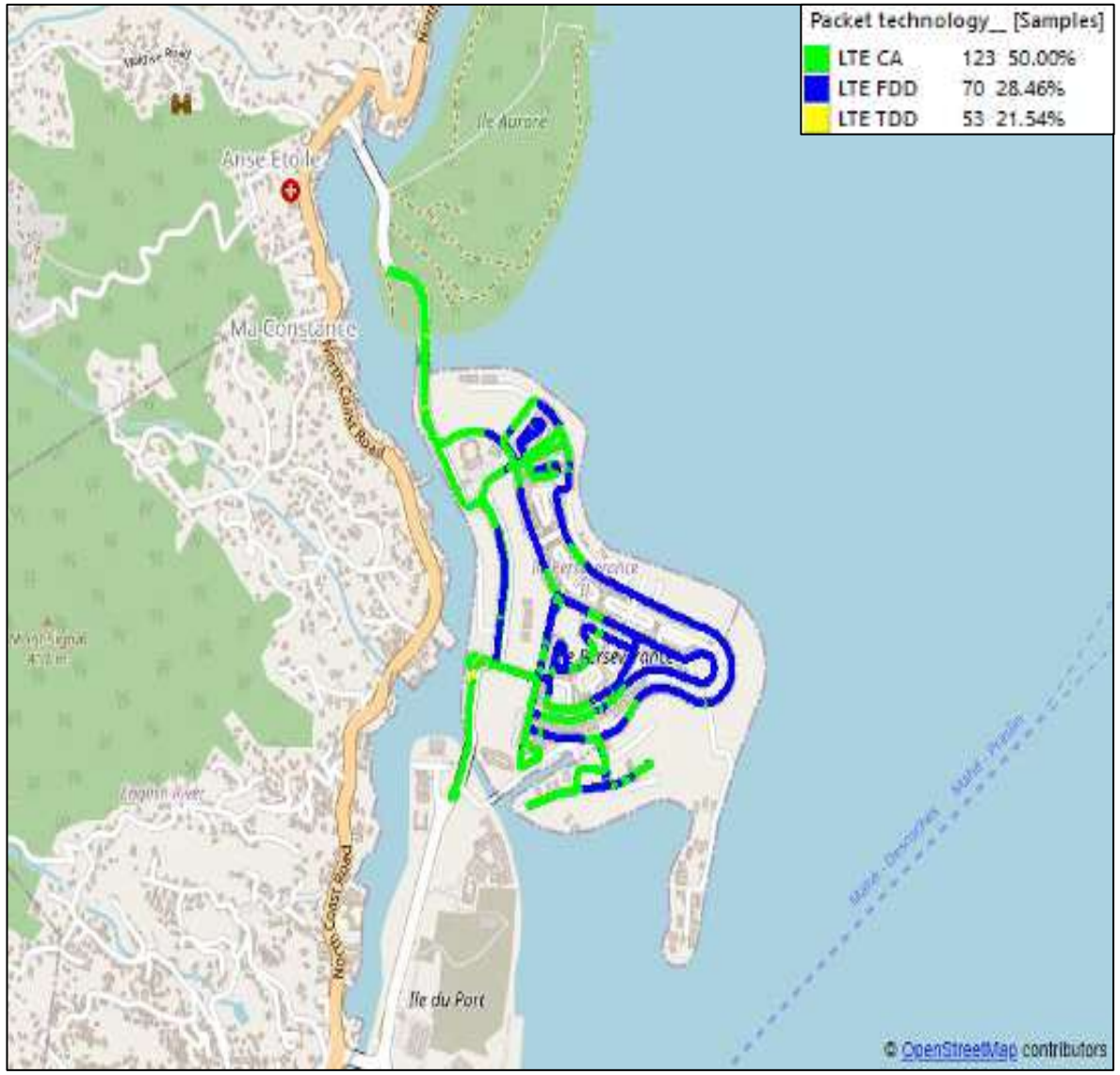
4G PREFERRED
DATA DRIVE PLOTS

Phase-1 4G PREFERRED DATA TEST - TECHNOLOGY PLOT

Airtel Data 4G

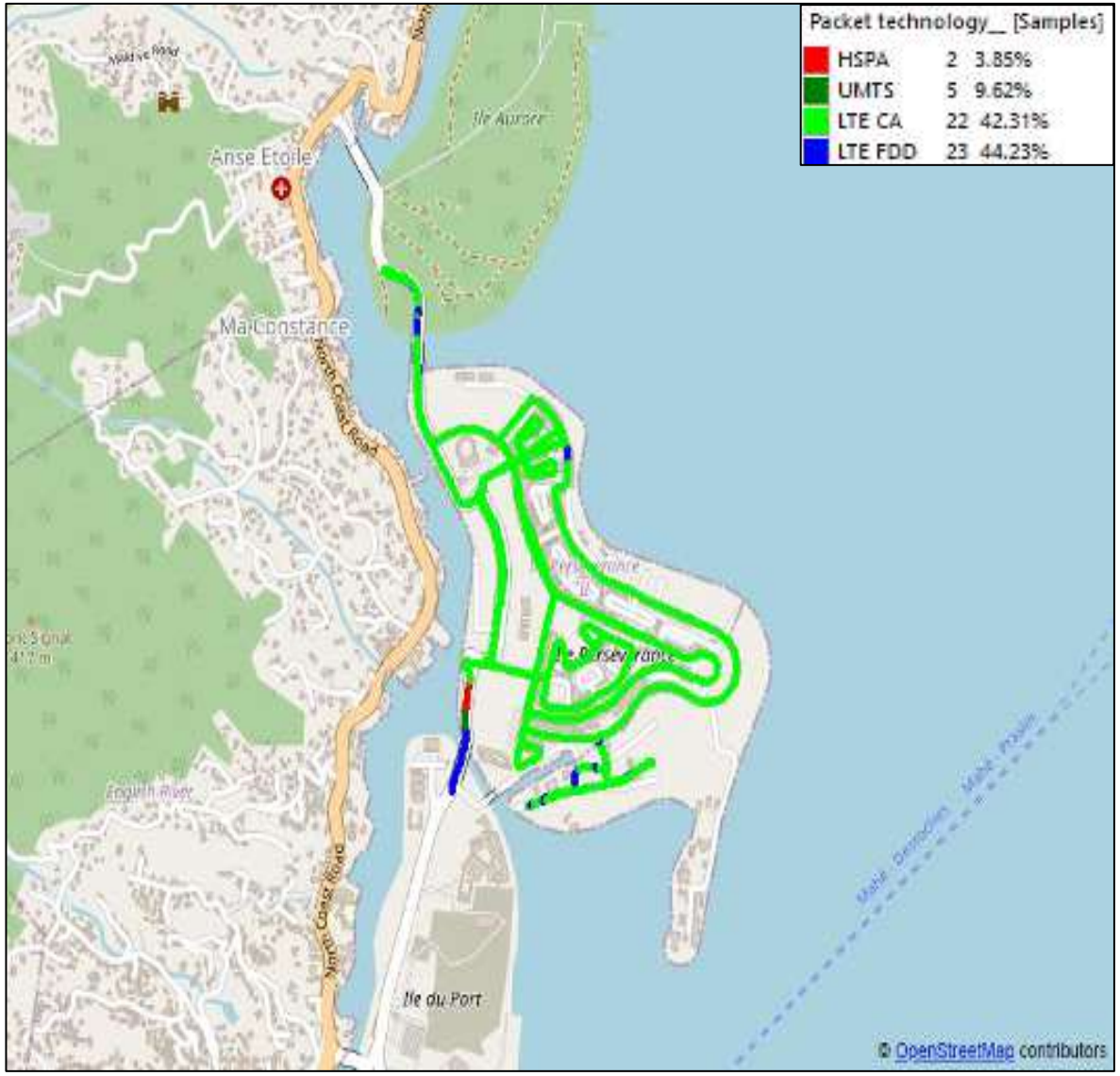


CWS Data 4G

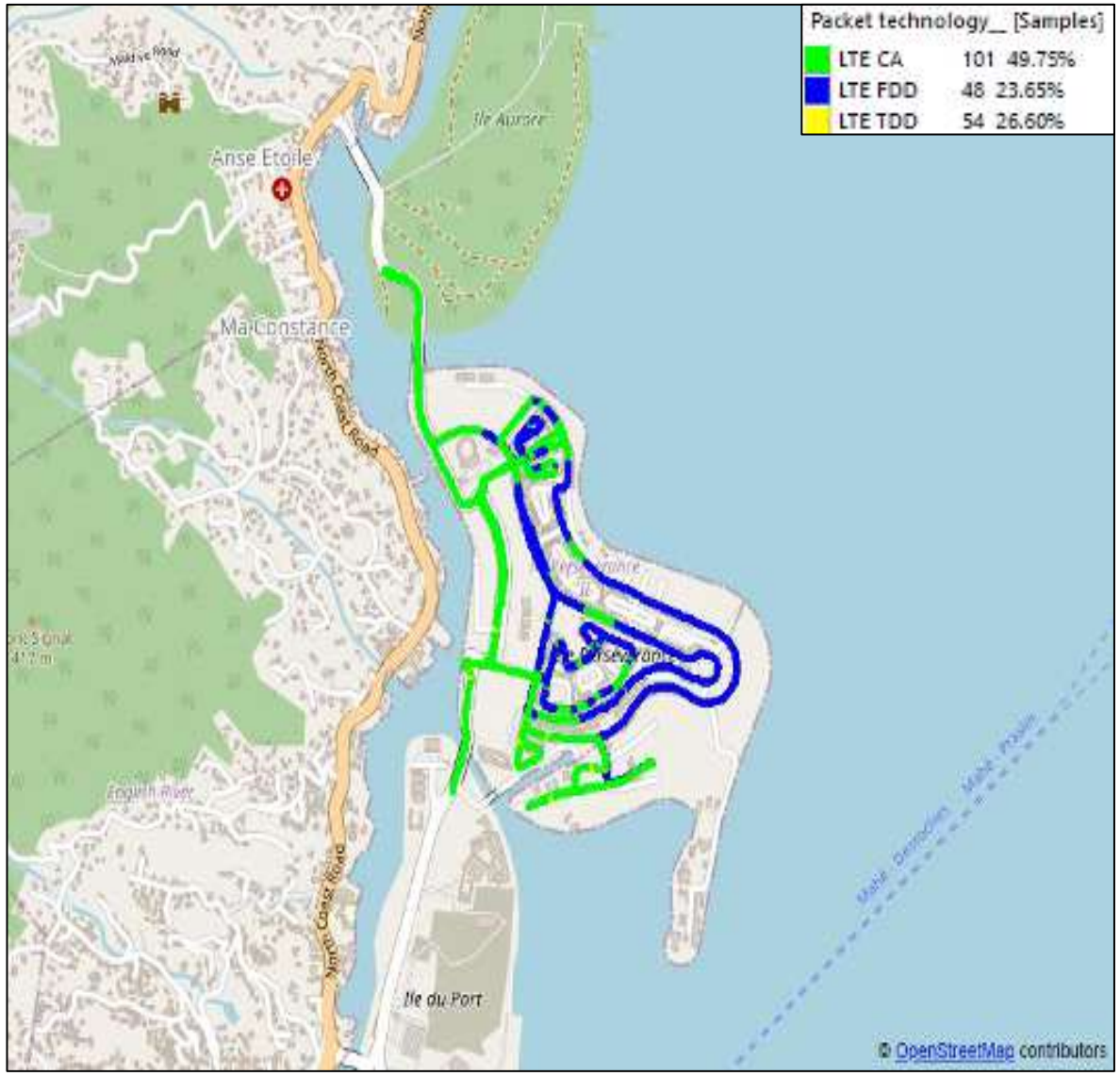


Phase-2 4G PREFERRED DATA TEST - TECHNOLOGY PLOT

Airtel Data 4G

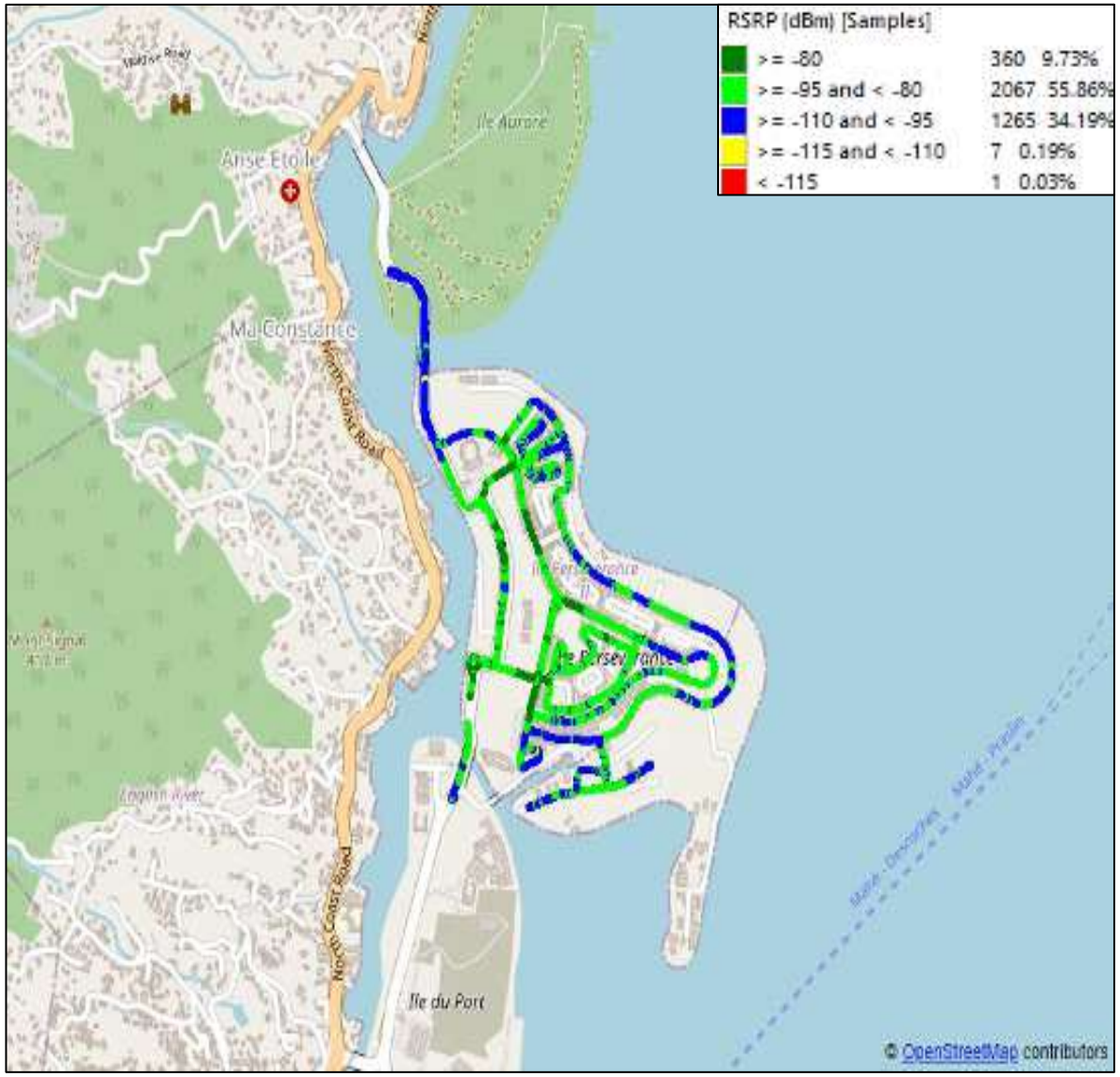


CWS Data 4G

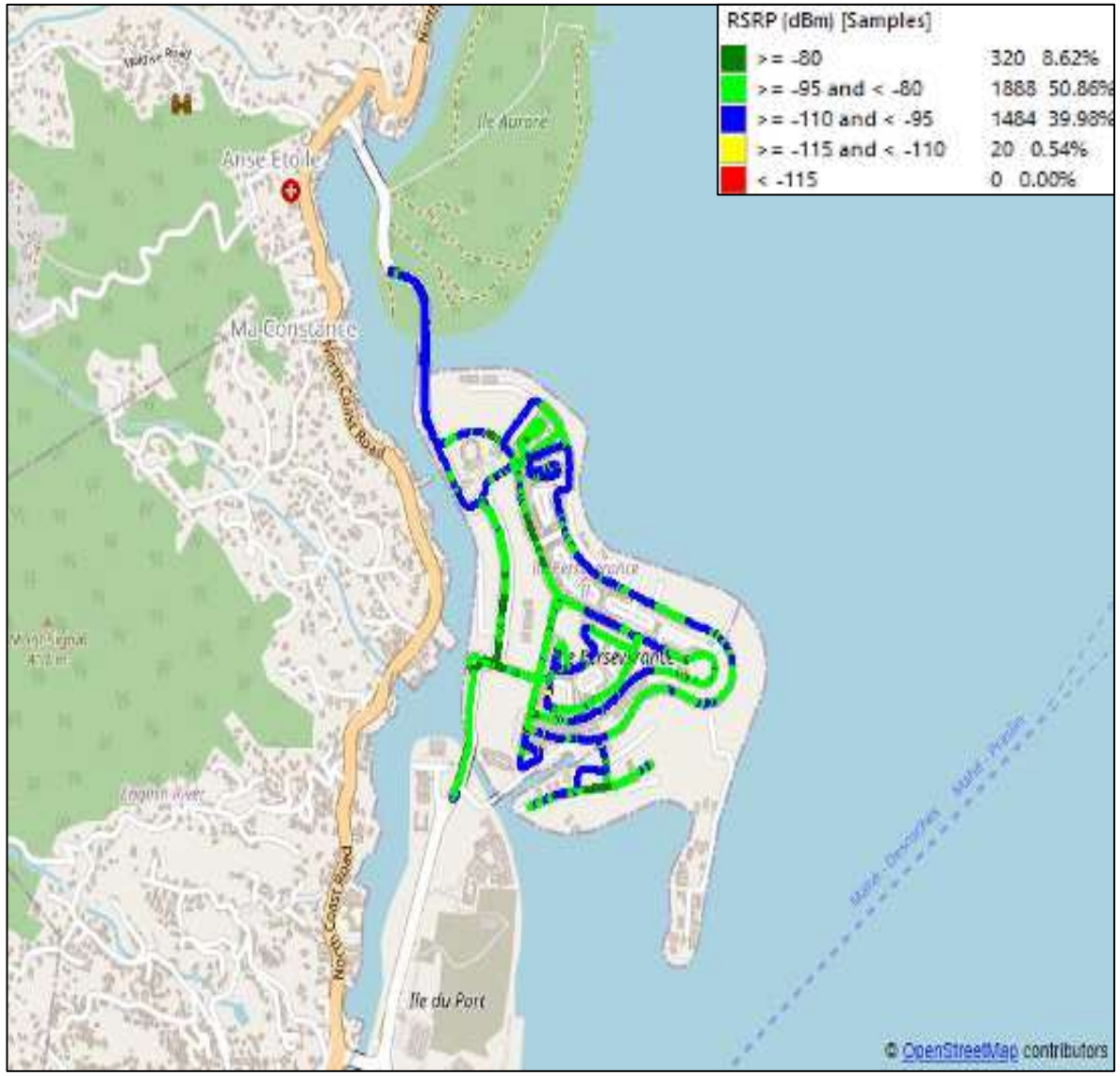


Phase-1 4G PREFERRED DATA TEST - RSRP PLOT

Airtel Data 4G

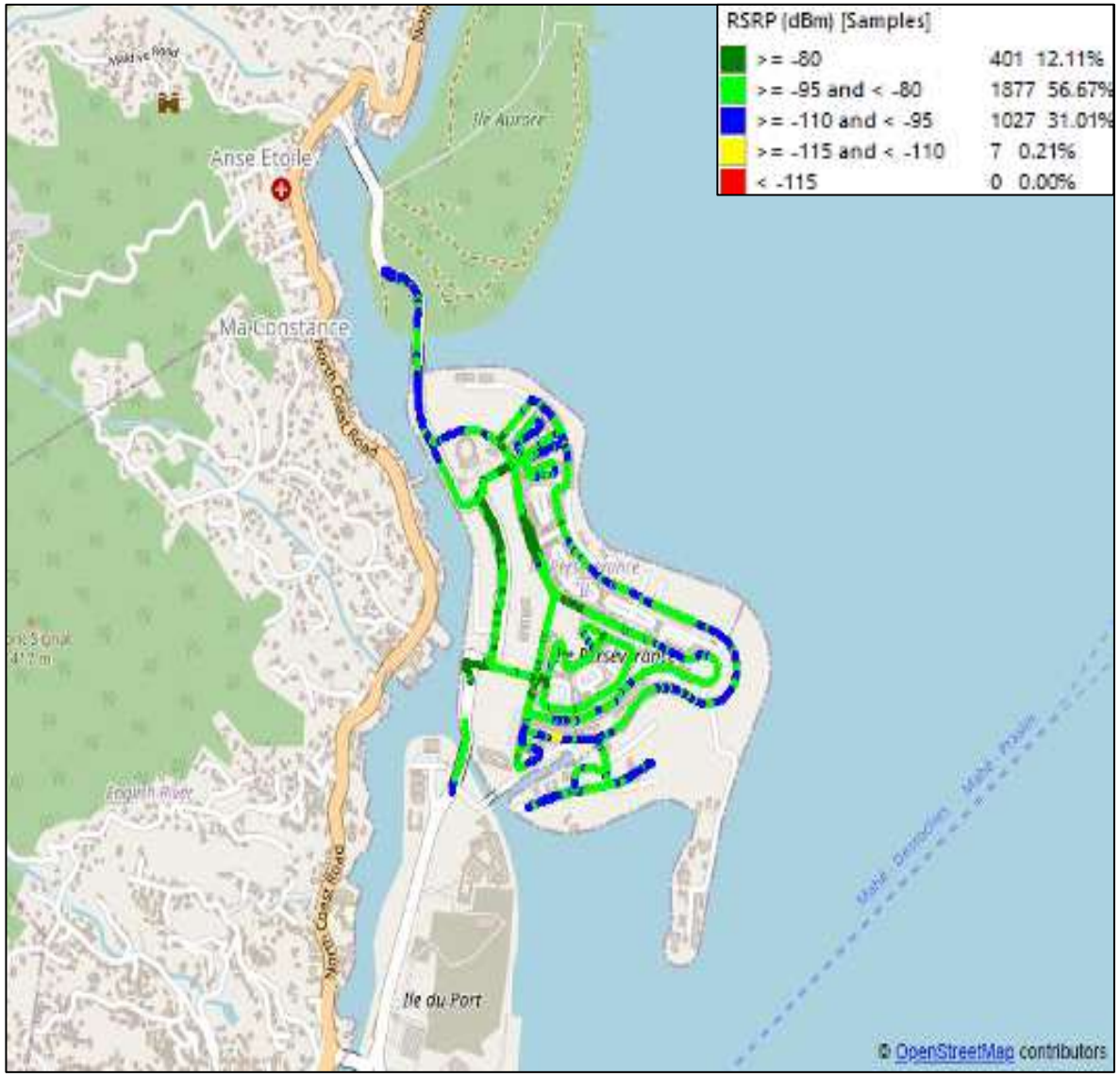


CWS Data 4G

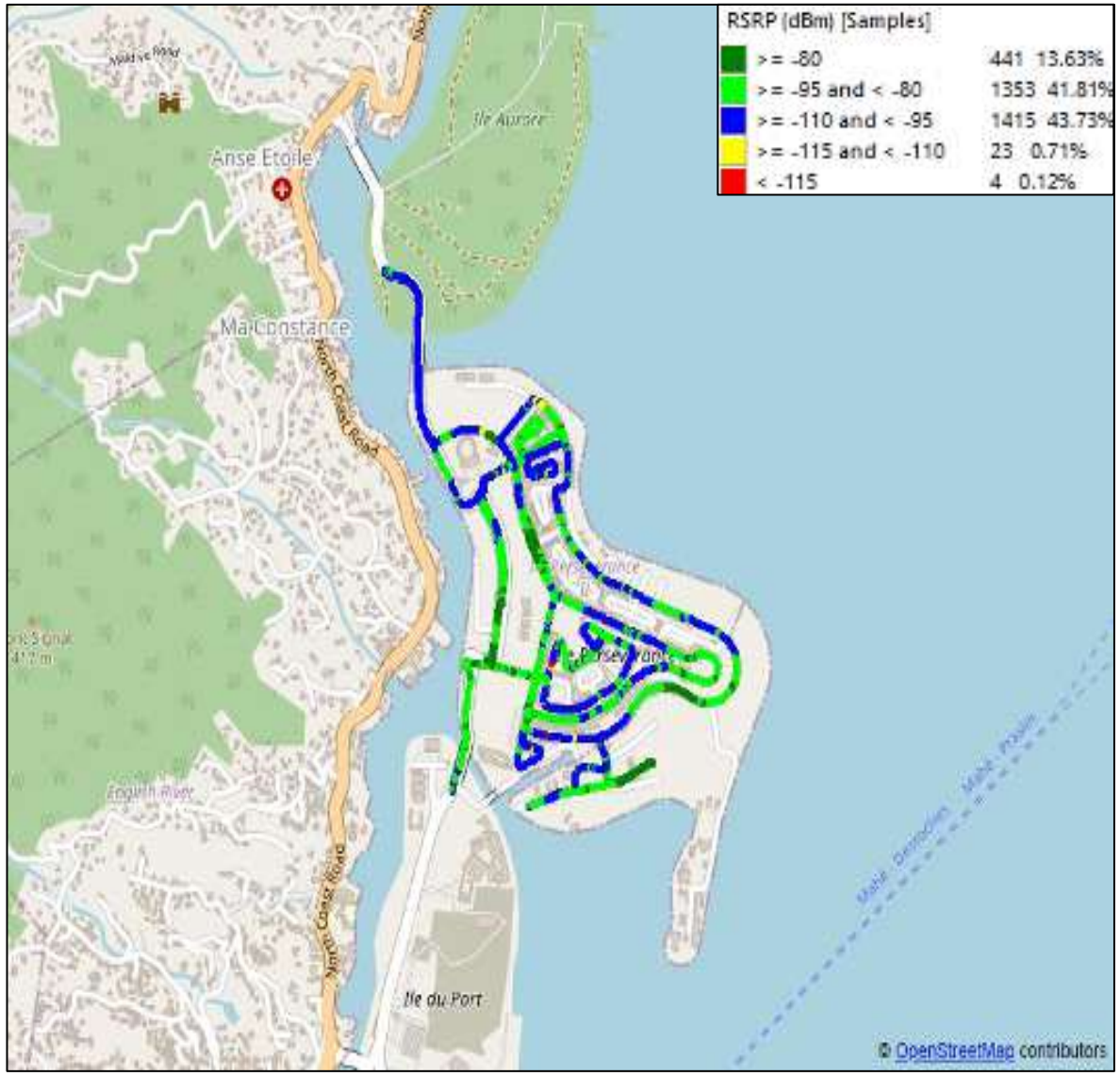


Phase-2 4G PREFERRED DATA TEST - RSRP PLOT

Airtel Data 4G

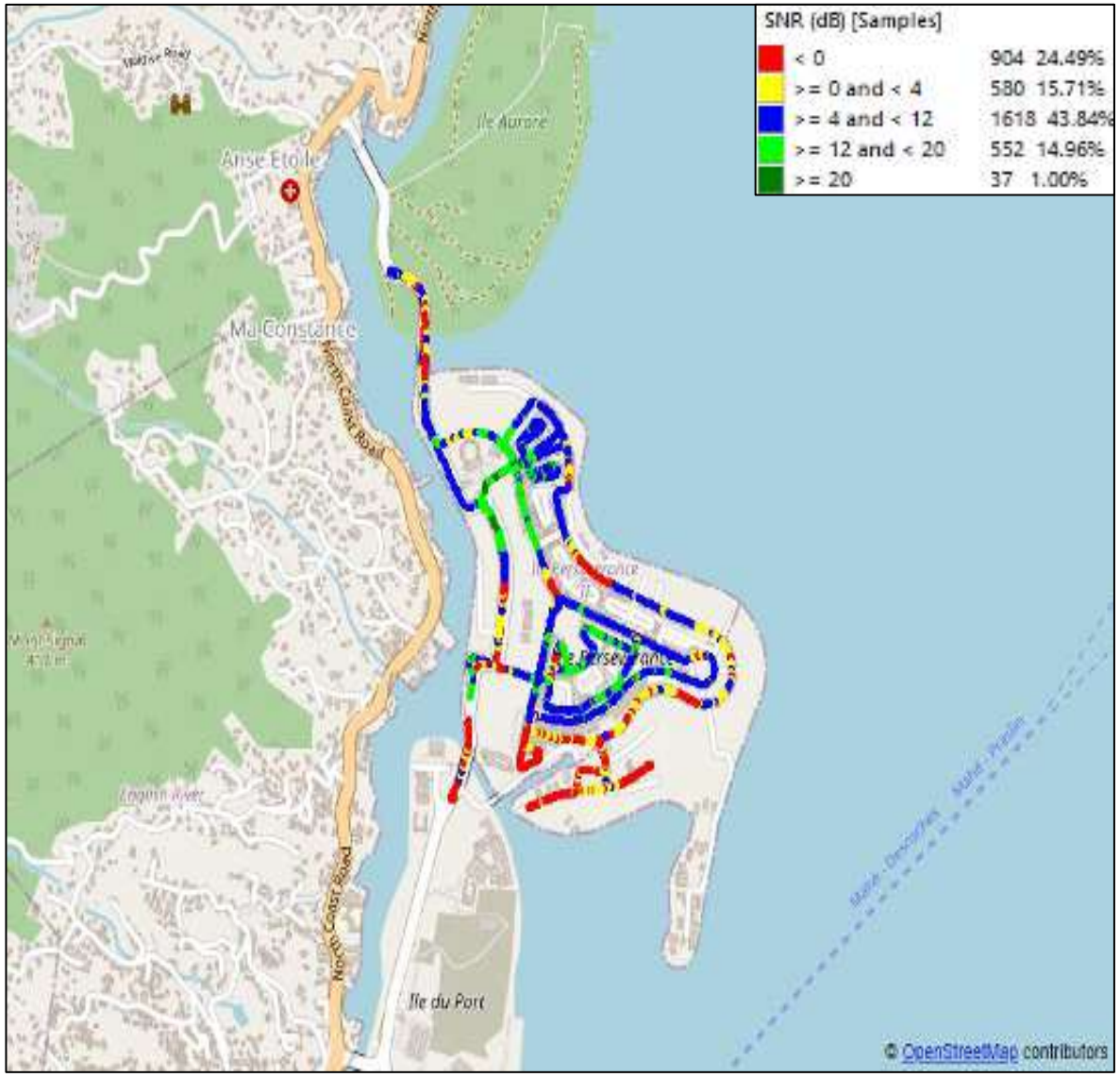


CWS Data 4G

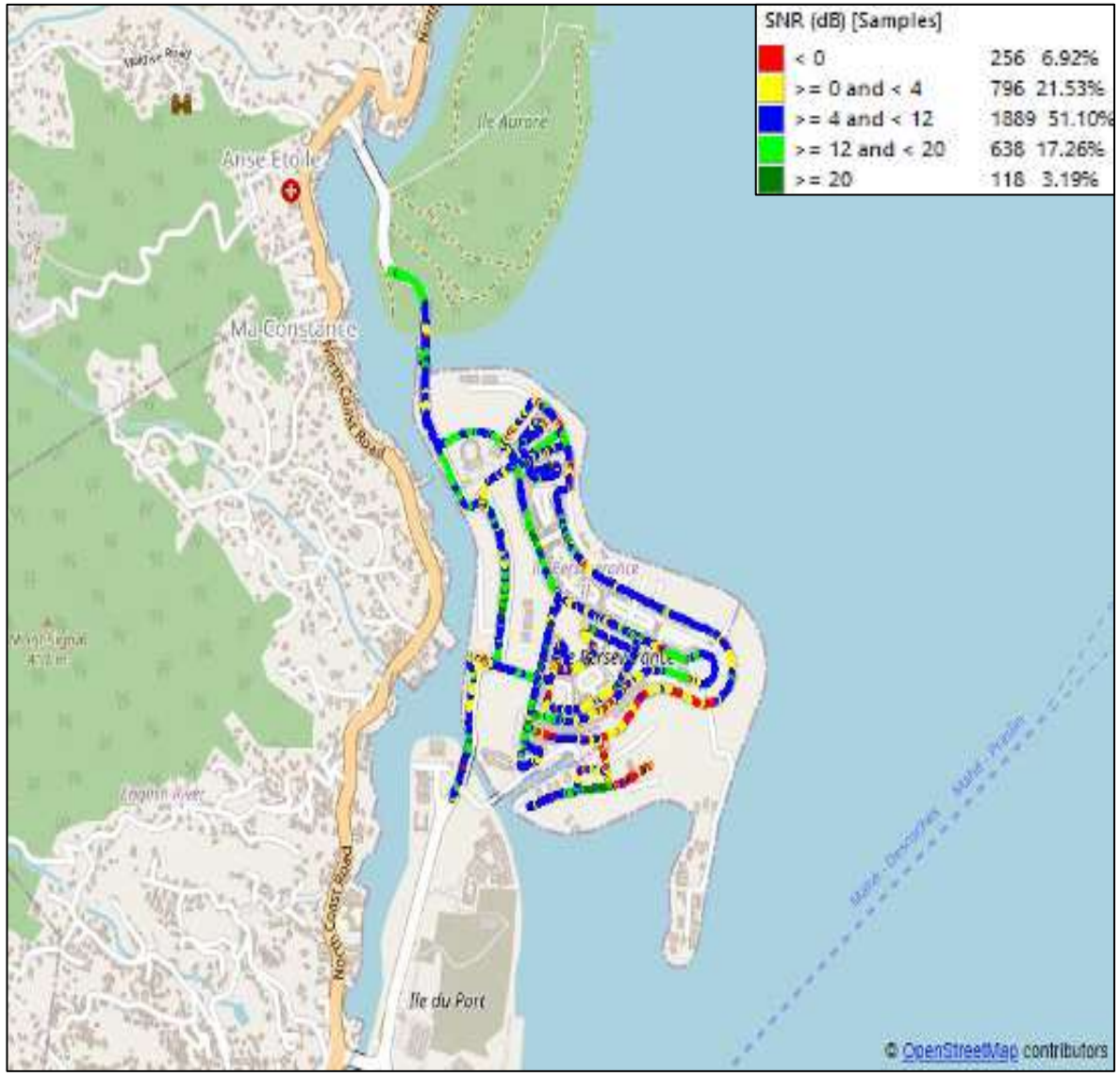


Phase-1 4G PREFERRED DATA TEST - SINR PLOT

Airtel Data 4G

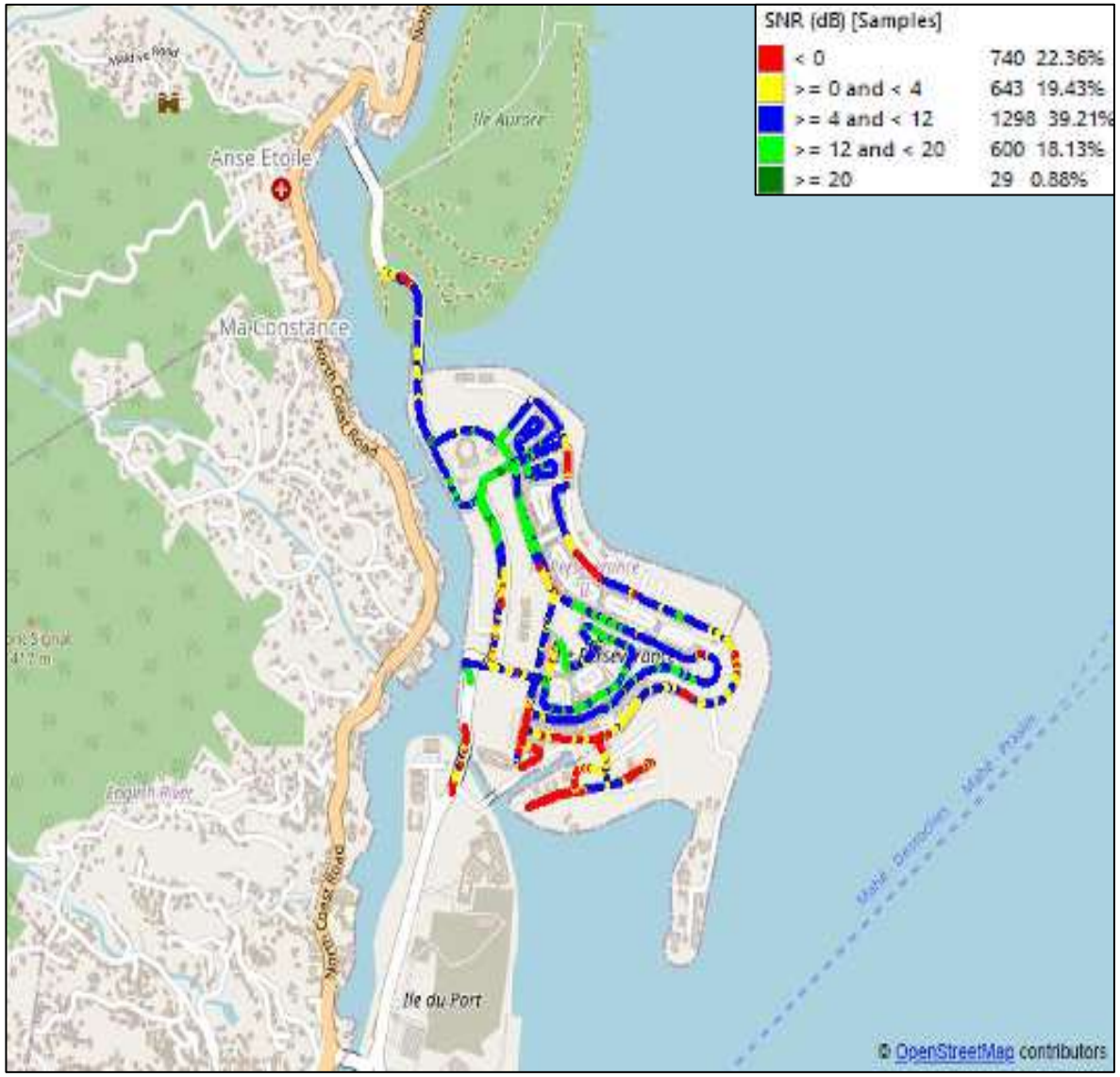


CWS Data 4G

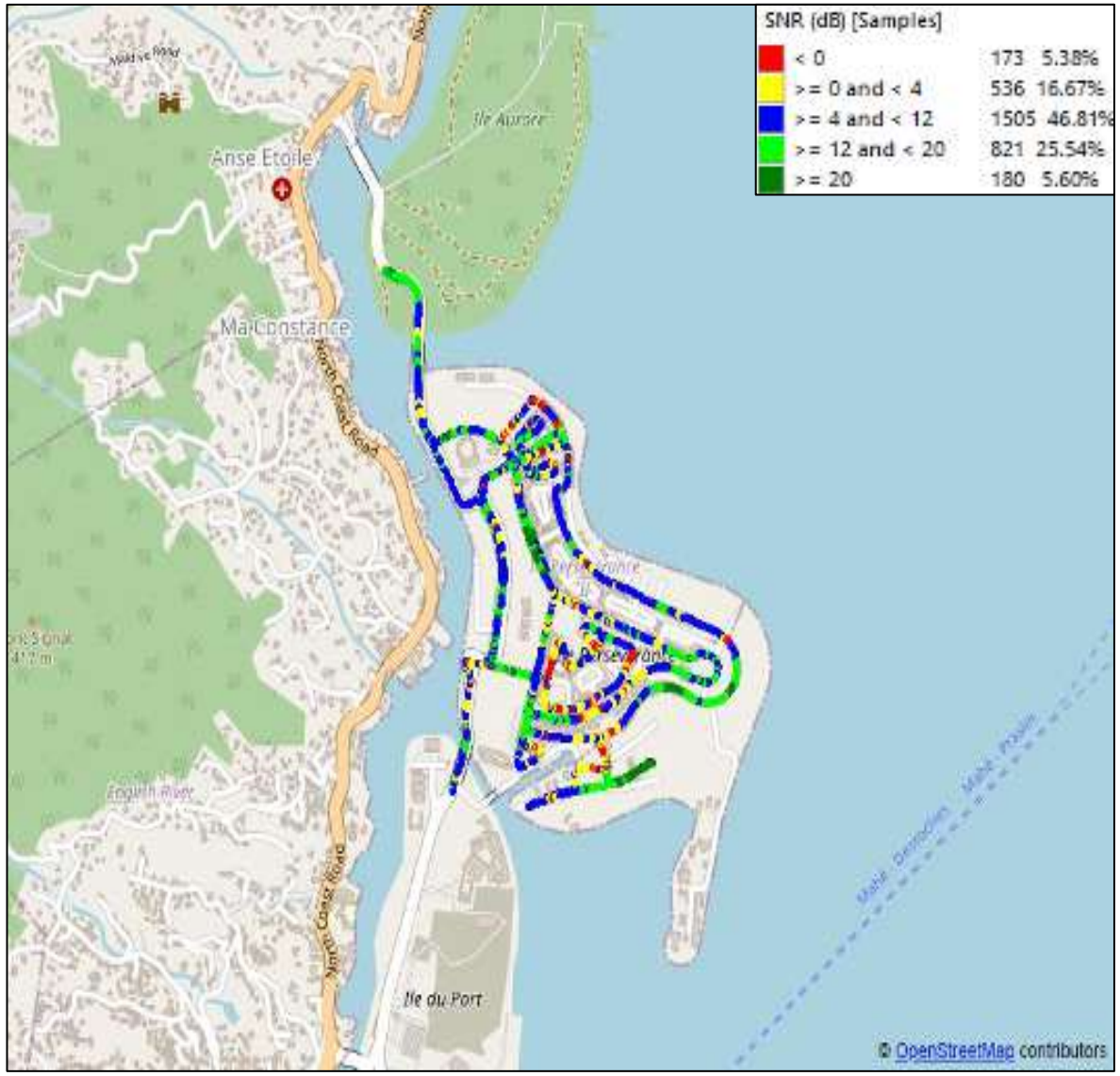


Phase-2 4G PREFERRED DATA TEST - SINR PLOT

Airtel Data 4G



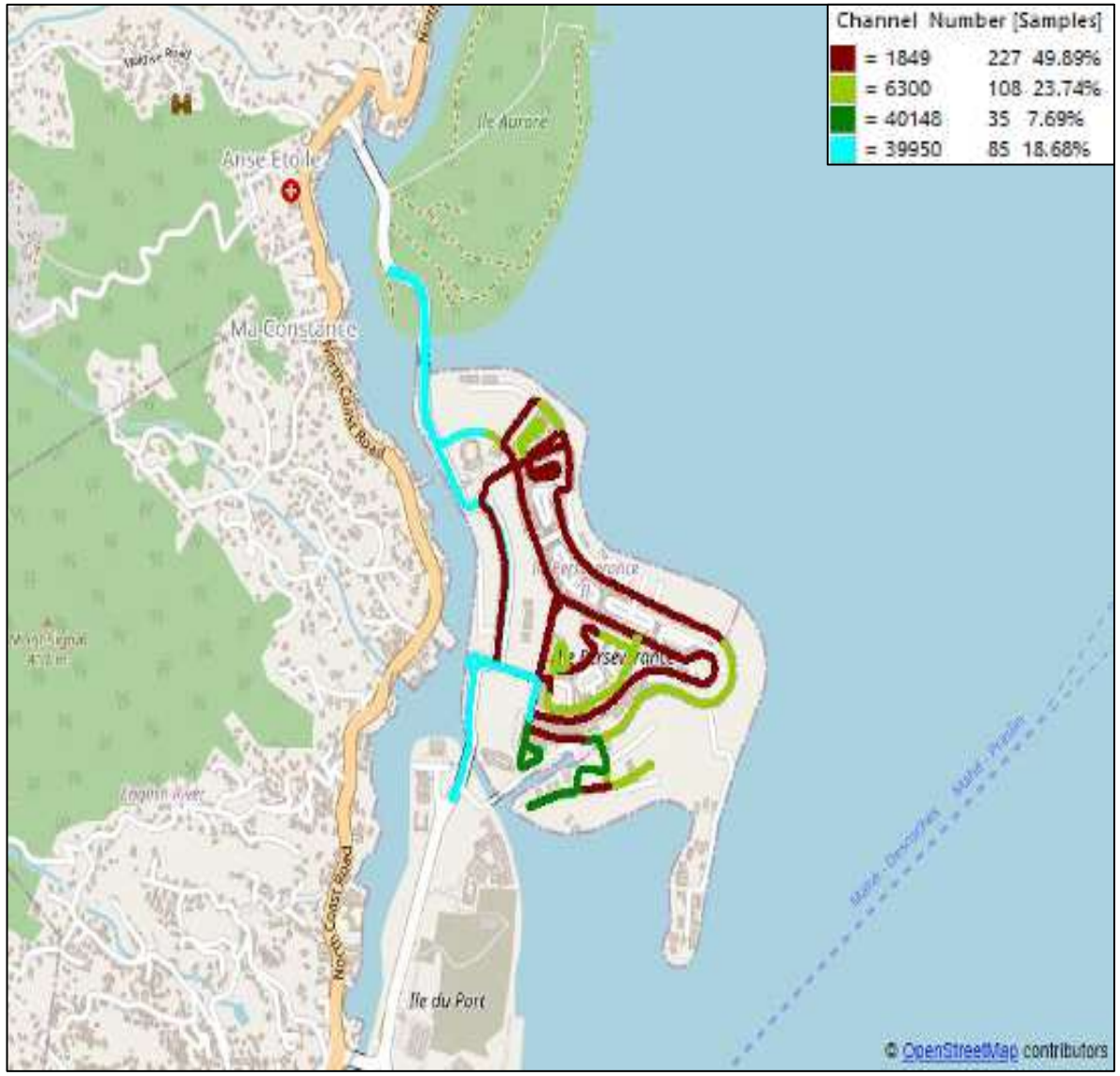
CWS Data 4G



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

Airtel Data 4G

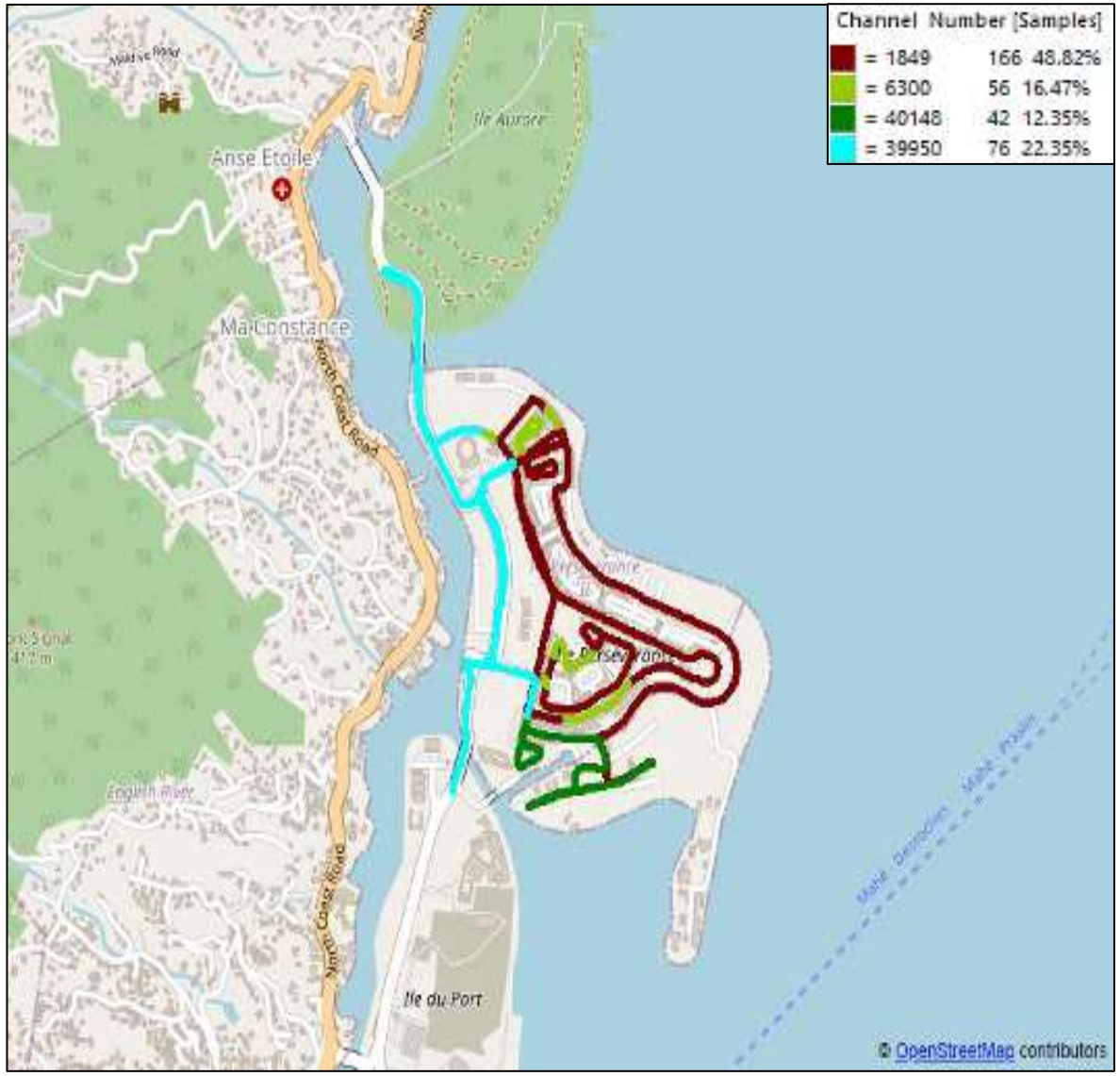
CWS Data 4G



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

Airtel Data 4G

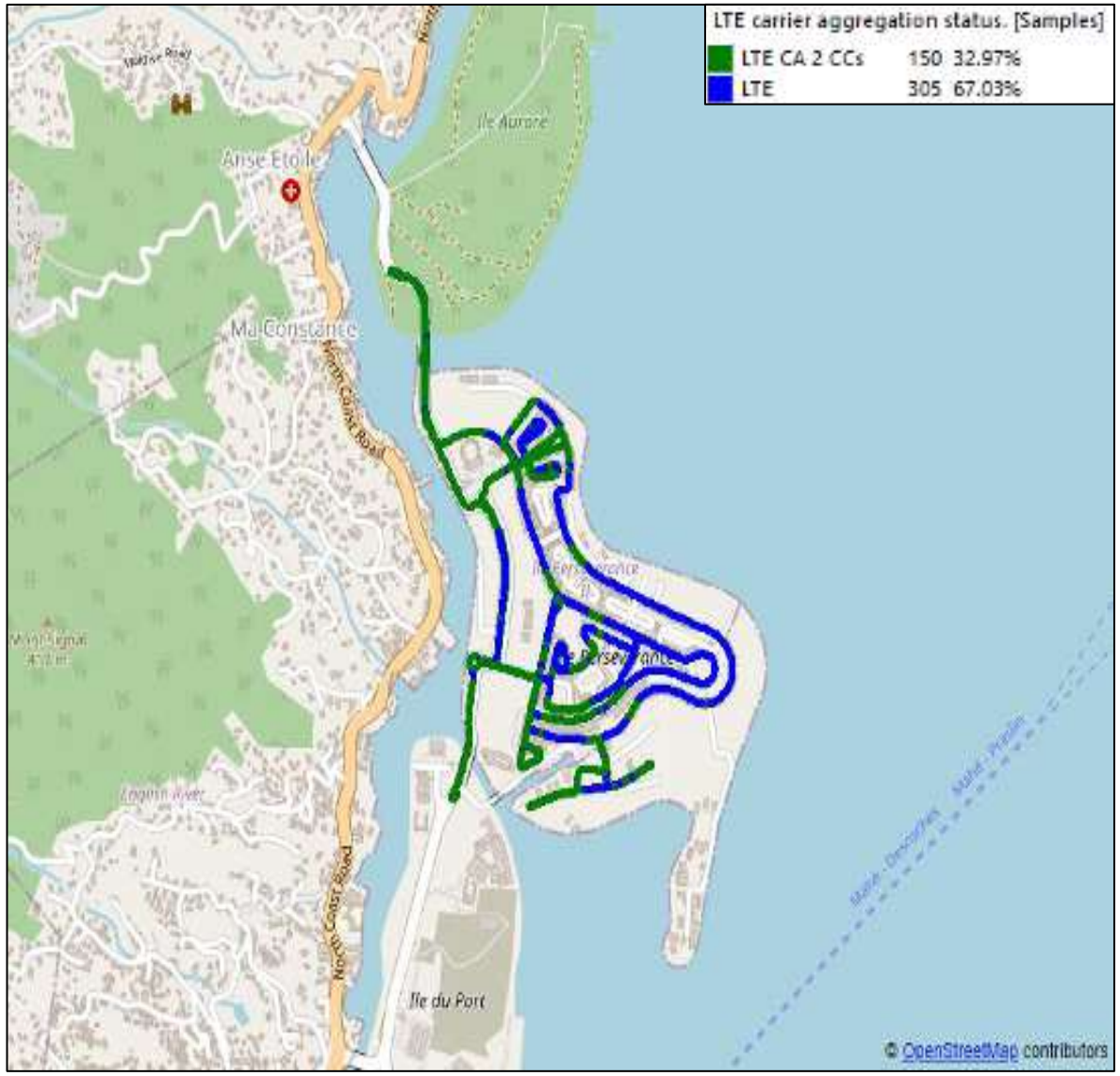
CWS Data 4G



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

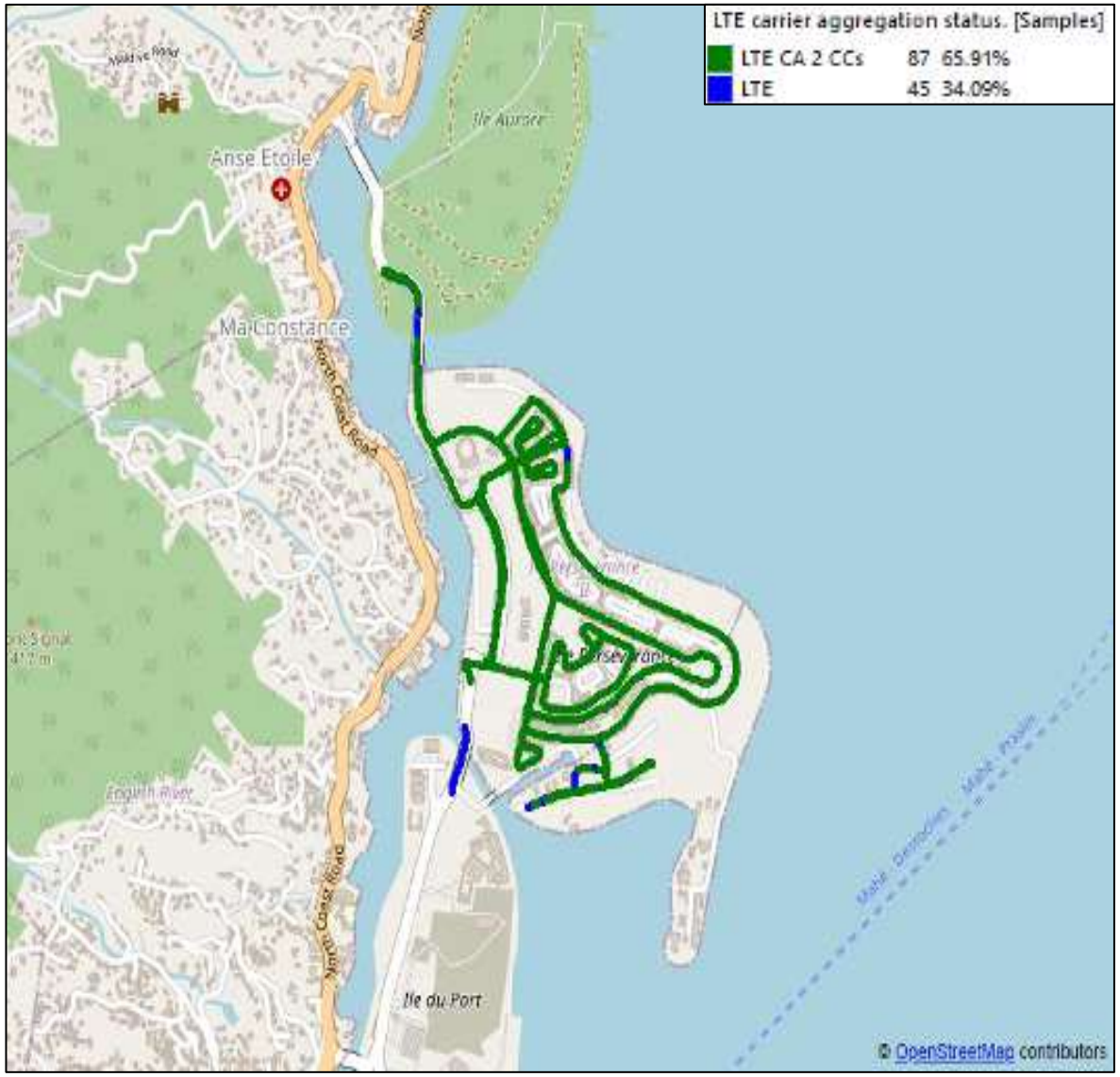
Airtel Data 4G

CWS Data 4G

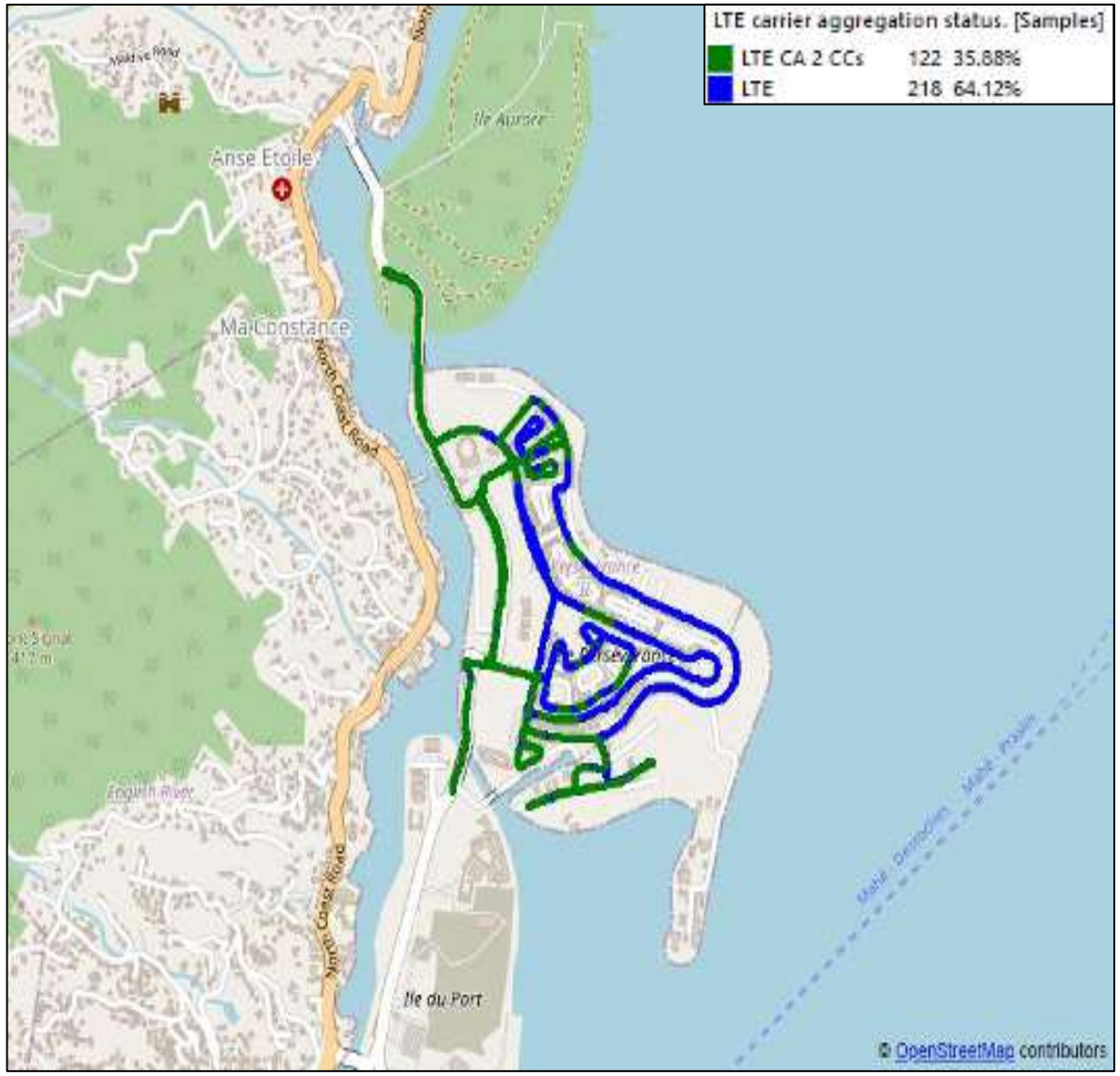


Phase-2 4G PREFERRED DATA TEST - CARRIER AGGREGATION PLOT

Airtel Data 4G



CWS Data 4G



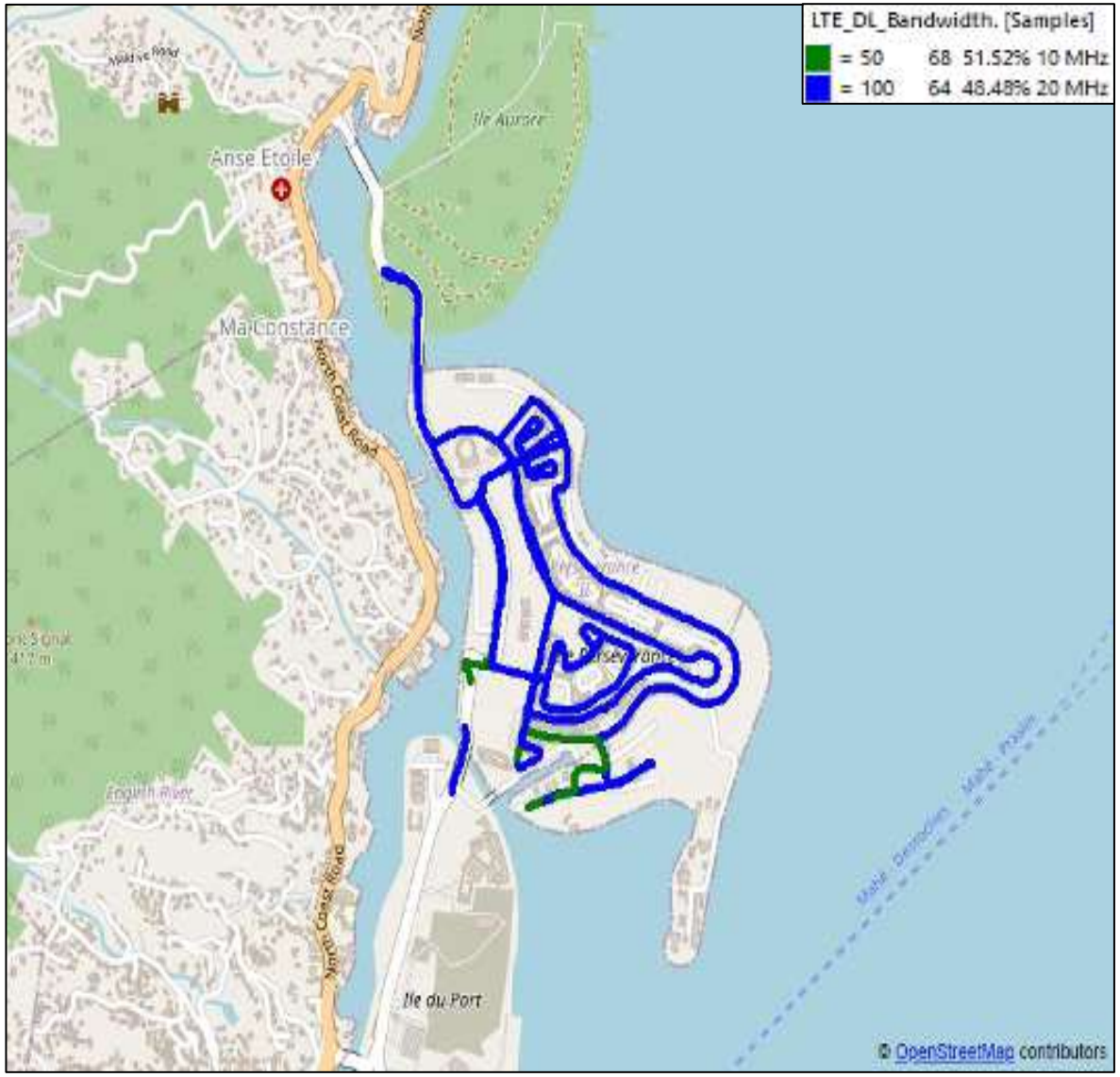
Phase-1 4G PREFERRED DATA TEST – BANDWIDTH PLOT

Airtel Data 4G

CWS Data 4G

Phase-2 4G PREFERRED DATA TEST – BANDWIDTH PLOT

Airtel Data 4G



CWS Data 4G

Negative Event Analysis

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

Call Attempt Failure cause from Airtel	Count
Total Call Attempt Failure	**2**
Poor Coverage	2

Call Attempt Failure cause from CWS	Count
Total Call Attempt Failure	**0**

Call Drop cause from Airtel	Count
Total Call Drop	

Call Drop cause from CWS	Count
Total Call Drop	

Phase-1 Call Attempt Failure Analysis 1 From MS7 CWC MO

	Time	System	Serving band	Call
1.	9:20:29.206	UMTS FDD	900	Drop
2.	9:21:19.778	GSM	900	Norm

	1. best active RSCP	Time	Ch	SC	1. best a
2102.		9:20:24.065	3050	79	-8
2103.	-78.8	9:20:24.561	3050	79	
2104.		9:20:24.561	3050	79	-10
2105.	-81.6	9:20:25.320	3050	71	
2106.		9:20:25.320	3050	71	-13.3
2107.	-79.6	9:20:25.755	3050	71	
2108.		9:20:25.755	3050	71	-11.8
2109.	-80.4	9:20:26.065	3050	79	
2110.		9:20:26.065	3050	79	-9
2111.	-80.7	9:20:26.565	3050	71	
2112.		9:20:26.565	3050	71	-11.2
2113.	-83.1	9:20:27.388	3050	79	
2114.		9:20:27.388	3050	79	-14.7
2115.	-82.8	9:20:27.955	3050	79	
2116.		9:20:27.955	3050	79	-14.6
2117.	-78	9:20:28.329	3050	71	
2118.		9:20:28.329	3050	71	-8.1
2119.	-84.8	9:20:28.849	3050	343	
2120.		9:20:28.849	3050	343	-16
2121.	-82.6	9:20:29.548	3050	79	
2122.		9:20:29.548	3050	79	-11.6
2123.	-79	9:21:01.970	3050	79	
2124.		9:21:01.970	3050	79	-11.9
2125.	-79	9:21:02.693	3050	79	
2126.		9:21:02.693	3050	79	-13.4
2127.	-79	9:21:02.986	3050	79	
2128.		9:21:02.986	3050	96	-12
2129.	-79	9:21:03.555	3050	79	
2130.		9:21:03.555	3050	96	-10.5
2131.	-79	9:21:03.969	3050	79	
2132.		9:21:03.969	3050	96	-9.1
2133.	-79	9:21:04.530	3050	79	
2134.		9:21:04.530	3050	96	-11.6
2135.	-78.1	9:21:05.002	3050	96	

	Time	Subchannel	Message name
6676.	9:20:21.964	DCCH	MEASUREMENT_CONTROL
6677.	9:20:22.594	DCCH	RADIO_BEARER_SETUP
6678.	9:20:22.625	DCCH	MEASUREMENT_REPORT
6679.	9:20:22.718	DCCH	MEASUREMENT_REPORT
6680.	9:20:22.958	DCCH	RADIO_BEARER_SETUP_COMPLETE
6681.	9:20:23.139	DCCH	MEASUREMENT_REPORT
6682.	9:20:23.245	DCCH	RADIO_BEARER_RECONFIGURATION
6683.	9:20:23.285	DCCH	DOWNLINK_DIRECT_TRANSFER
6684.	9:20:23.285	DCCH	PROGRESS
6685.	9:20:23.287	DCCH	RADIO_BEARER_RECONFIGURATION_COMPLETE
6686.	9:20:23.829	DCCH	MEASUREMENT_REPORT
6687.	9:20:27.430	DCCH	MEASUREMENT_REPORT
6688.	9:20:27.685	DCCH	ACTIVE_SET_UPDATE
6689.	9:20:27.696	DCCH	ACTIVE_SET_UPDATE_COMPLETE
6690.	9:20:28.005	DCCH	MEASUREMENT_CONTROL
6691.	9:20:28.045	DCCH	MEASUREMENT_CONTROL
6692.	9:20:28.084	DCCH	MEASUREMENT_REPORT
6693.	9:20:28.485	DCCH	ACTIVE_SET_UPDATE
6694.	9:20:28.516	DCCH	ACTIVE_SET_UPDATE_COMPLETE
6695.	9:20:28.805	DCCH	MEASUREMENT_CONTROL
6696.	9:20:28.845	DCCH	MEASUREMENT_CONTROL
6697.	9:20:29.205	DCCH	DOWNLINK_DIRECT_TRANSFER
6698.	9:20:29.205	DCCH	DISCONNECT
6699.	9:20:29.206	DCCH	UPLINK_DIRECT_TRANSFER
6700.	9:20:29.206	DCCH	RELEASE
6701.	9:20:29.405	DCCH	MEASUREMENT_CONTROL
6702.	9:20:29.485	DCCH	DOWNLINK_DIRECT_TRANSFER
6703.	9:20:29.485	DCCH	RELEASE_COMPLETE
6704.	9:20:29.506	DCCH	MEASUREMENT_REPORT
6705.	9:20:29.725	DCCH	RRC_CONNECTION_RELEASE
6706.	9:20:29.725	DCCH	RRC_CONNECTION_RELEASE_COMPLETE
6707.	9:20:29.764	DCCH	RRC_CONNECTION_RELEASE
6708.	9:20:29.766	DCCH	RRC_CONNECTION_RELEASE_COMPLETE
6709.	9:20:29.805	DCCH	RRC_CONNECTION_RELEASE

Analysis:

- This call failure event occurred on short call at 09:20:29:206 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 failure, UE was latched with PSC 343 and RF condition RSCP -84.8 dBm good but Ec/No -16 dB are very poor.
- As per the analysis call failed happened due to poor quality of the network.

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

	Time	System	Serving band	Call
1.	9:20:29.206	UMTS FDD	900	Drop
2.	9:21:19.778	GSM	900	Norr

	Time	RxLev sub	ARFCN	BSIC	LAC	RAC	RXQ sub
10.	9:19:46.782						5
11.	9:19:47.008	-84	94	48	50000	1	
12.	9:19:47.262						0
13.	9:19:47.532	-84	94	48	50000	1	
14.	9:19:47.968	-82	94	48	50000	1	
15.	9:19:48.222						1
16.	9:19:48.529	-86	94	48	50000	1	
17.	9:19:48.702						3
18.	9:19:49.136						3
19.	9:19:49.182						4
20.	9:19:49.288	-87	94	48	50000	1	
21.	9:19:49.731						
22.	9:21:14.682	-72	110	57	60000	1	
23.	9:21:14.682						0
24.	9:21:15.596	-74	110	57	60000	1	
25.	9:21:15.642						0
26.	9:21:16.122	-78	110	57	50000	1	
27.	9:21:16.122						4
28.	9:21:16.602	-79	110	57	50000	1	
29.	9:21:16.602						0
30.	9:21:17.188	-83	110	57	50000	1	
31.	9:21:17.562						0
32.	9:21:17.650	-82	110	57	50000	1	
33.	9:21:18.042						0
34.	9:21:18.476	-81	110	57	50000	1	
35.	9:21:18.725	-80	110	57	50000	1	
36.	9:21:19.482				50000	1	
37.	9:21:19.482						0
38.	9:21:19.916						
39.	9:21:19.948	-82	110	57	50000	1	
40.	9:22:00.042						0
41.	9:22:00.529	-73	117	17	50000	1	
42.	9:22:01.006	-77	117	17	50000	1	
43.	9:22:01.530	-79	117	17	50000	1	
44.	9:22:02.008	-81	117	17	50000	1	
45.	9:22:02.543	-86	117	17	50000	1	

	Event ID	System	Transf. dir.	Time	Subchannel	Message name
6783.	RRCSM	UMTS FDD	Downlink	9:21:02.332	DCCH	MEASUREMENT_CONTROL
6784.	RRCSM	UMTS FDD	Downlink	9:21:02.342	DCCH	MEASUREMENT_CONTROL
6785.	RRCSM	UMTS FDD	Downlink	9:21:02.342	DCCH	MEASUREMENT_CONTROL
6786.	RRCSM	UMTS FDD	Downlink	9:21:02.382	DCCH	DOWNLINK_DIRECT_TRANSFER
6787.	L3SM	UMTS FDD	Downlink	9:21:02.382	DCCH	AUTHENTICATION_REQUEST
6788.	RRCSM	UMTS FDD	Uplink	9:21:02.433	DCCH	MEASUREMENT_REPORT
6789.	RRCSM	UMTS FDD	Uplink	9:21:02.511	DCCH	UPLINK_DIRECT_TRANSFER
6790.	L3SM	UMTS FDD	Uplink	9:21:02.511	DCCH	AUTHENTICATION_RESPONSE
6791.	RRCSM	UMTS FDD	Downlink	9:21:02.602	DCCH	SECURITY_MODE_COMMAND
6792.	RRCSM	UMTS FDD	Uplink	9:21:02.603	DCCH	SECURITY_MODE_COMPLETE
6793.	RRCSM	UMTS FDD	Uplink	9:21:02.606	DCCH	MEASUREMENT_REPORT
6794.	RRCSM	UMTS FDD	Uplink	9:21:02.683	DCCH	MEASUREMENT_REPORT
6795.	RRCSM	UMTS FDD	Uplink	9:21:02.693	DCCH	UPLINK_DIRECT_TRANSFER
6796.	L3SM	UMTS FDD	Uplink	9:21:02.693	DCCH	SETUP
6797.	RRCSM	UMTS FDD	Downlink	9:21:02.702	DCCH	DOWNLINK_DIRECT_TRANSFER
6798.	L3SM	UMTS FDD	Downlink	9:21:02.702	DCCH	IDENTITY_REQUEST
6799.	RRCSM	UMTS FDD	Uplink	9:21:02.703	DCCH	UPLINK_DIRECT_TRANSFER
6800.	L3SM	UMTS FDD	Uplink	9:21:02.703	DCCH	IDENTITY_RESPONSE
6801.	RRCSM	UMTS FDD	Downlink	9:21:02.722	DCCH	ACTIVE_SET_UPDATE
6802.	RRCSM	UMTS FDD	Uplink	9:21:02.734	DCCH	ACTIVE_SET_UPDATE_COMPLETE
6803.	RRCSM	UMTS FDD	Downlink	9:21:02.862	DCCH	MEASUREMENT_CONTROL
6804.	RRCSM	UMTS FDD	Downlink	9:21:02.872	DCCH	MEASUREMENT_CONTROL
6805.	RRCSM	UMTS FDD	Downlink	9:21:02.882	DCCH	DOWNLINK_DIRECT_TRANSFER
6806.	L3SM	UMTS FDD	Downlink	9:21:02.882	DCCH	CALL_PROCEEDING
6807.	RRCSM	UMTS FDD	Uplink	9:21:03.417	DCCH	MEASUREMENT_REPORT
6808.	RRCSM	UMTS FDD	Uplink	9:21:03.533	DCCH	MEASUREMENT_REPORT
6809.	RRCSM	UMTS FDD	Uplink	9:21:03.636	DCCH	MEASUREMENT_REPORT
6810.	RRCSM	UMTS FDD	Uplink	9:21:07.276	DCCH	MEASUREMENT_REPORT
6811.	RRCSM	UMTS FDD	Downlink	9:21:07.392	DCCH	ACTIVE_SET_UPDATE
6812.	RRCSM	UMTS FDD	Uplink	9:21:07.404	DCCH	ACTIVE_SET_UPDATE_COMPLETE
6813.	RRCSM	UMTS FDD	Downlink	9:21:07.522	DCCH	MEASUREMENT_CONTROL
6814.	RRCSM	UMTS FDD	Uplink	9:21:07.586	DCCH	MEASUREMENT_REPORT
6815.	RRCSM	UMTS FDD	Uplink	9:21:07.807	DCCH	MEASUREMENT_REPORT
6816.	RRCSM	UMTS FDD	Uplink	9:21:08.258	DCCH	MEASUREMENT_REPORT
6817.	RRCSM	UMTS FDD	Downlink	9:21:08.372	DCCH	ACTIVE_SET_UPDATE
6818.	RRCSM	UMTS FDD	Uplink	9:21:08.394	DCCH	ACTIVE_SET_UPDATE_COMPLETE

Analysis:

- This call failure event occurred on short call at 09:21:19:778 time when UE was latched with 2G 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 session UE was latched with ARFCN 110 and RF condition Rx lev -80 dBm is good and Rx qual 0 dB was very good.
- As per the Analysis the call setup failure event occurred due to poor quality in 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	0

Call Drop cause from Airtel	Count
Total Call Drop	0

Call Drop cause from CWS	Count
Total Call Drop	0

THANKS