



NATIONAL COMMUNICATIONS AUTHORITY

3G Coverage Assessment of Cellular Mobile Services- Greater Accra Region

[August 2016]

**3G COVERAGE ASSESSMENT OF CELLULAR MOBILE SERVICES IN GREATER ACCRA REGION,
AUGUST 2016**

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Background

In pursuance of obligations of the 3G Cellular Mobile Licence of Telecommunication Operators, the consumer perspective of the 3G Coverage status are tested to ensure the compliance of Operators to the obligations on 3G Coverage to the user.

The report is based on findings on 3G verification campaign in the Greater Accra Region from 2nd to 19th August 2016 for all Operators except Expresso due to technical challenges.

What we measure

As per the 3G Cellular Mobile licence obligations, 3G-locked mode coverage samples are collected to obtain on the average a signal strength measurement which is representative of the coverage situation in each of the District Capital that was driven.

The 3G Signal Strength and their respective threshold for compliance considering the user's perspective are categorised as follows;

Rating	3G Signal Strength Range (dBm)
No 3G Coverage	$-105 > \text{RSCP}$
Poor	$-105 \leq \text{RSCP} < -95$
Fair	$-95 \leq \text{RSCP} < -85$
Good	$-85 \leq \text{RSCP} < -20$

Findings

The results for the district capitals within Greater Accra Region tested during the period are as below:

Table 1: Coverage Signal strength, August 2016

DISTRICT CAPITAL	MTN	VODAFONE	TIGO	AIRTEL	GLO
ABOKOBI	Good	Fair	Fair	Fair	Fair
ACCRA	Good	Good	Good	Good	Good
ADA FOAH	Fair	Fair	Fair	No 3G Coverage	Fair

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DISTRICT CAPITAL	MTN	VODAFONE	TIGO	AIRTEL	GLO
ADENTA	Good	Good	Fair	Good	Good
AMASAMAN	Fair	Good	Fair	Fair	Fair
ASHAIMAN	Good	Good	Good	Good	Good
DODOWA	Fair	Fair	Fair	Fair	No 3G Coverage
GBAWE	Good	Good	Good	Good	Good
KPONE	Good	Good	Good	Good	Good
LA	Good	Good	Good	Good	Good
MADINA	Good	Good	Good	Good	Good
PRAMPARAM	Fair	Good	Good	Fair	Poor
SEGE	Fair	No 3G Coverage	No 3G Coverage	Poor	Poor
SOWUTUOM	Good	Good	Good	Good	Good
TEMA	Good	Good	Good	Good	Good
TESHIE NUNGUA	Good	Good	Good	Good	Good

REMARKS:

- ❖ MTN had good 3G Coverage Abokobi, Accra, Adenta, Ashaiman, Gbawe, Kpone, La, Madina, Sowutuom, Tema and Teshie Nungua.
- ❖ MTN had fair 3G coverage in Ada Foah, Amasaman, Dodowa, Prampram and Sege.
- ❖ Vodafone had good 3G coverage in Accra, Adenta, Amasaman, Ashaiman, Gbawe, Kpone, La, Madina, Prampram, Sowutuom, Tema and Teshie-Nungua.
- ❖ Vodafone had fair 3G coverage in Abokobi, Ada Foah and Dodowa.
- ❖ Vodafone had no 3G coverage in Sege.
- ❖ Tigo had good 3G coverage in Accra, Ashaiman, Gbawe, Kpone, La, Madina, Prampram, Sowutuom, Tema and Teshie-Nungua.
- ❖ Tigo had fair 3G coverage in Abokobi, Ada Foah, Amasaman, Adenta and Dodowa.
- ❖ Tigo had no 3G coverage in Sege.

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- ❖ Airtel had good 3G coverage in Accra, Adenta, Ashaiman, Gbawe, Kpone, La, Madina, Sowutuom, Tema and Teshie-Nungua.
- ❖ Airtel had fair 3G coverage in Abokobi, Amasaman, Dodowa and Prampram.
- ❖ Airtel had poor 3G coverage in Sege.
- ❖ Airtel had no 3G coverage in Ada Foah.
- ❖ Glo had good 3G coverage in Accra, Adenta, Ashaiman, Gbawe, Kpone, La, Madina, Sowutuom, Tema and Teshie-Nungua.
- ❖ Glo had fair 3G coverage in Abokobi, Ada Foah and Amasaman.
- ❖ Glo had poor 3G coverage in Prampram and Sege.
- ❖ Glo had no 3G Coverage in Dodowa.

Remedies

- ❖ Airtel has been sanctioned for failing to maintain 3G coverage at Ada Foah.
- ❖ All operators were yet again given a deadline of 31st December, 2016 to provide 3G coverage in the new District Capitals that were drive-tested.
- ❖ All operators were directed to improve their existing 3G coverage by 30th November, 2016 even in localities where coverage was rated “Good”.

APPENDICES

Coverage Signal Strength

The Maps below show the coverage level in District Capitals of the Greater Accra Region where monitoring was performed. The coverage map is based on the 3G network signal strength when tested in an idle mode. In each plot is a legend to indicate the signal strength and quality range attained by Operators during measurement.

Coverage levels in green falls in the range of -85dBm and above, and are considered good. Those between -85 and -95dBm are considered average or fair and are indicated in yellow. The red samples represent worse or poor coverage in the range of -95 to -105dBm. The black samples represent areas with no 3G coverage.

Coverage Legend

<i>Colour</i>	<i>Area Coverage Rating</i>
	Good Coverage Areas
	Fair Coverage Areas
	Poor Coverage Areas
	Non-Existent Coverage Areas

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APPENDIX I

COVERAGE AT ABOKOBI

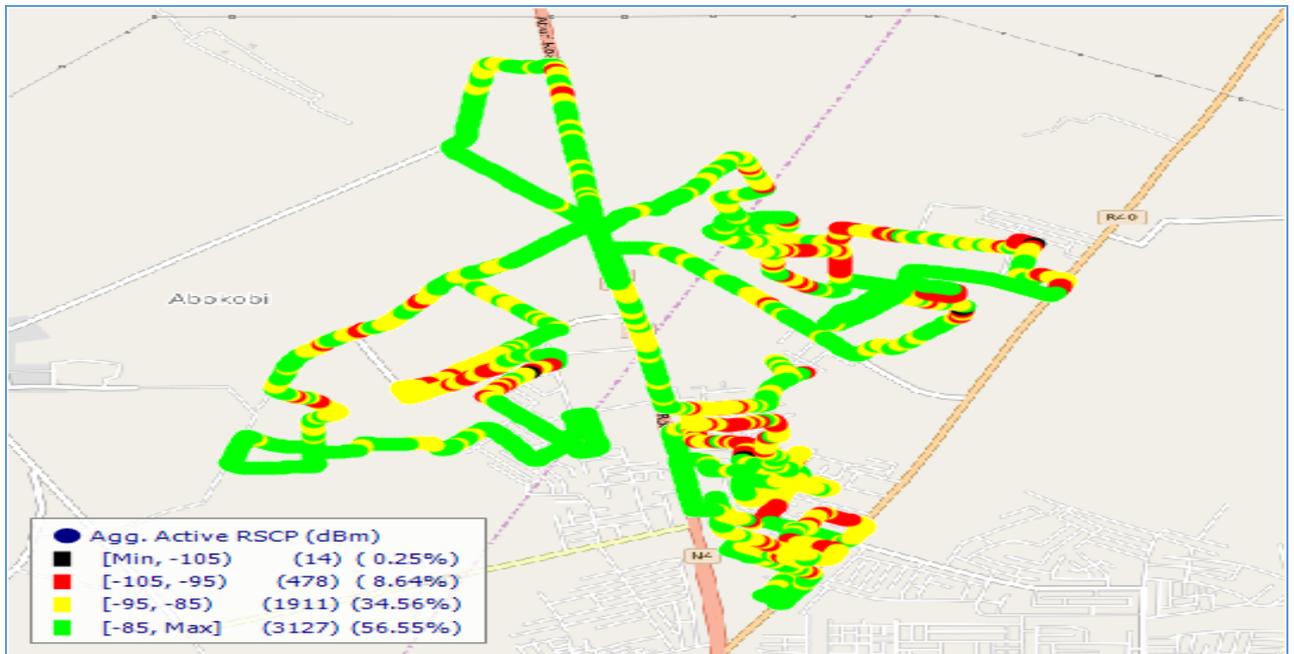


Fig. 1 – MTN 3G Coverage Map, Abokobi - August 2016

Remarks: Good 3G coverage at Abokobi

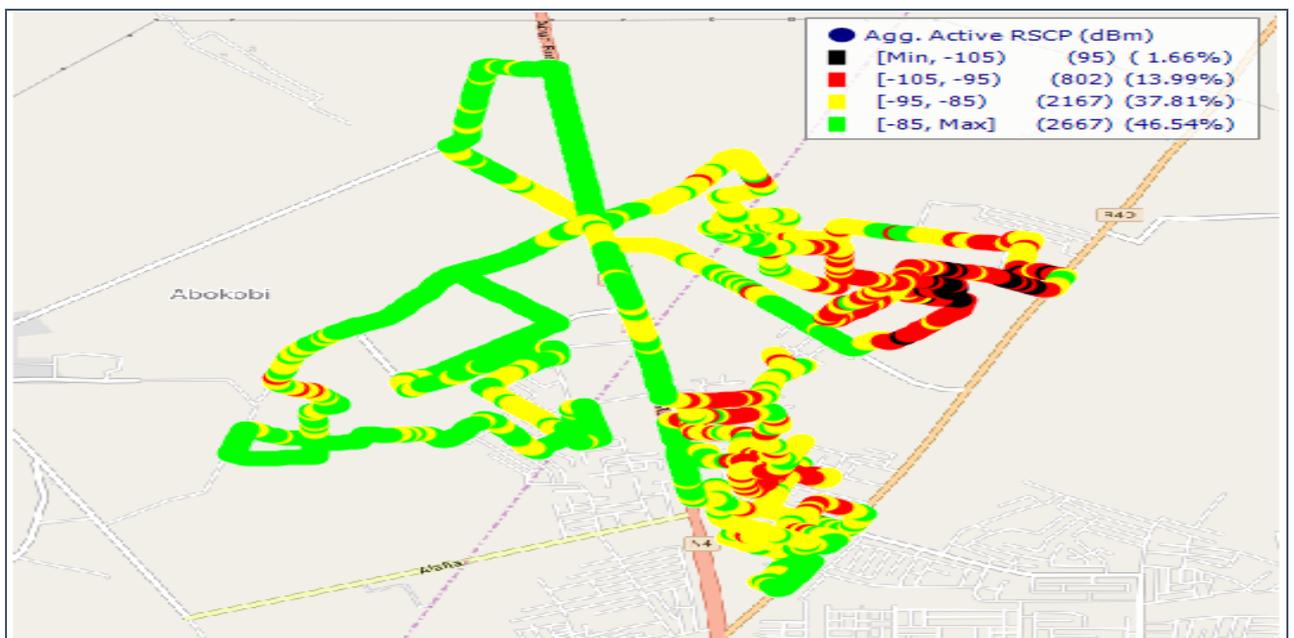


Fig. 2 – Vodafone 3G Coverage Map, Abokobi - August 2016

Remarks: Fair 3G coverage at Abokobi which needs improvement

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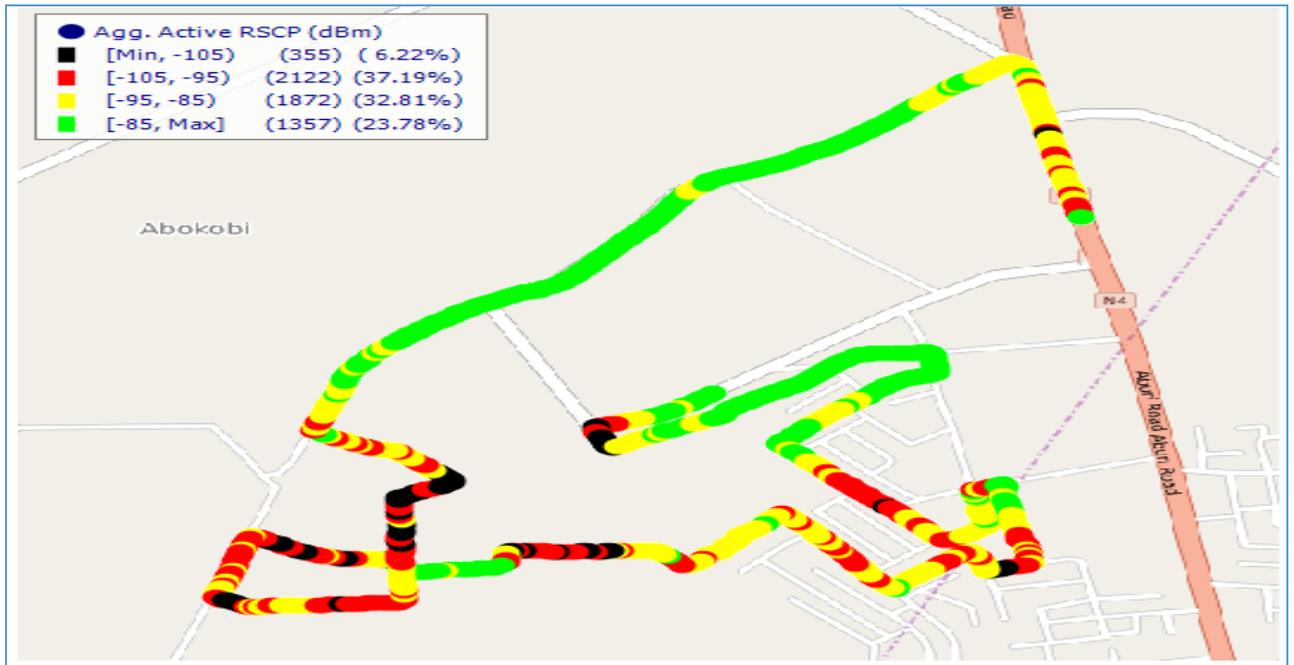


Fig. 3 – Tigo 3G Coverage Map, Abokobi - August 2016

Remarks: Fair 3G coverage at Abokobi

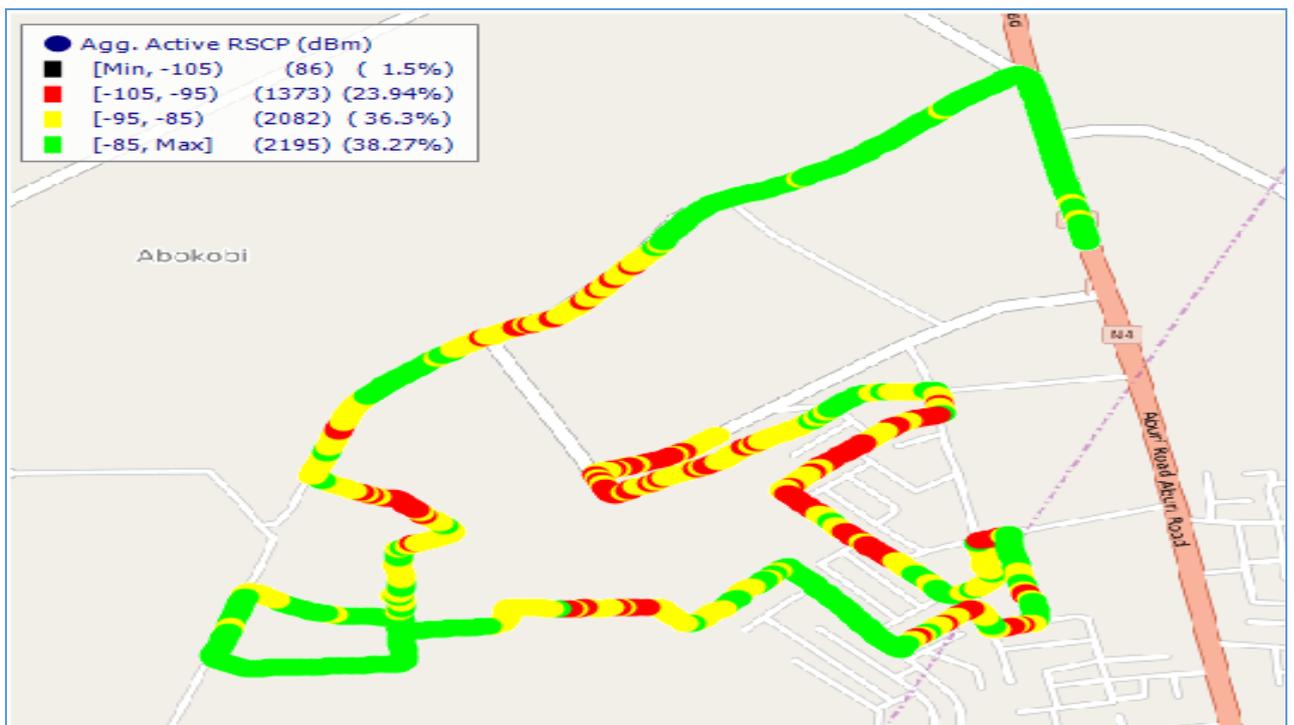


Fig. 4 – Airtel 3G Coverage Map, Abokobi - August 2016

Remarks: Fair 3G coverage at Abokobi however improvement is needed.

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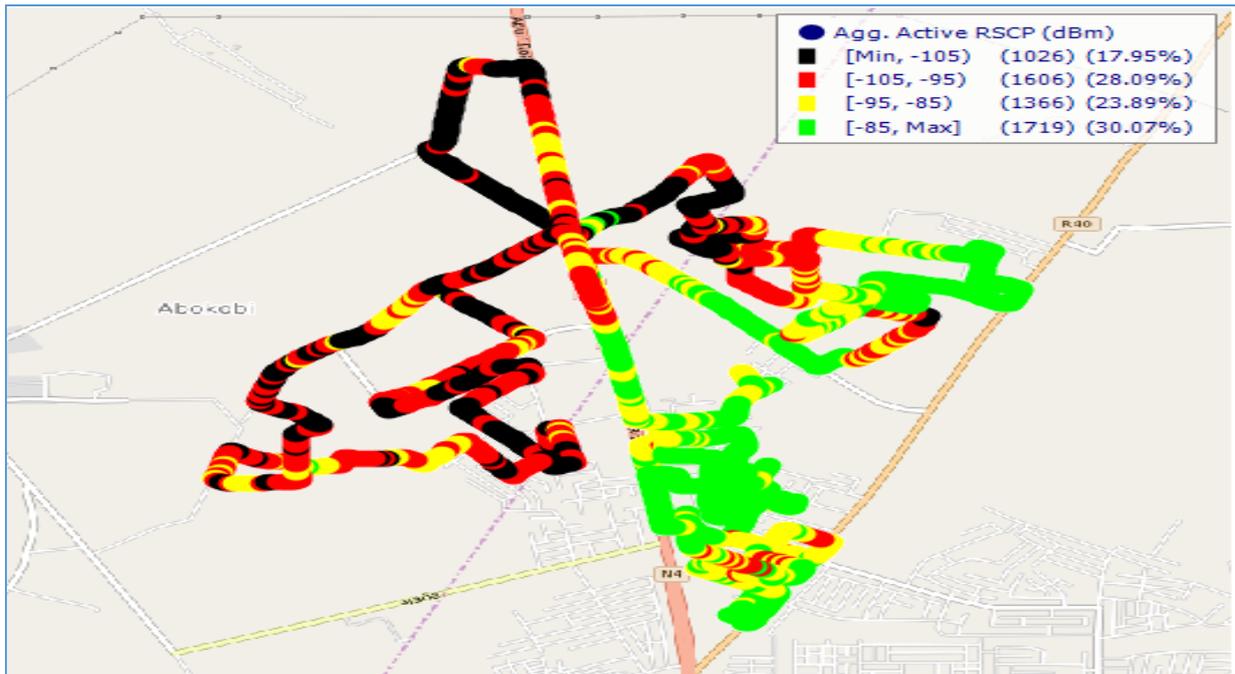


Fig. 5 – Glo 3G Coverage Map, Abokobi - August 2016

Remarks: Fair 3G coverage at Abokobi that needs to be improved

COVERAGE AT ACCRA

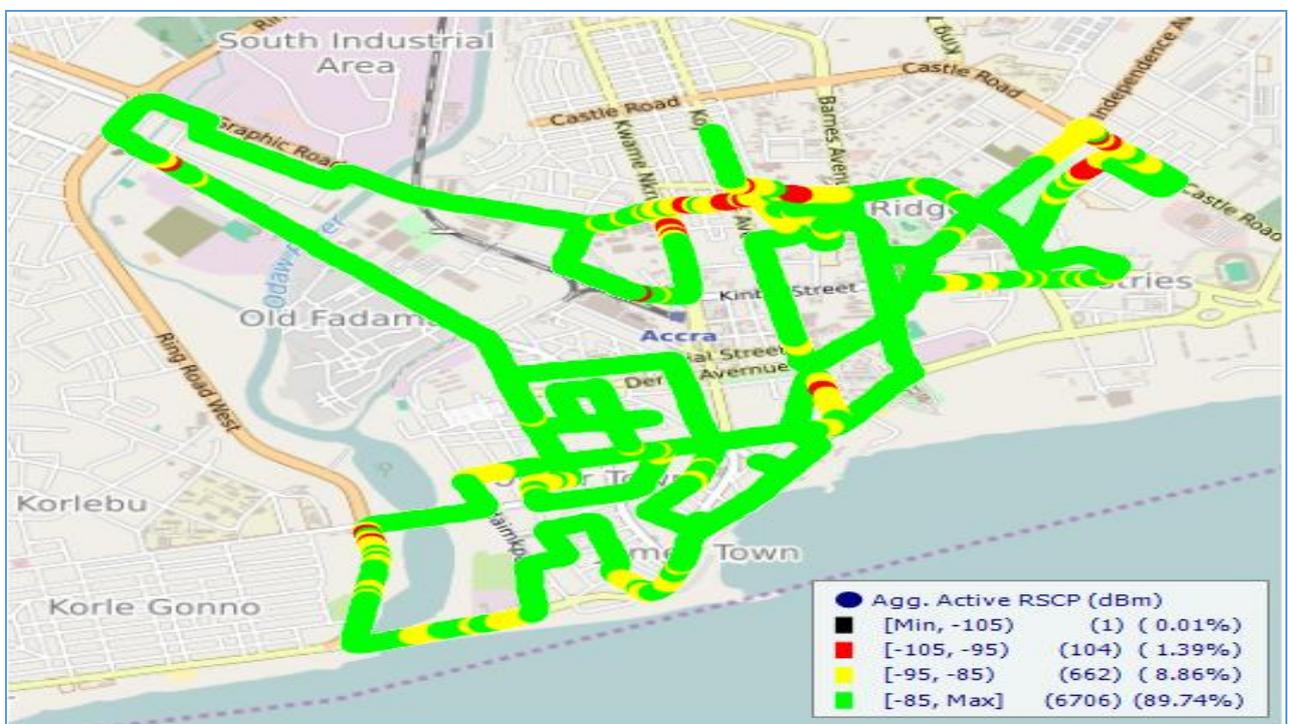


Fig. 6 - MTN 3G Coverage Map, Accra - August 2016

Remarks: Good 3G coverage in Accra.

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Fig. 7 - Vodafone 3G Coverage Map, Accra - August 2016

Remarks: Good 3G coverage in Accra



Fig. 8 - Tigo 3G Coverage Map, Accra- August 2016

Remarks: Good 3G coverage in Accra

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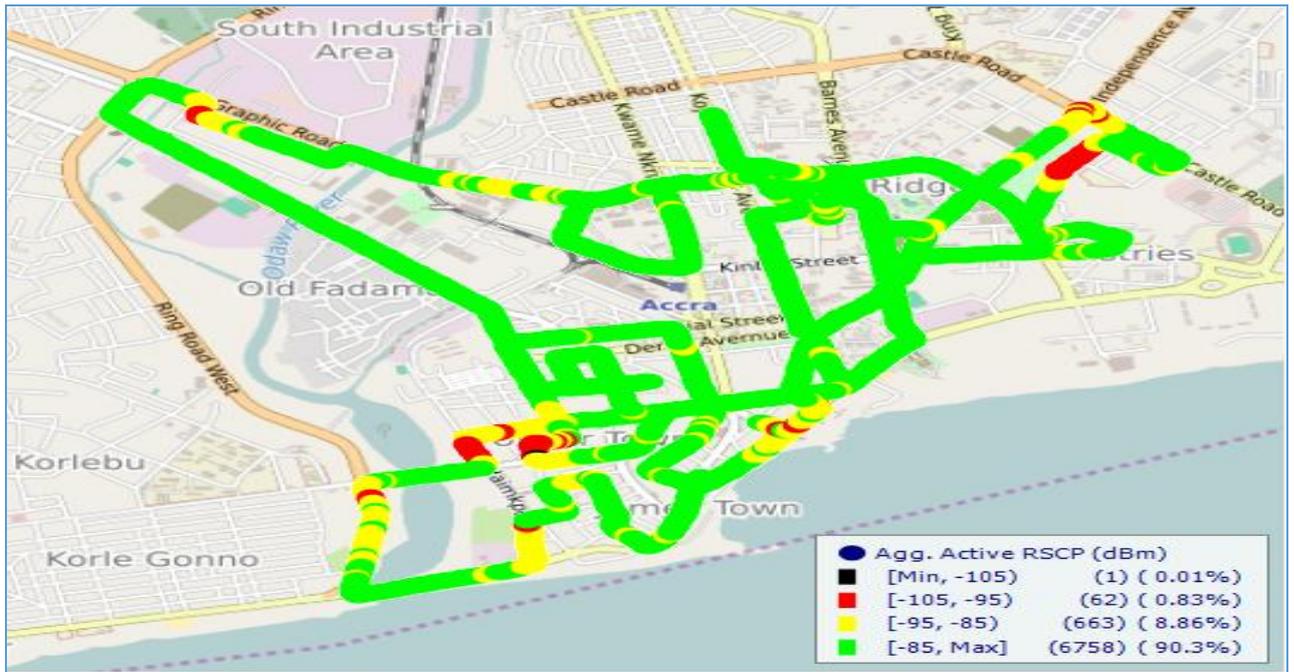


Fig. 9 - Airtel 3G Coverage Map, Accra - August 2016

Remarks: Good 3G coverage in Accra



Fig. 10 - Glo 3G Coverage Map, Accra - August 2016

Remarks: Good 3G coverage in Accra

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COVERAGE AT ADA FOAH

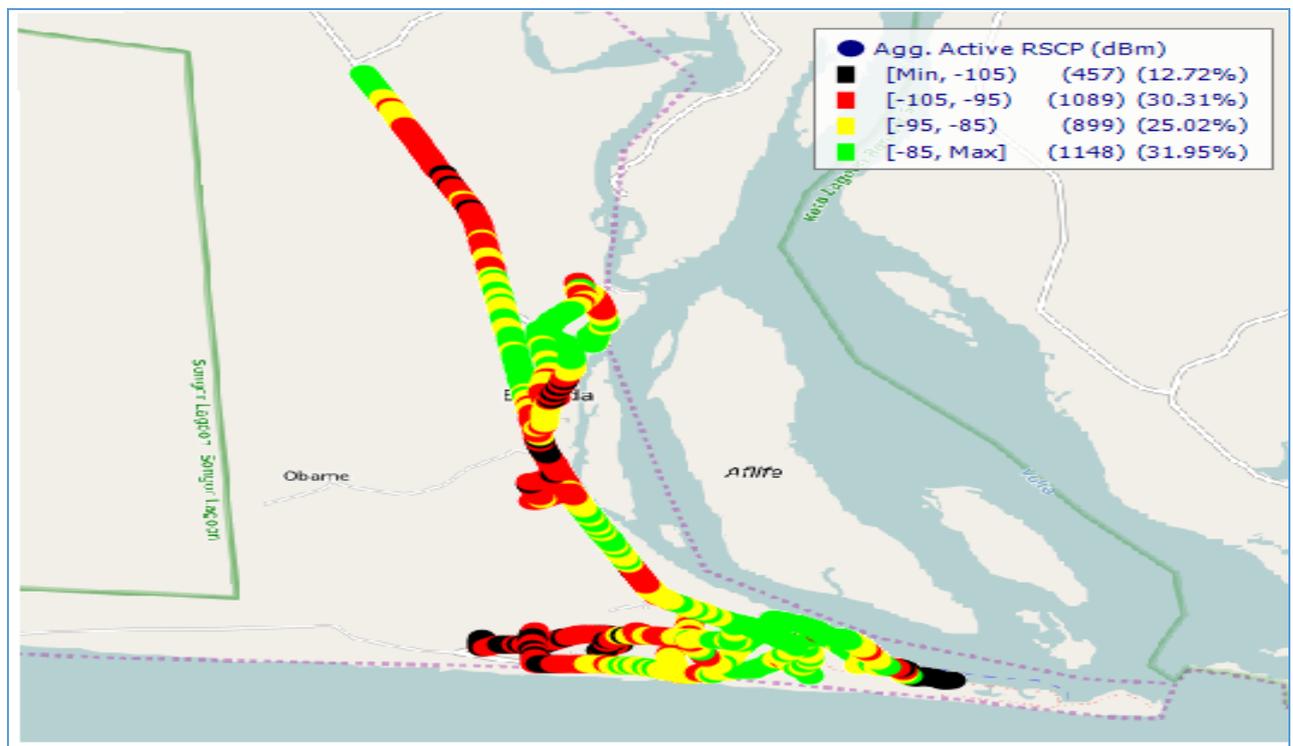


Fig. 11 – MTN 3G Coverage Map, Ada Foah - August 2016

Remarks: Fair 3G network coverage in Ada Foah.

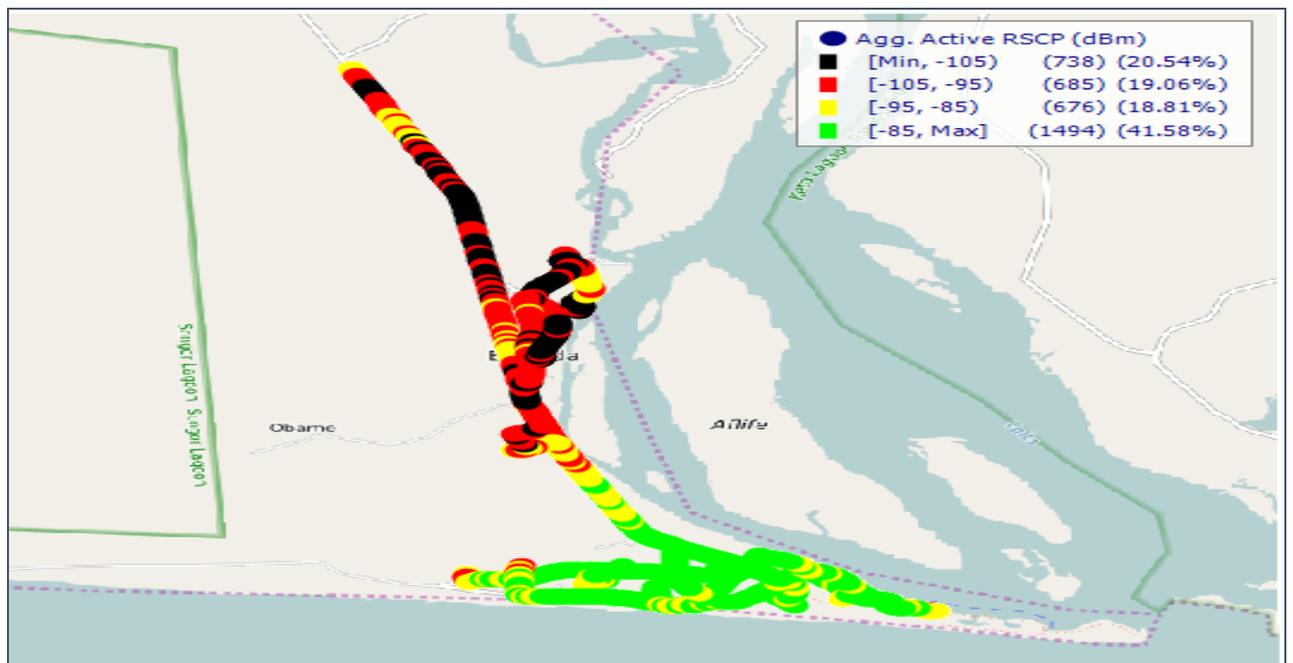


Fig. 12- Vodafone 3G Coverage Map, Ada Foah –August 2016

Remarks: Fair 3G network coverage in Ada Foah; however improvement is needed.

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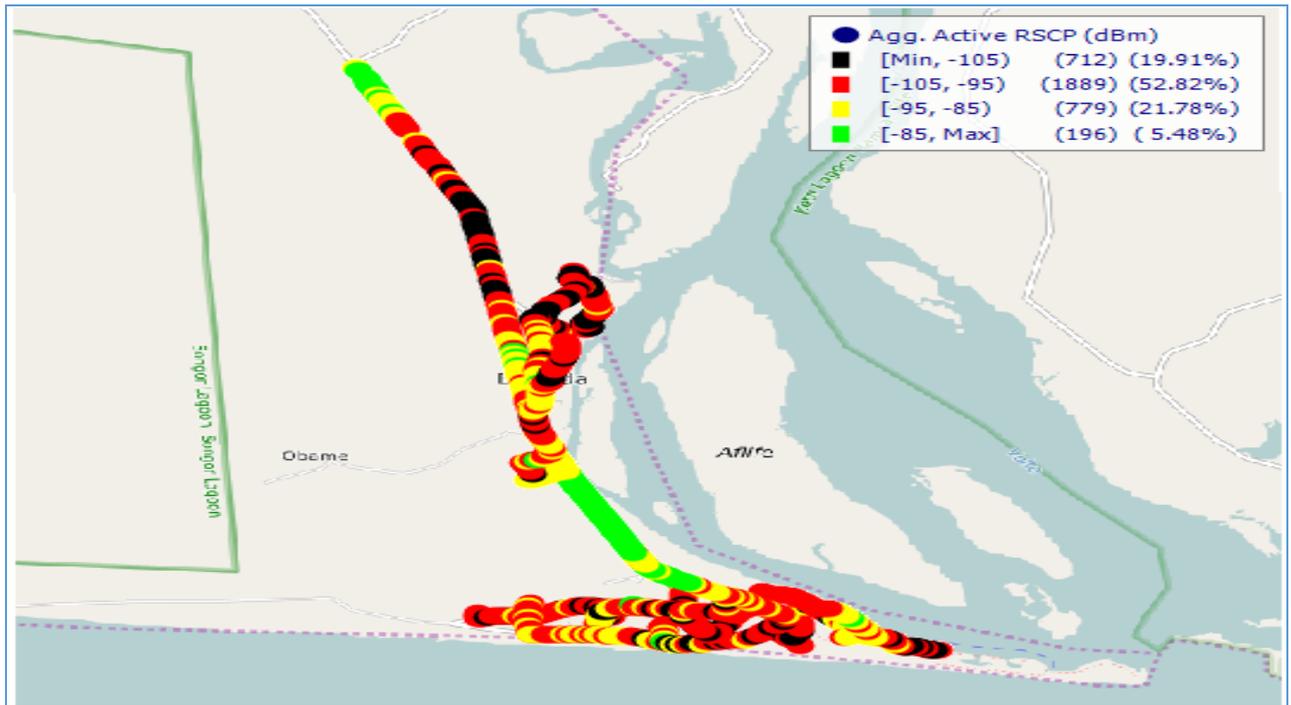


Fig. 13- Tigo 3G Coverage Map, Ada Foah –August 2016

Remarks: Fair 3G network coverage in Ada Foah; however improvement is needed

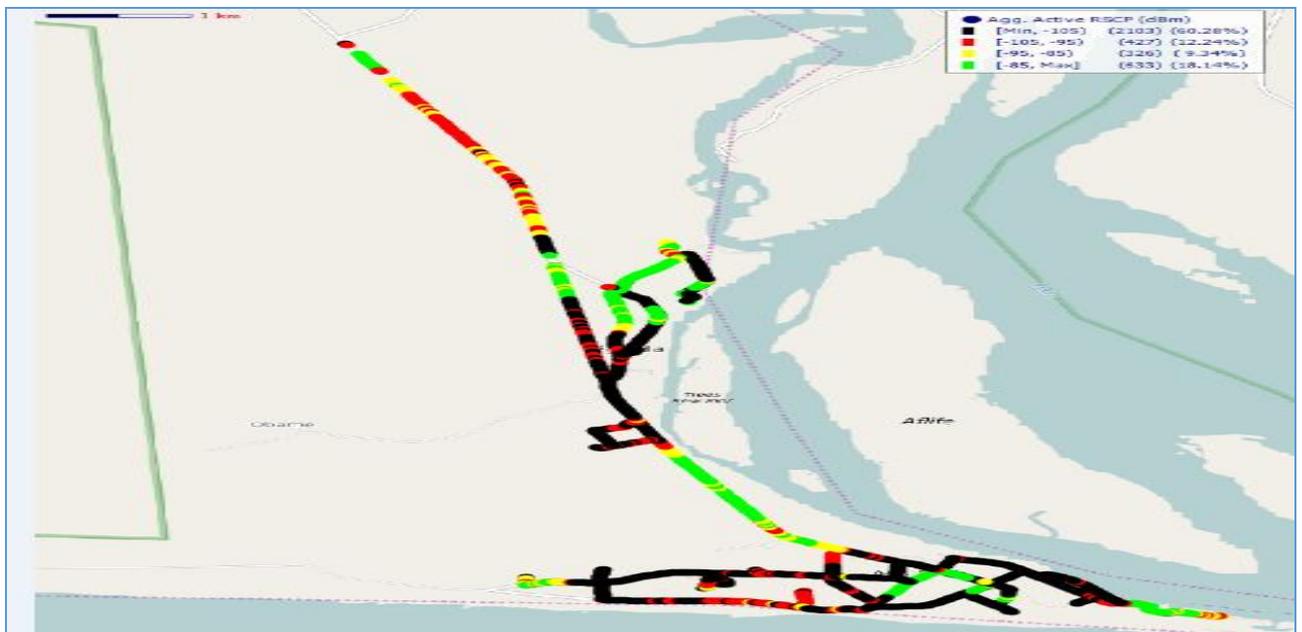


Fig. 14- Airtel 3G Coverage Map, Ada Foah - August 2016

Remarks: Non-existent 3G network coverage in Ada Foah. Airtel needs to provide 3G coverage.

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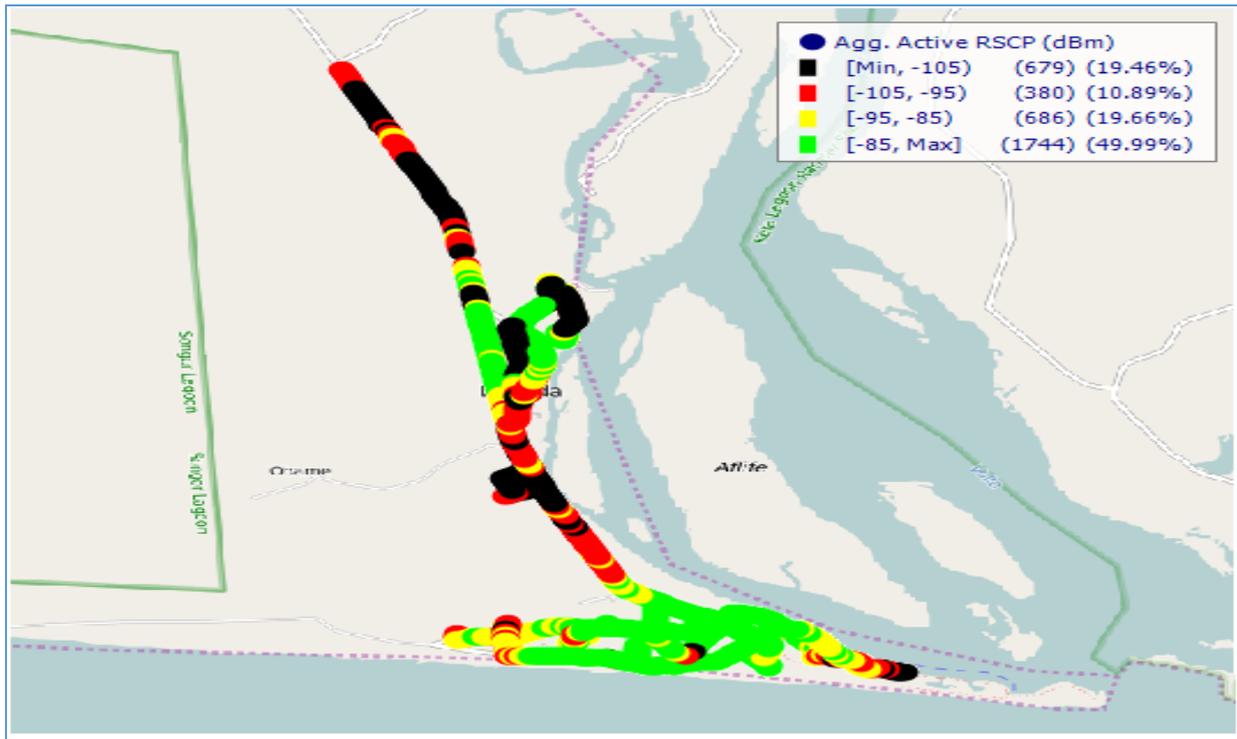


Fig. 15- Glo 3G Coverage Map, Ada Foah –August 2016

Remarks: Fair 3G network coverage in Ada Foah; however improvement is needed

COVERAGE AT ADENTA

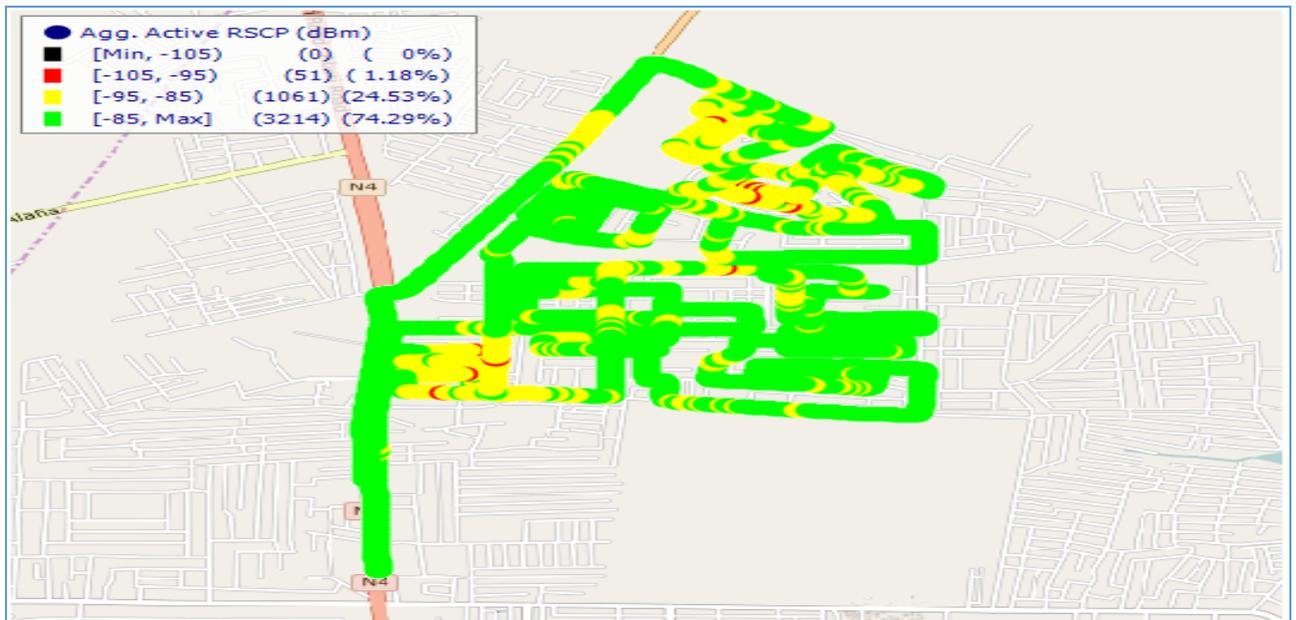


Fig. 16 - MTN 3G Coverage Map, Adenta- August 2016

Remarks: Good 3G network coverage in Adenta

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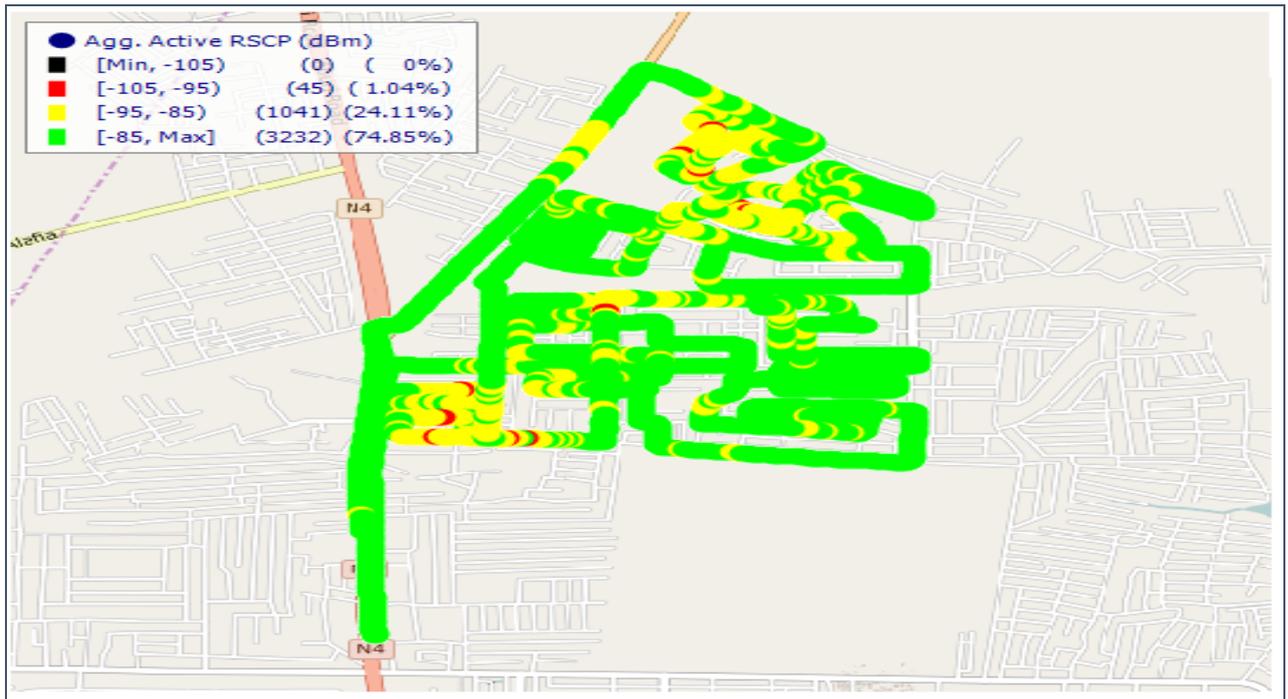


Fig. 17 - Vodafone 3G Coverage Map, Adenta - August 2016

Remarks: Good 3G network coverage in Adenta.

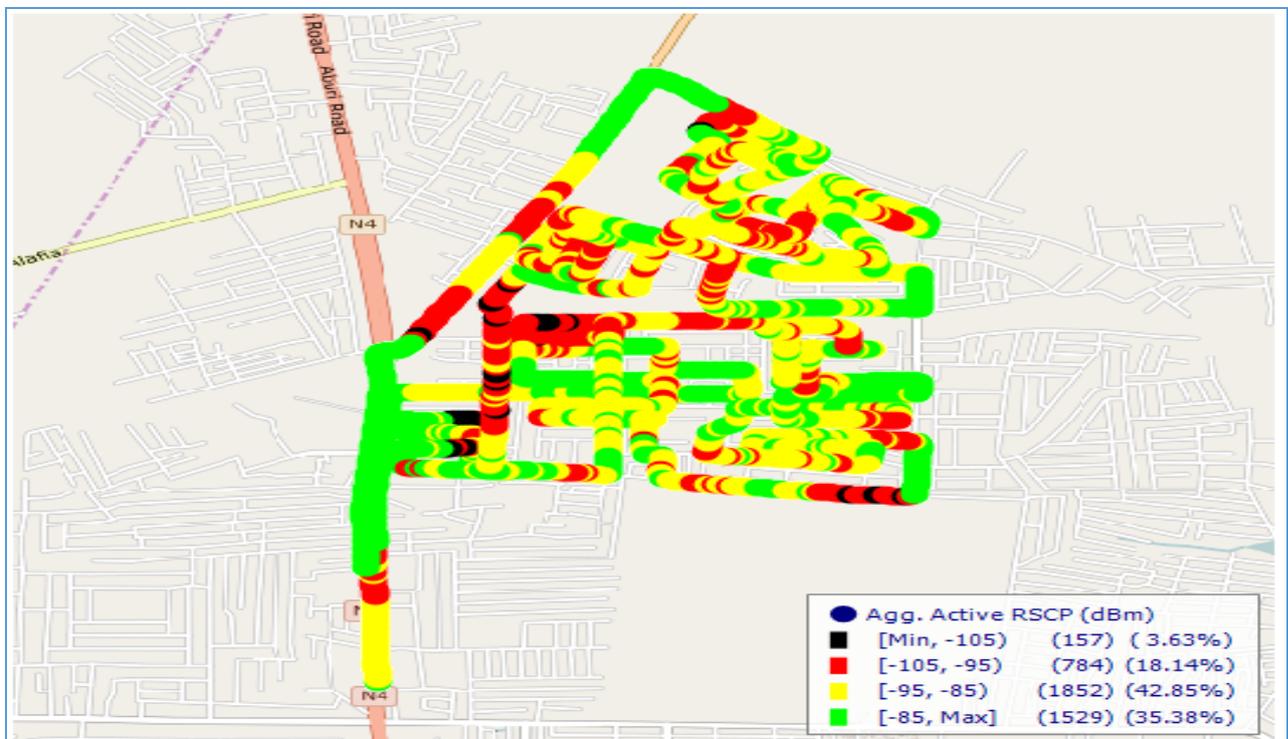


Fig. 18 - Tigo 3G Coverage Map, Adenta - August 2016

Remarks: Fair 3G coverage in Adenta which requires improvement

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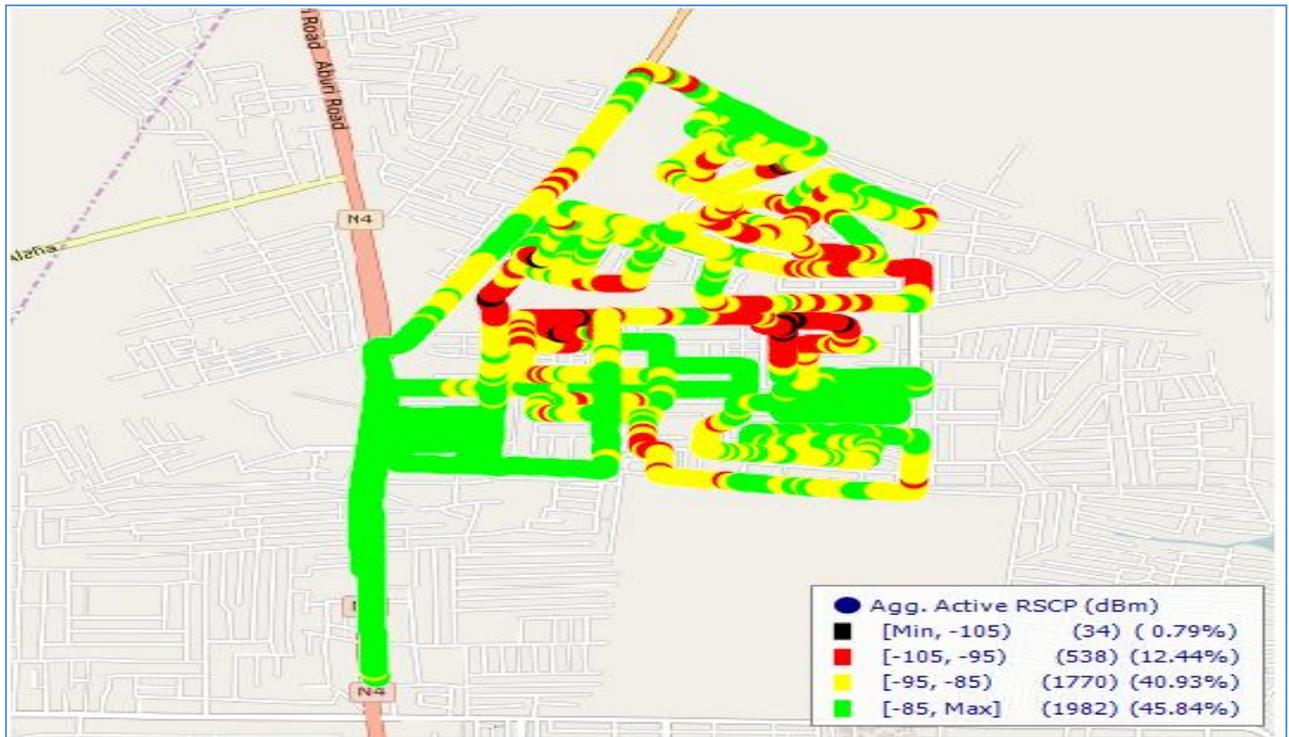


Fig. 19 – Airtel 3G Coverage Map, Adenta - August 2016
Remarks: Good 3G coverage in Adenta

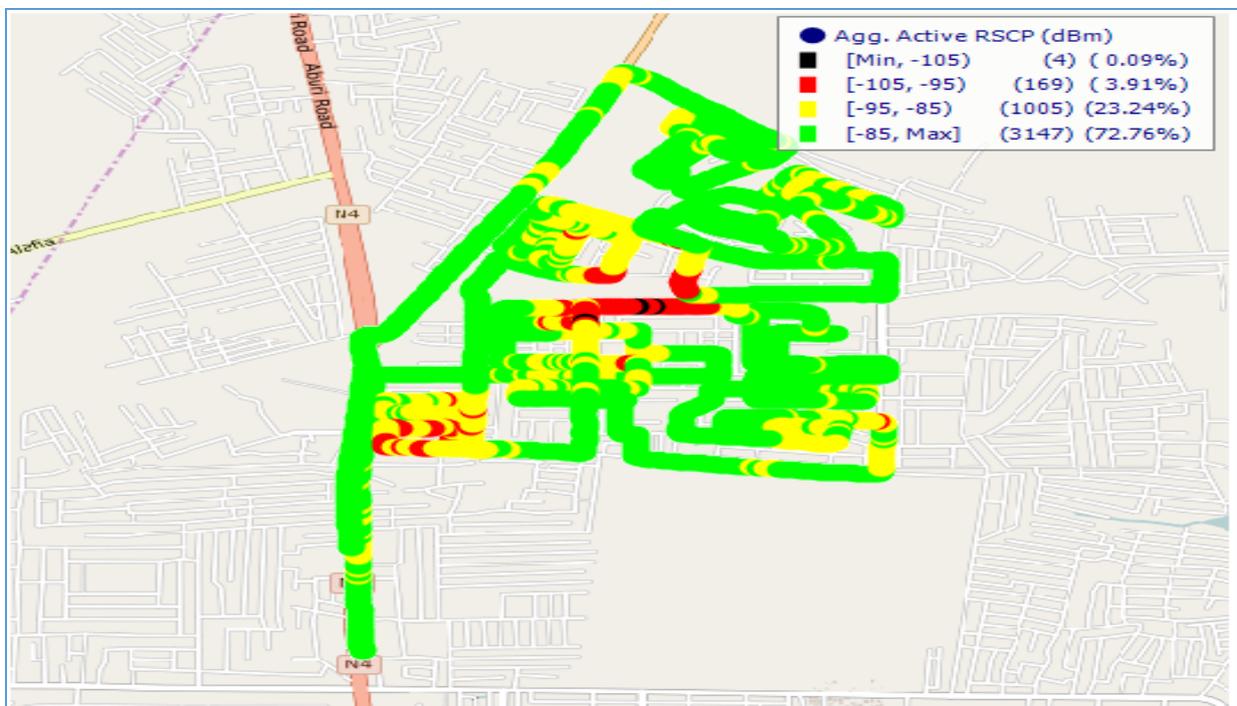


Fig. 20 - Glo 3G Coverage Map, Adenta - August 2016
Remarks: Poor 3G coverage in Adenta that requires improvement

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COVERAGE AT AMASAMAN

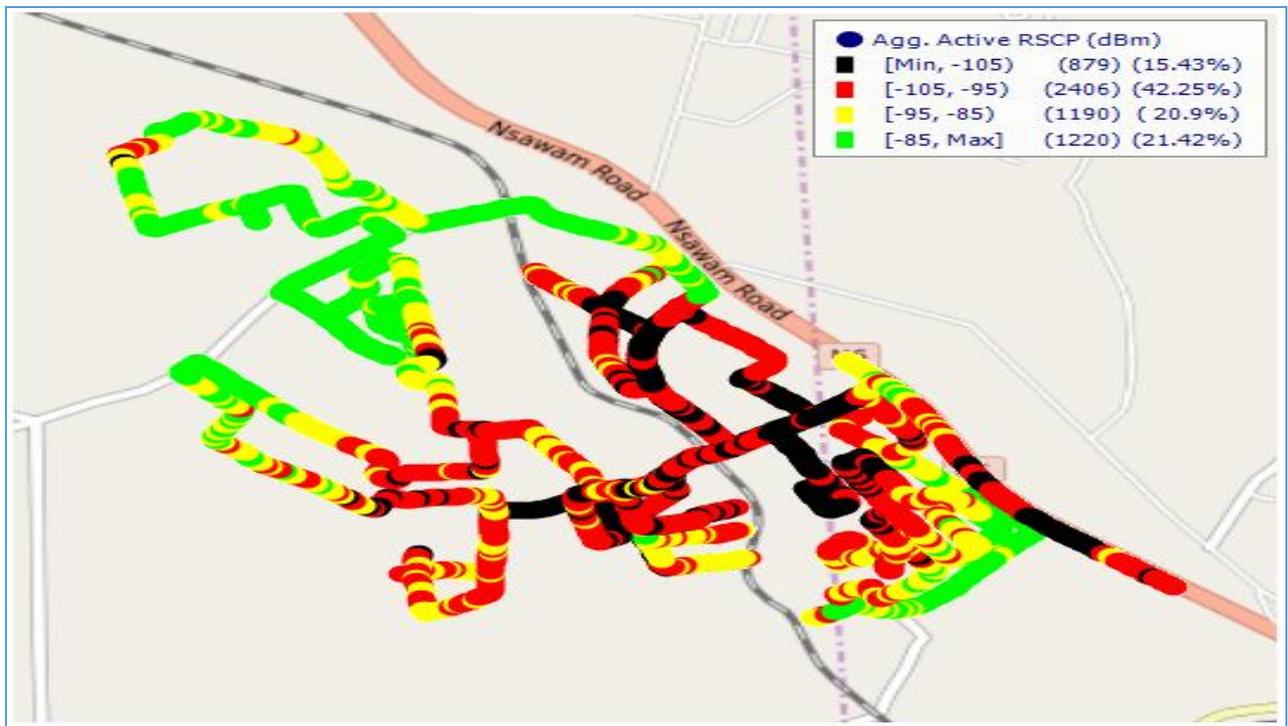


Fig. 21 - MTN 3G Coverage Map, Amasaman- August 2016

Remarks: Fair 3G coverage in Amasaman which requires improvement

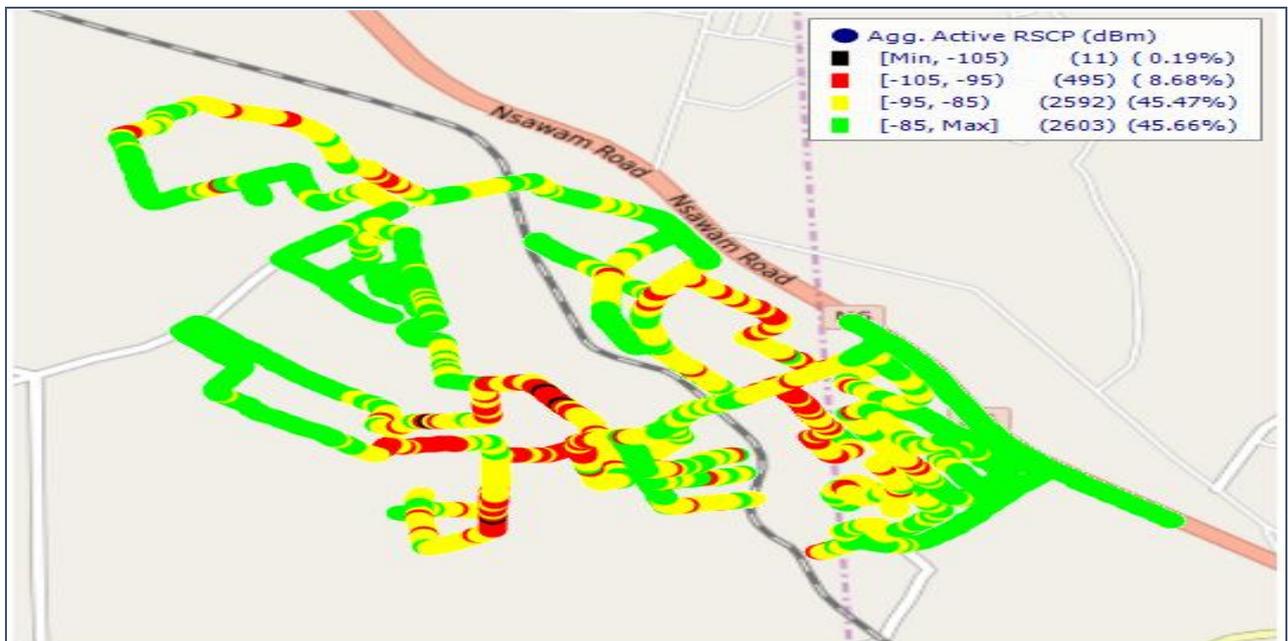


Fig. 22 - Vodafone 3G Coverage Map, Amasaman - August 2016

Remarks: Good 3G network coverage in Amasaman

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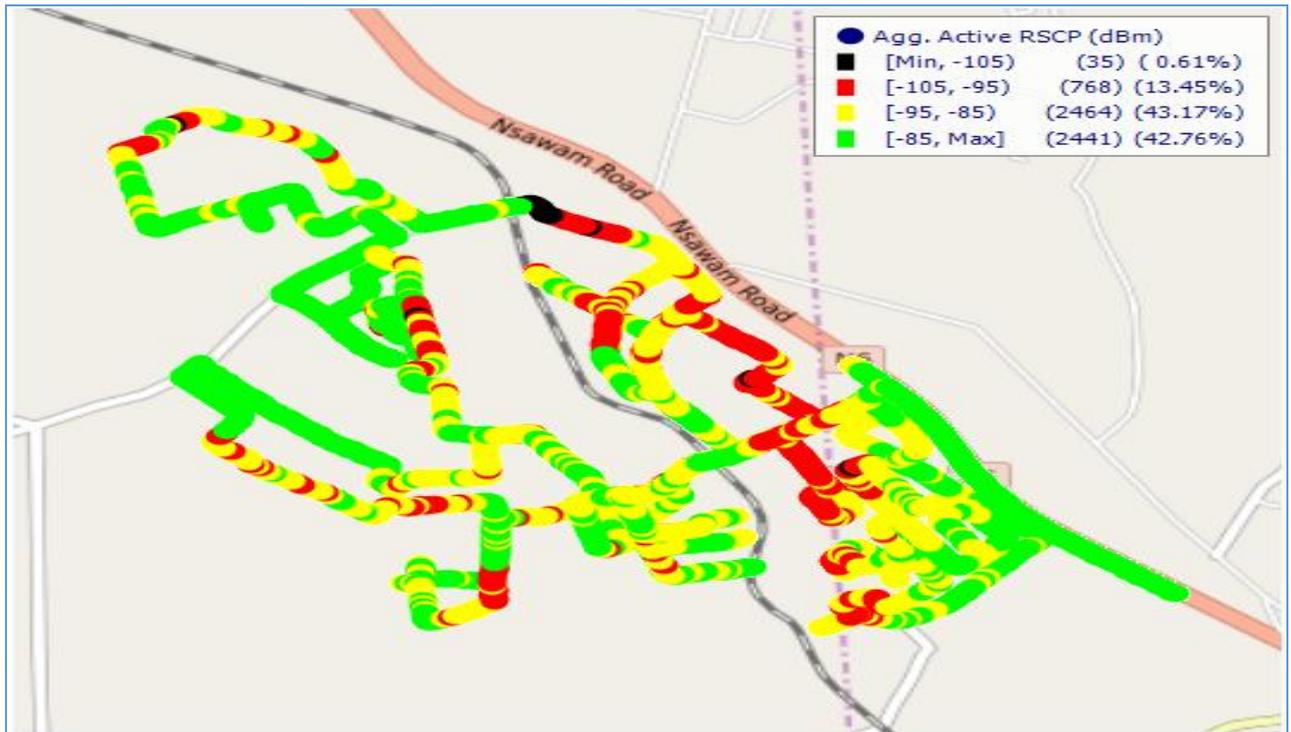


Fig. 23 - Tigo 3G Coverage Map, Amasaman - August 2016

Remarks: Fair 3G coverage in Amasaman which requires improvement

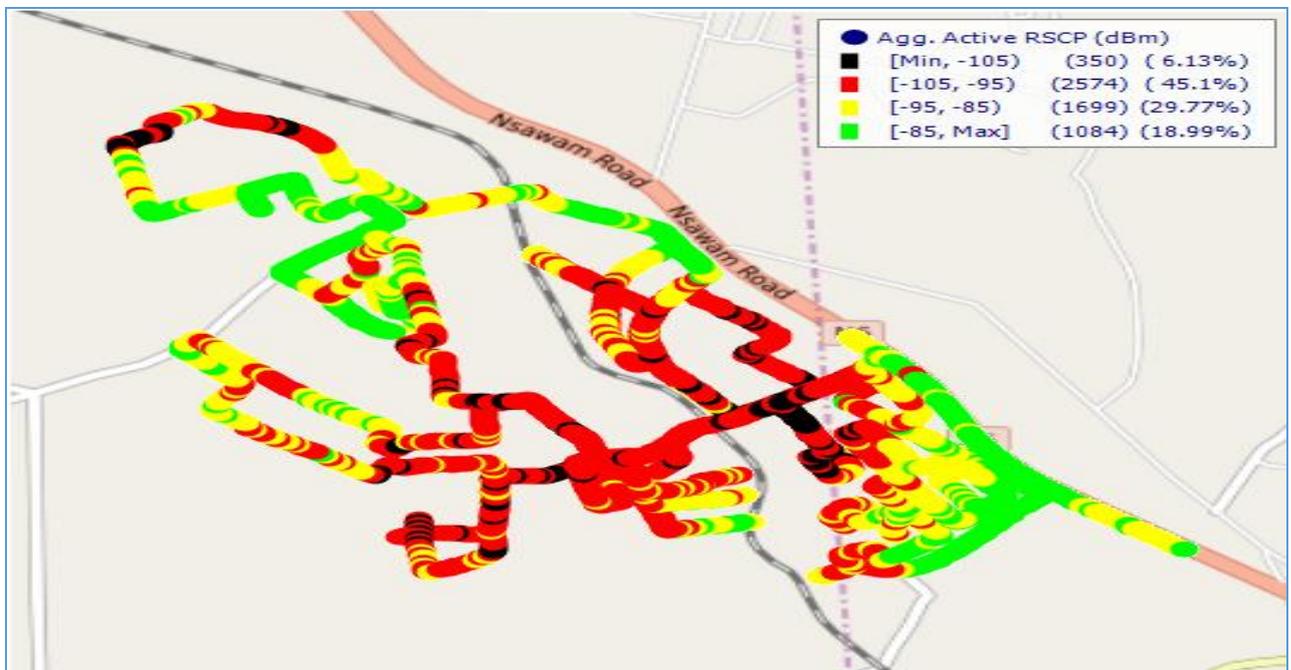


Fig. 24 - Airtel 3G Coverage Map, Ashaiman - August 2016

Remarks Fair 3G coverage in Amasaman which requires improvement

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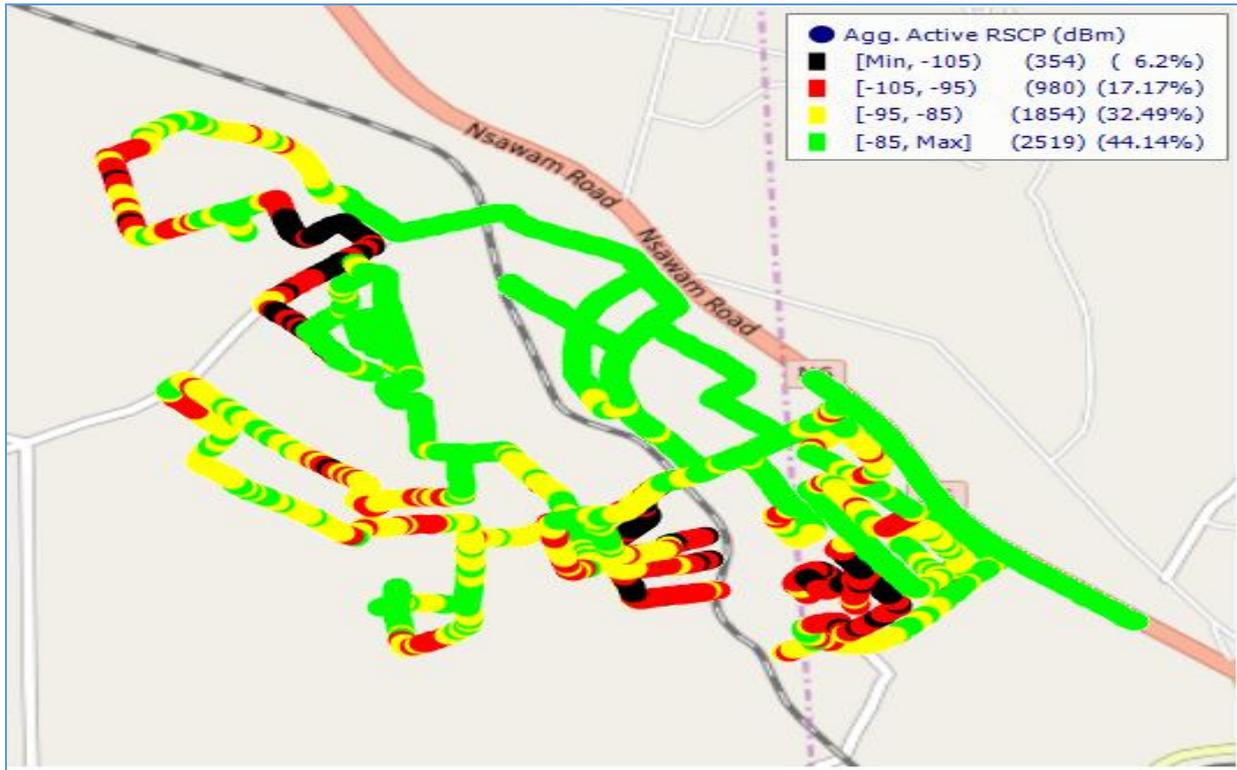


Fig. 25 – Glo 3G Coverage Map, Amasaman - August 2016

Remarks: Fair 3G coverage in Amasaman which requires improvement

COVERAGE AT ASHAIMAN

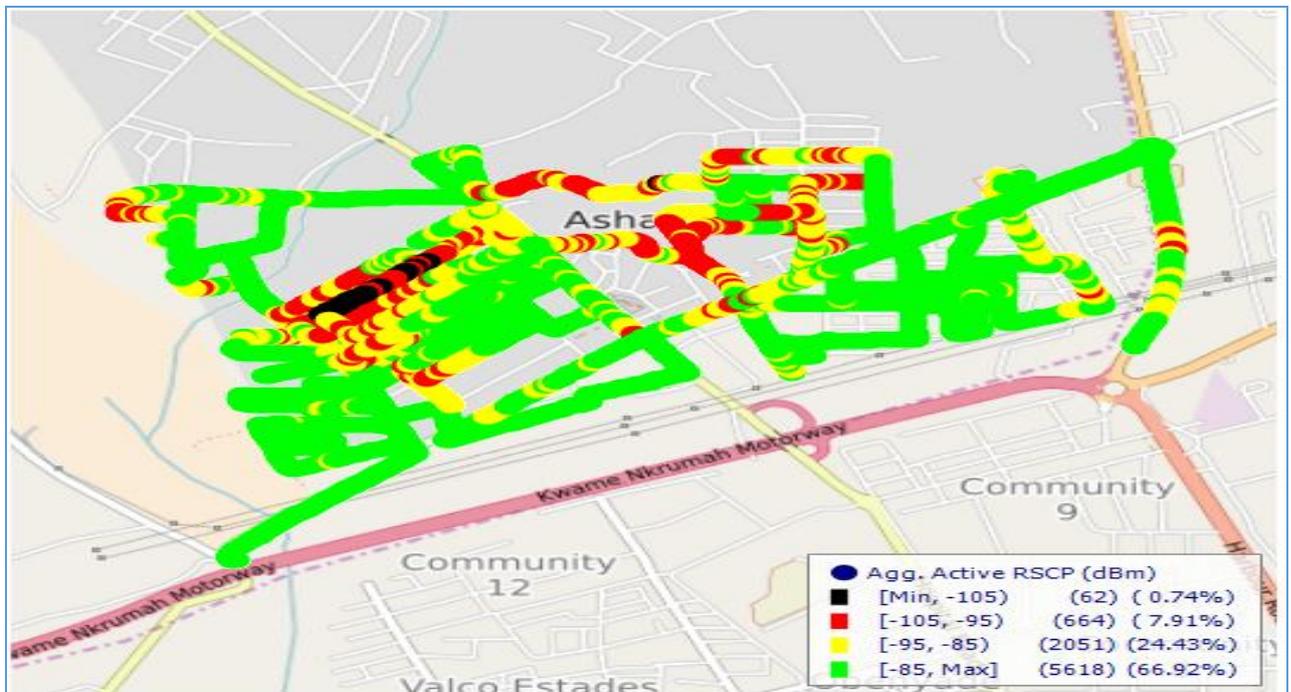


Fig. 26 - MTN 3G Coverage Map, Ashaiman - August 2016

Remarks: Good 3G coverage in Ashaiman

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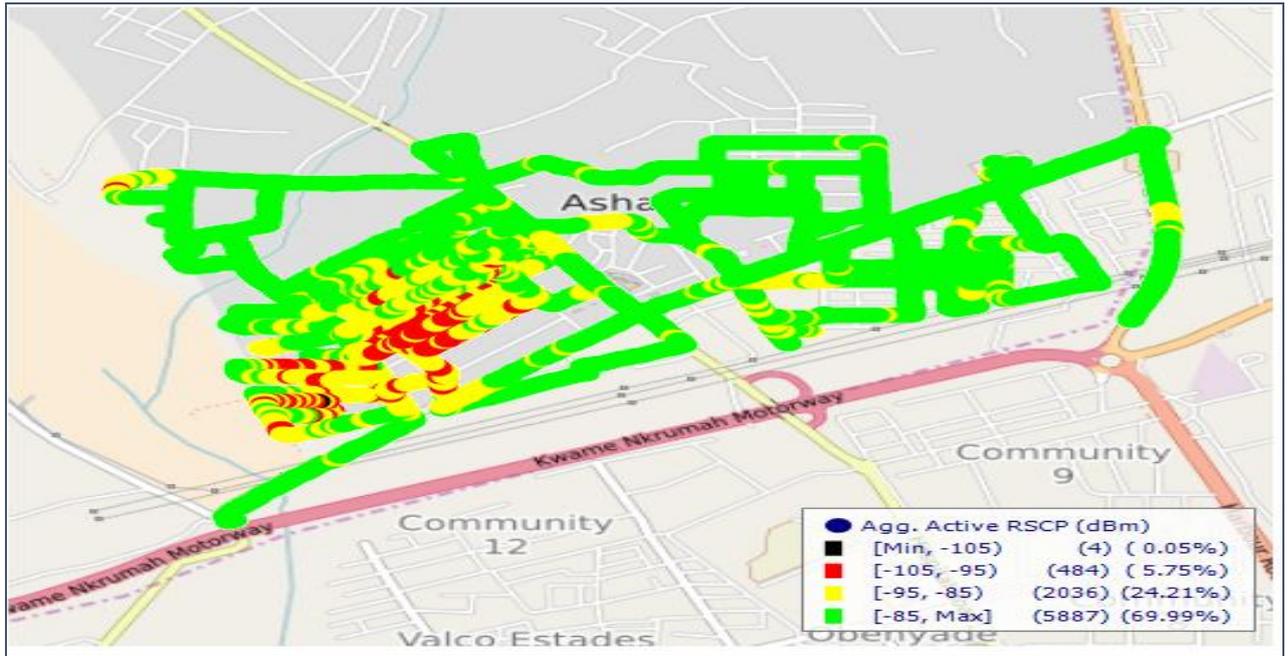


Fig. 27 - Vodafone 3G Coverage Map, Ashaiman - August 2016

Remarks: Good 3G network coverage in Ashaiman

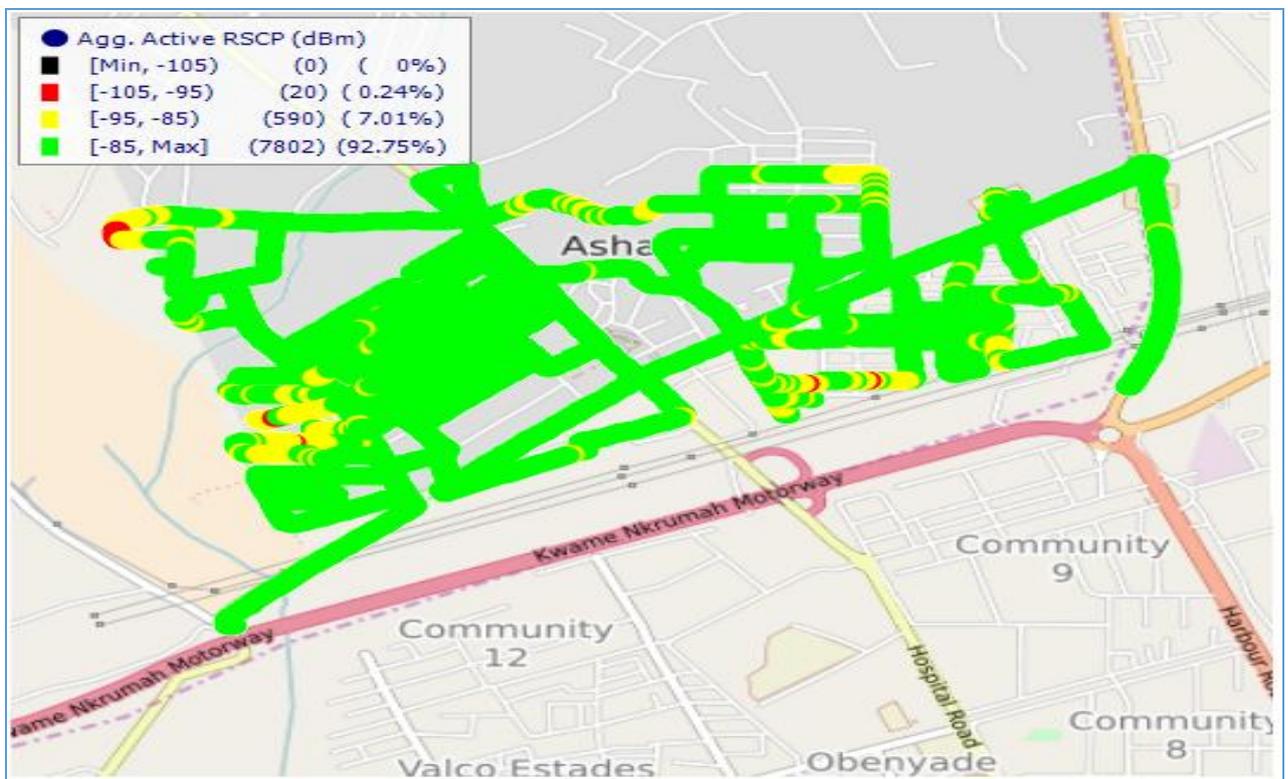


Fig. 28 - Tigo 3G Coverage Map, Ashaiman - August 2016

Remarks: Good 3G network coverage in Ashaiman

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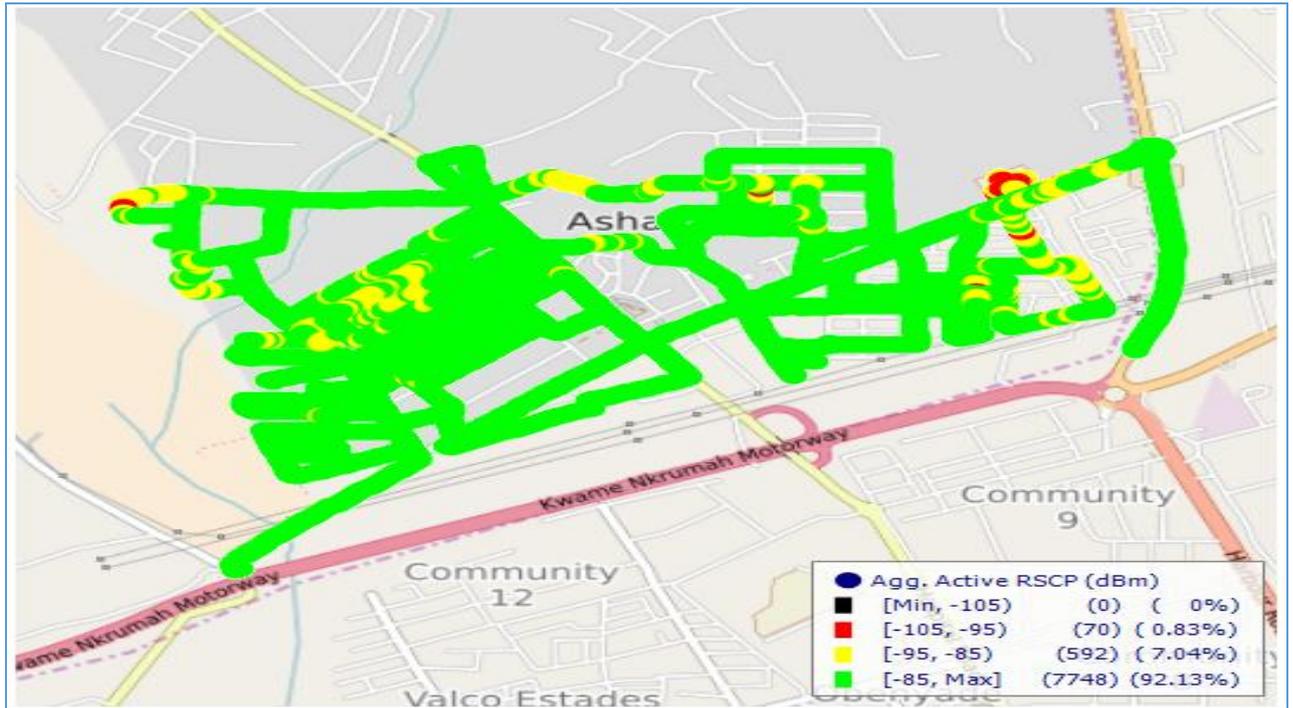


Fig. 29 - Airtel 3G Coverage Map, Ashaiman - August 2016

Remarks: Good 3G network coverage in Ashaiman

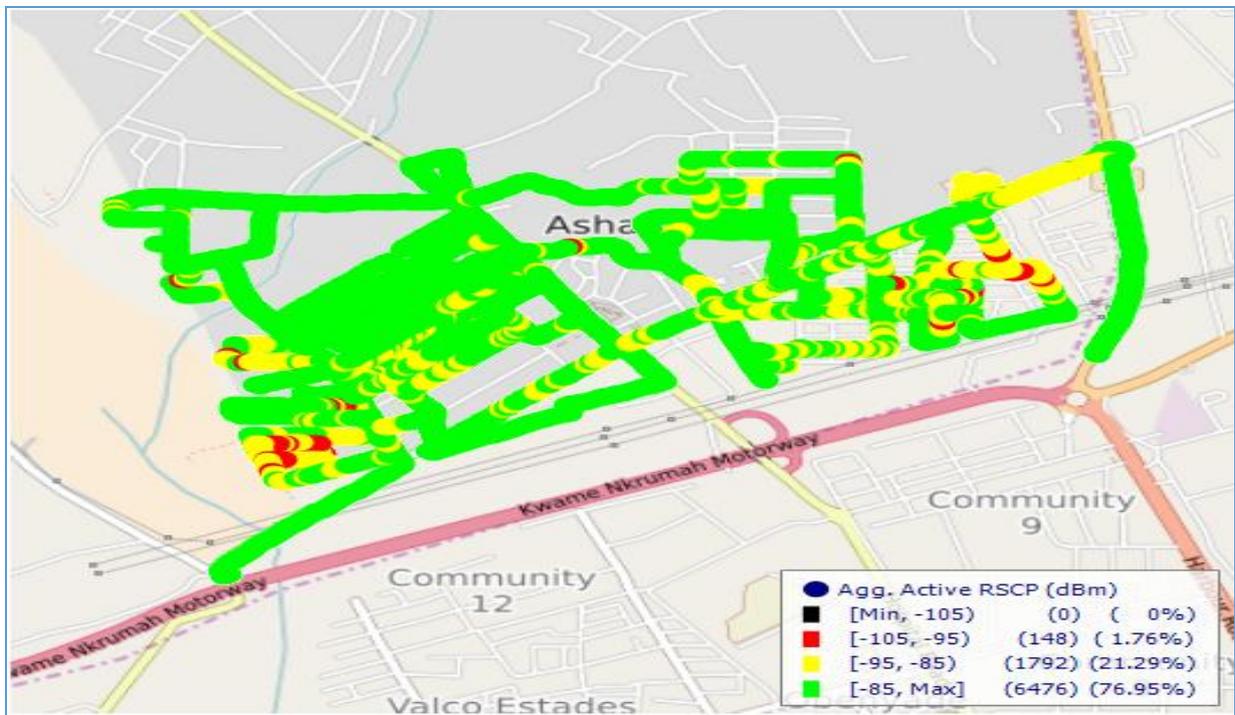


Fig. 30 – Glo 3G Coverage Map, Ashaiman - August 2016

Remarks: Good 3G network coverage in Ashaiman

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COVERAGE AT DODOWA

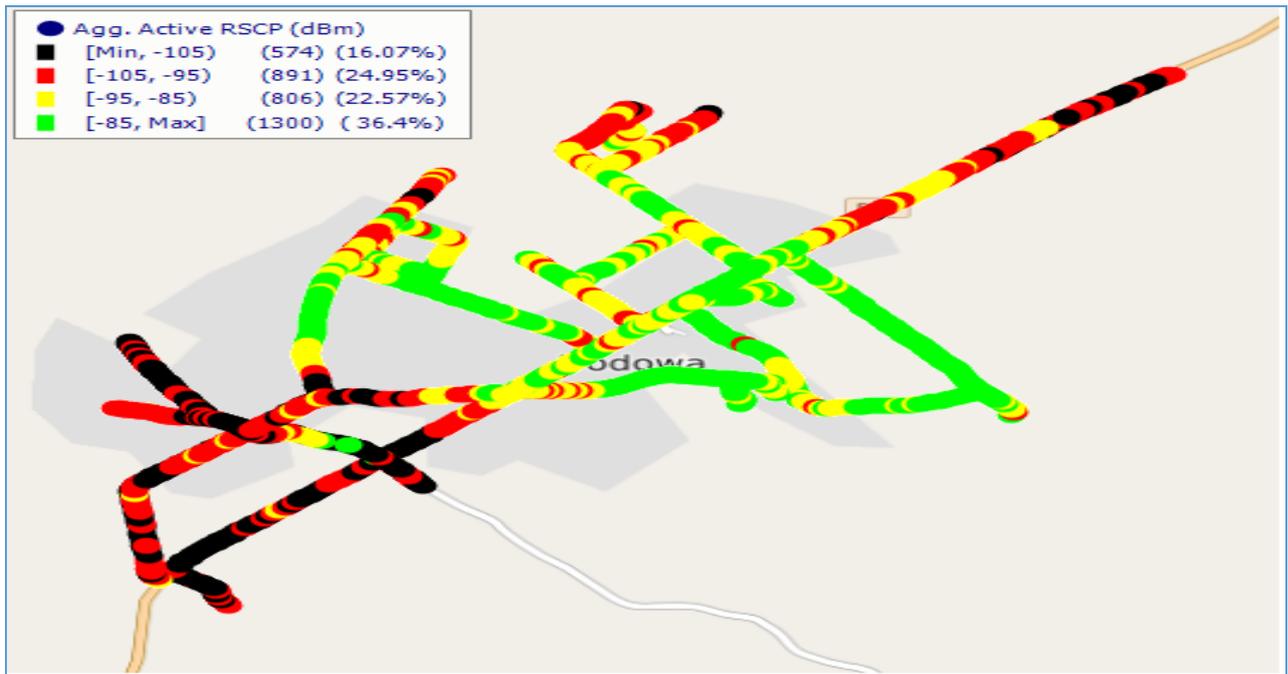


Fig. 31 - MTN 3G Coverage Map, Dodowa - March 2016

Remarks: Fair 3G network coverage in Dodowa which requires improvement

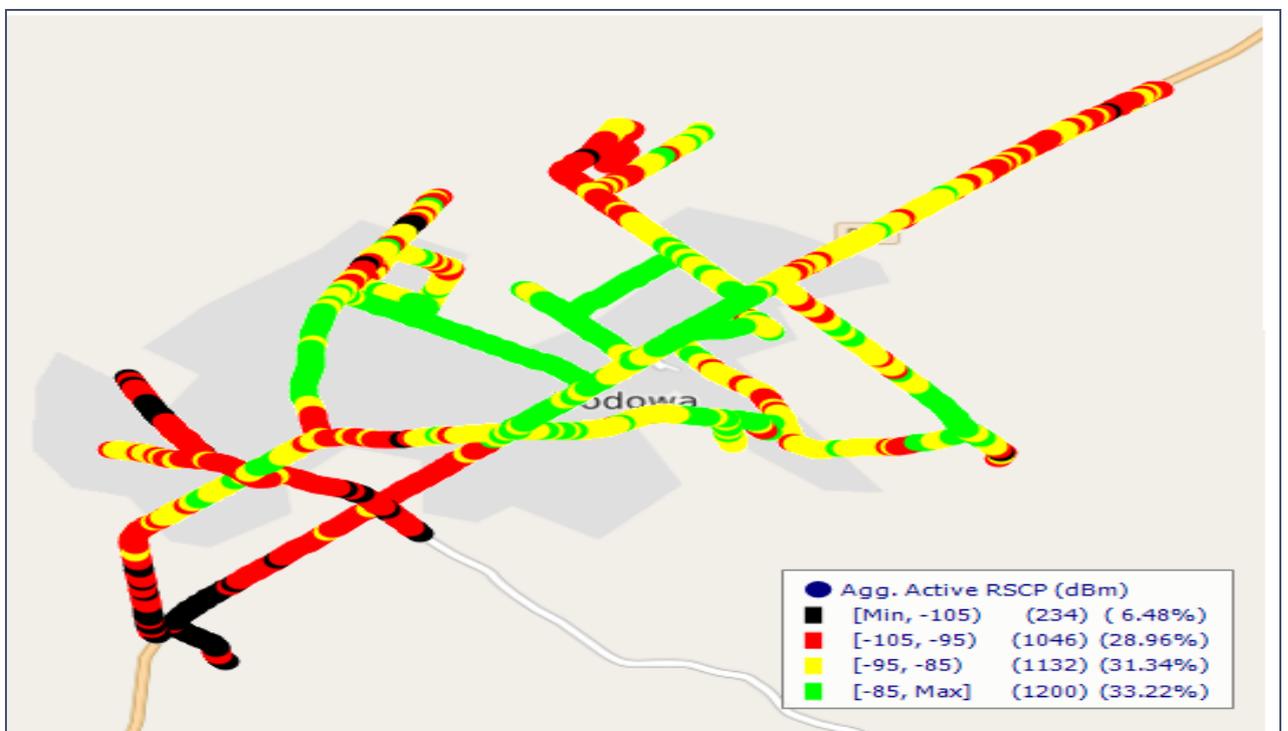


Fig. 32 - Vodafone 3G Coverage Map, Dodowa - August 2016

Remarks: Fair 3G network coverage in Dodowa which requires improvement

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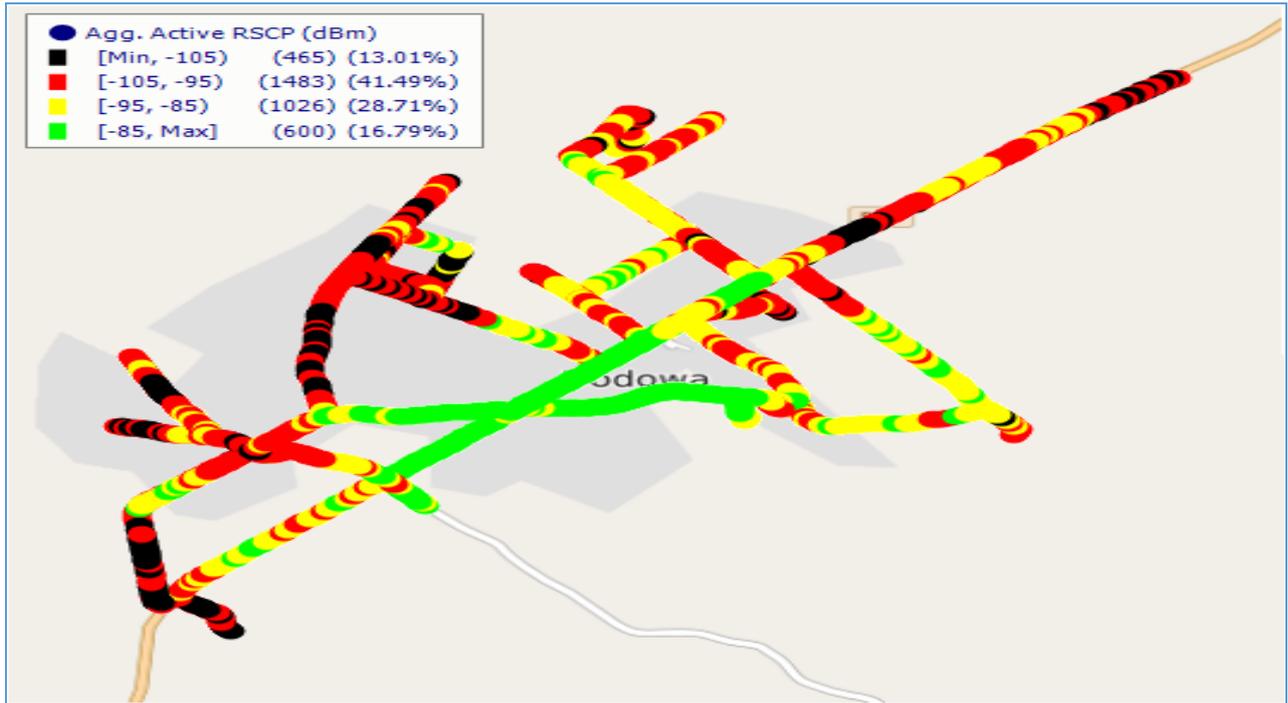


Fig. 33 - Tigo 3G Coverage Map, Dodowa – August 2016

Remarks: Fair 3G network coverage in Dodowa; however improvement is needed.

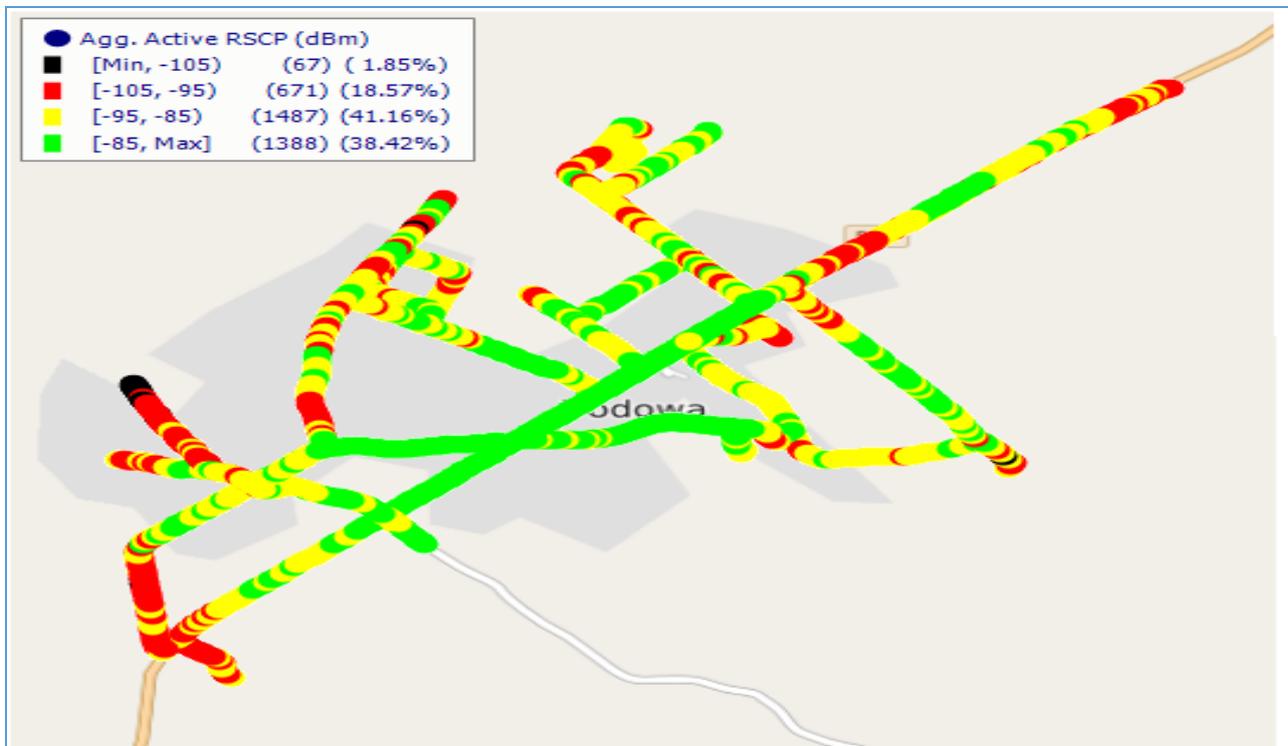


Fig. 34 - Airtel 3G Coverage Map, Dodowa – August 2016

Remarks: Fair 3G network coverage in Dodowa however improvement is needed

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COVERAGE AT GBAWE

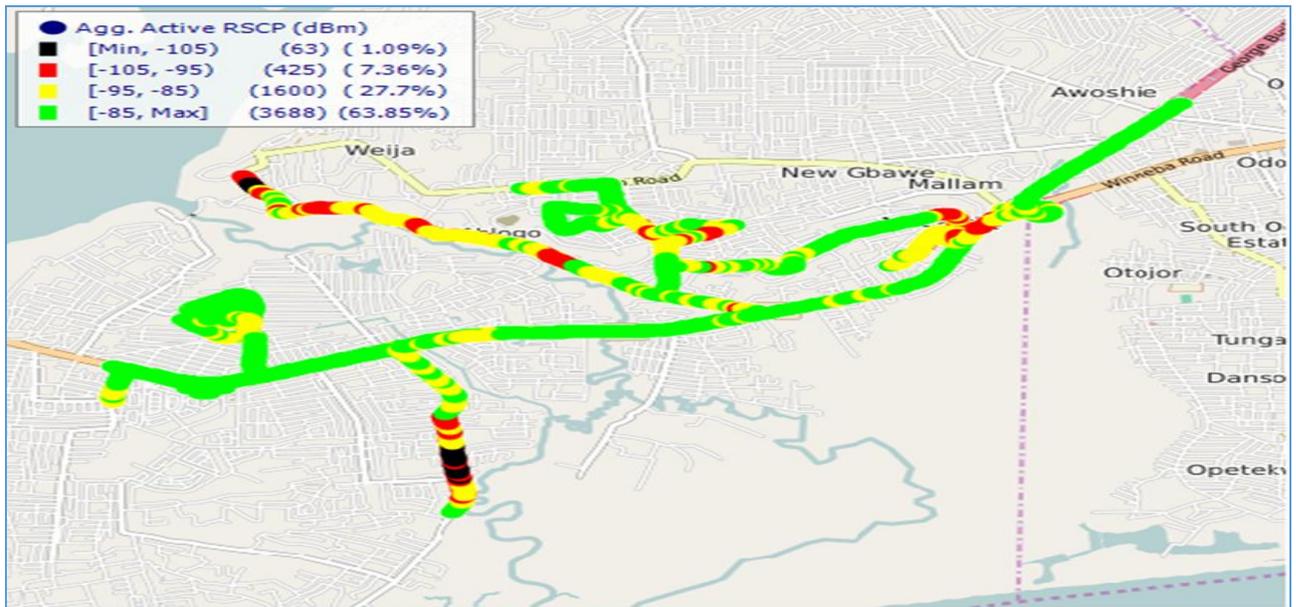


Fig. 35 - MTN 3G Coverage Map, Gbawe - August 2016

Remarks: Good 3G coverage at Gbawe

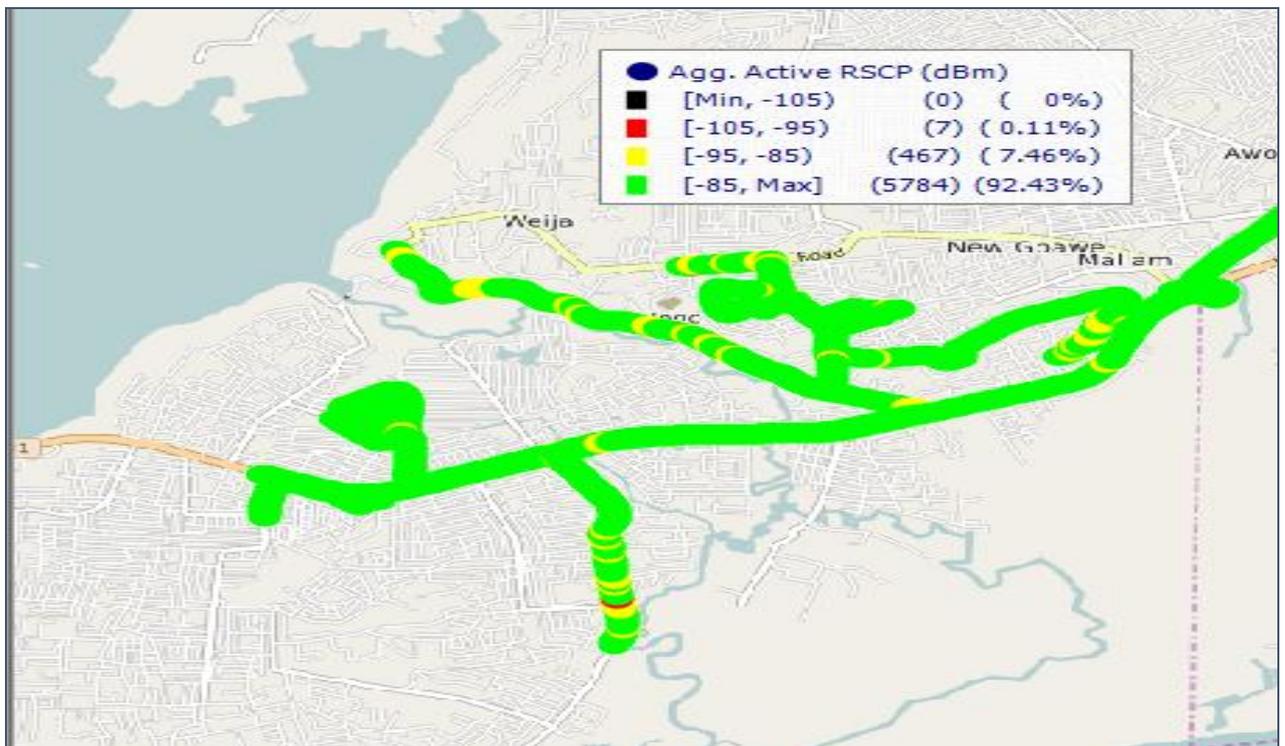


Fig. 36 - Vodafone 3G Coverage Map, Gbawe- August 2016

Remarks: Good 3G network coverage in Gbawe

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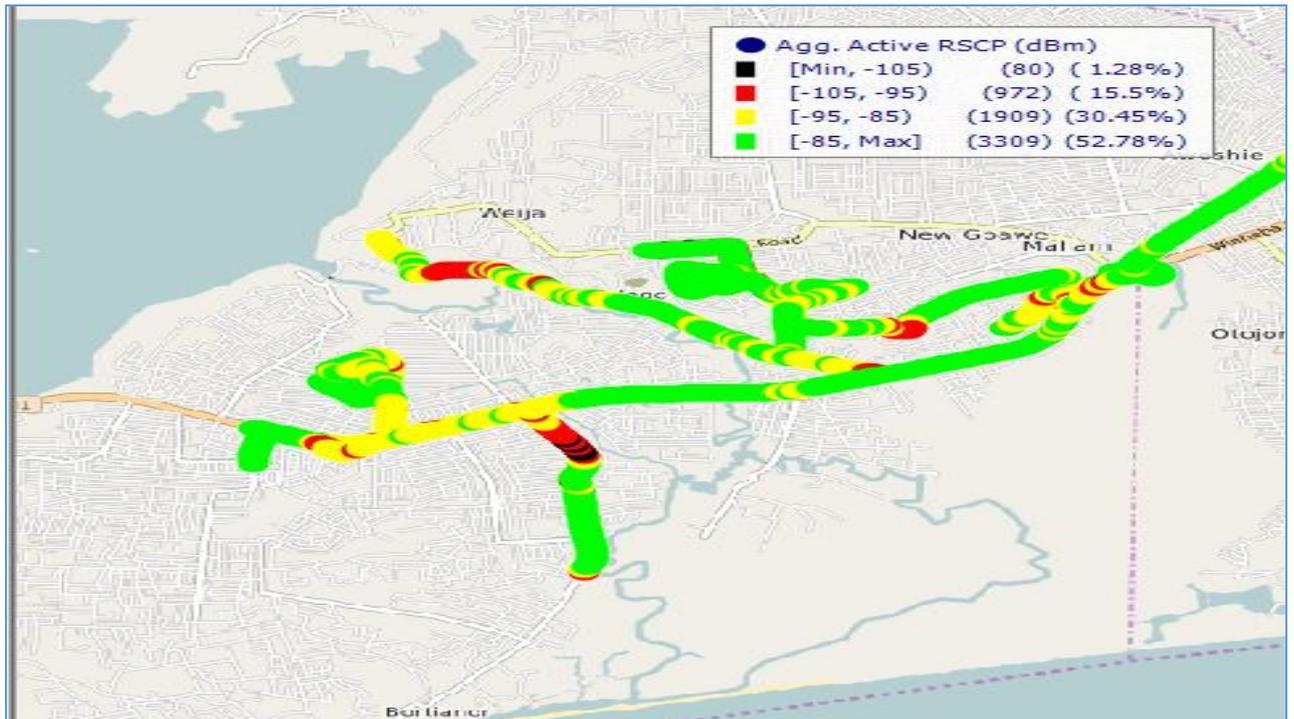


Fig. 37 – Tigo 3G Coverage Map, Gbawe- August 2016

Remarks: Good 3G network coverage in Gbawe

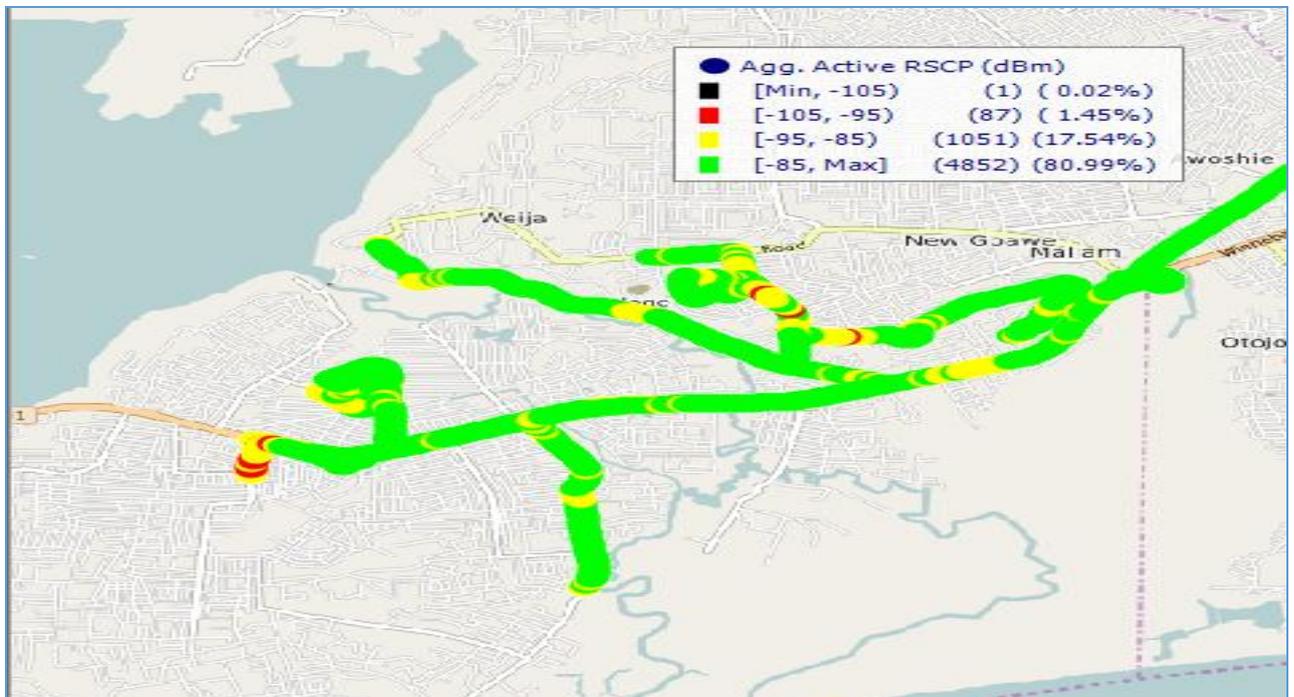


Fig. 38 - Airtel 3G Coverage Map, Gbawe- August 2016

Remarks: Good 3G network coverage in Gbawe

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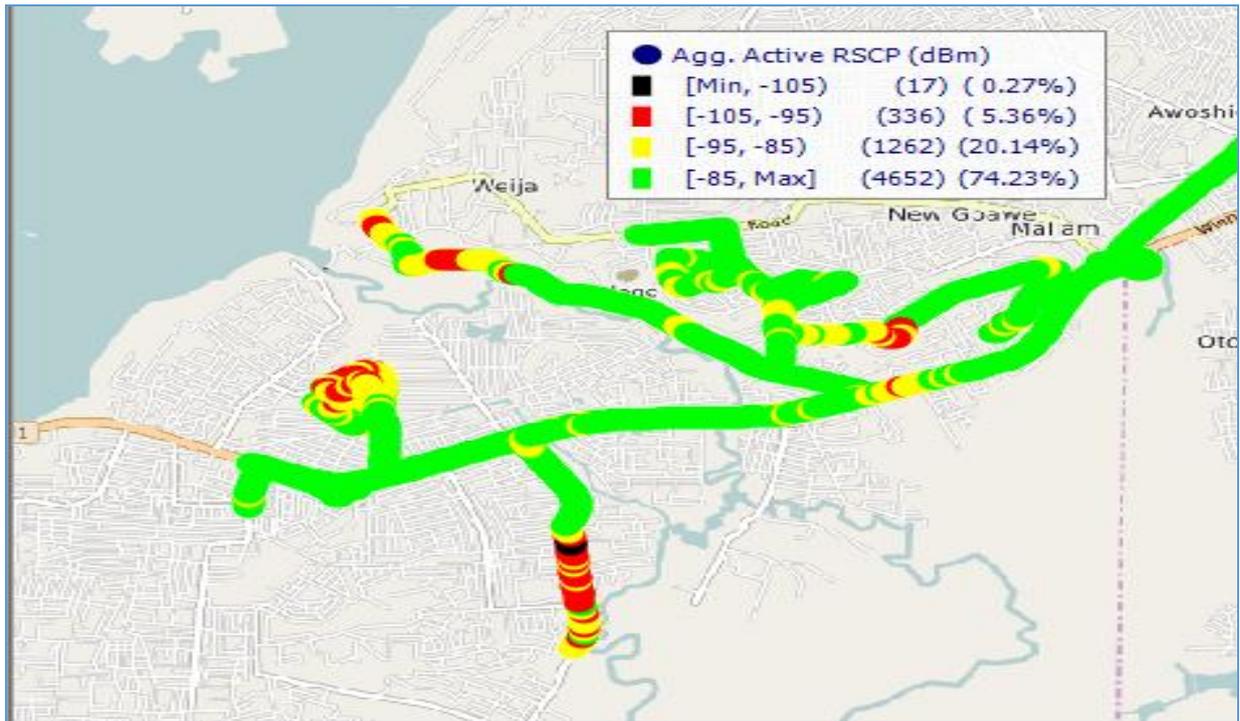


Fig. 39 – Glo 3G Coverage Map, Gbawe- August 2016

Remarks: Good 3G network coverage in Gbawe

COVERAGE AT KPONE

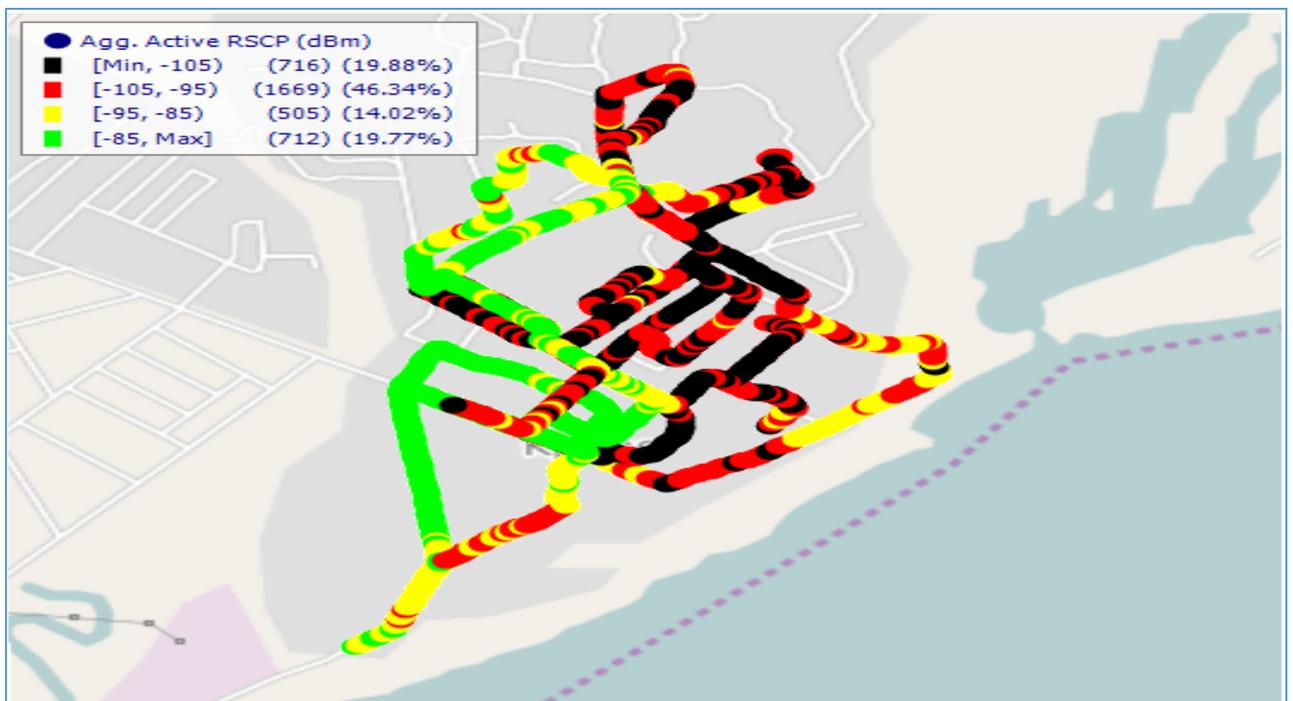


Fig. 40 - MTN 3G Coverage Map, Kpone - August 2016

Remarks: Good 3G coverage at Kpone.

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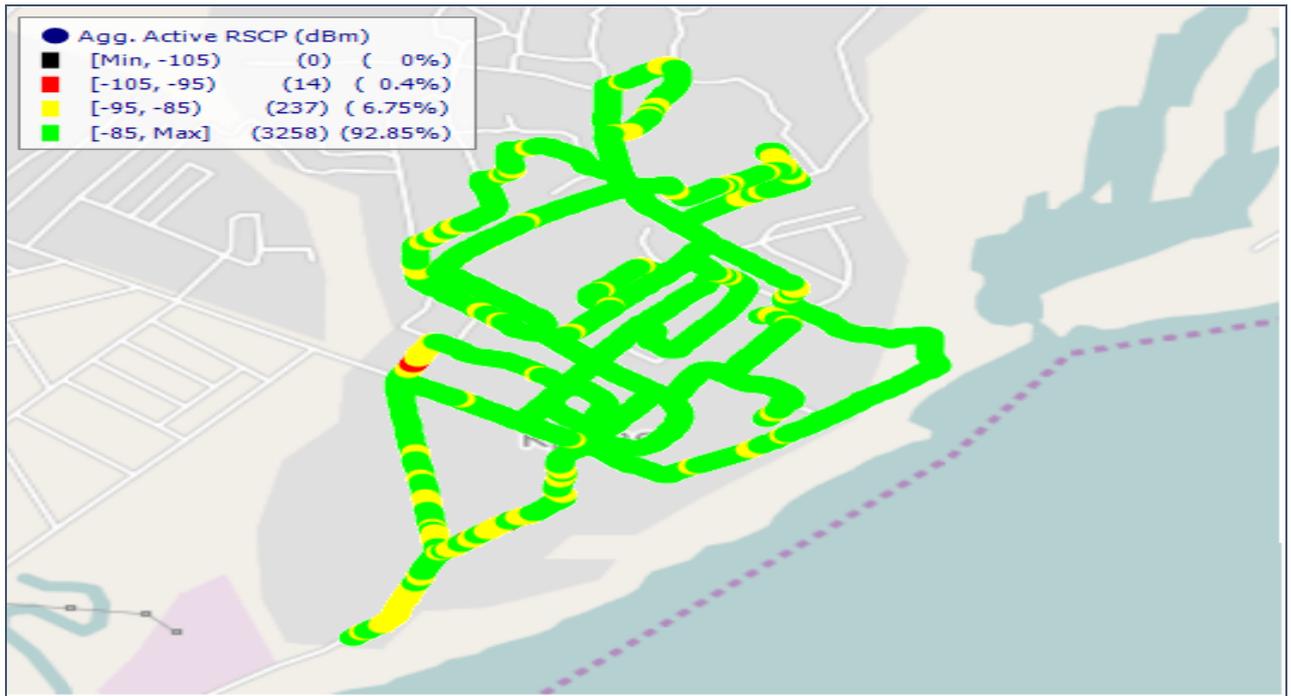


Fig. 41 - Vodafone 3G Coverage Map, Kpone - August 2016

Remarks: Good 3G coverage at Kpone

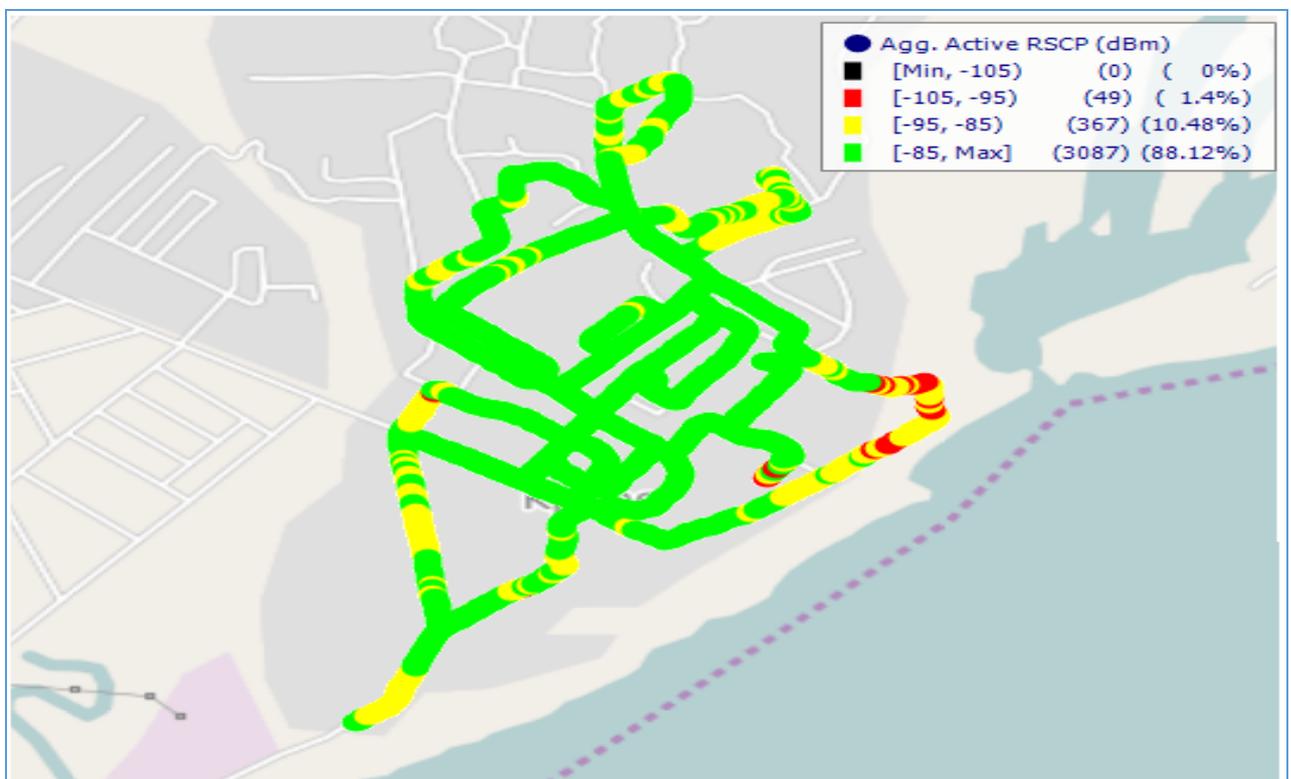


Fig. 42 - Tigo 3G Coverage Map, Kpone - August 2016

Remarks: Good 3G coverage at Kpone

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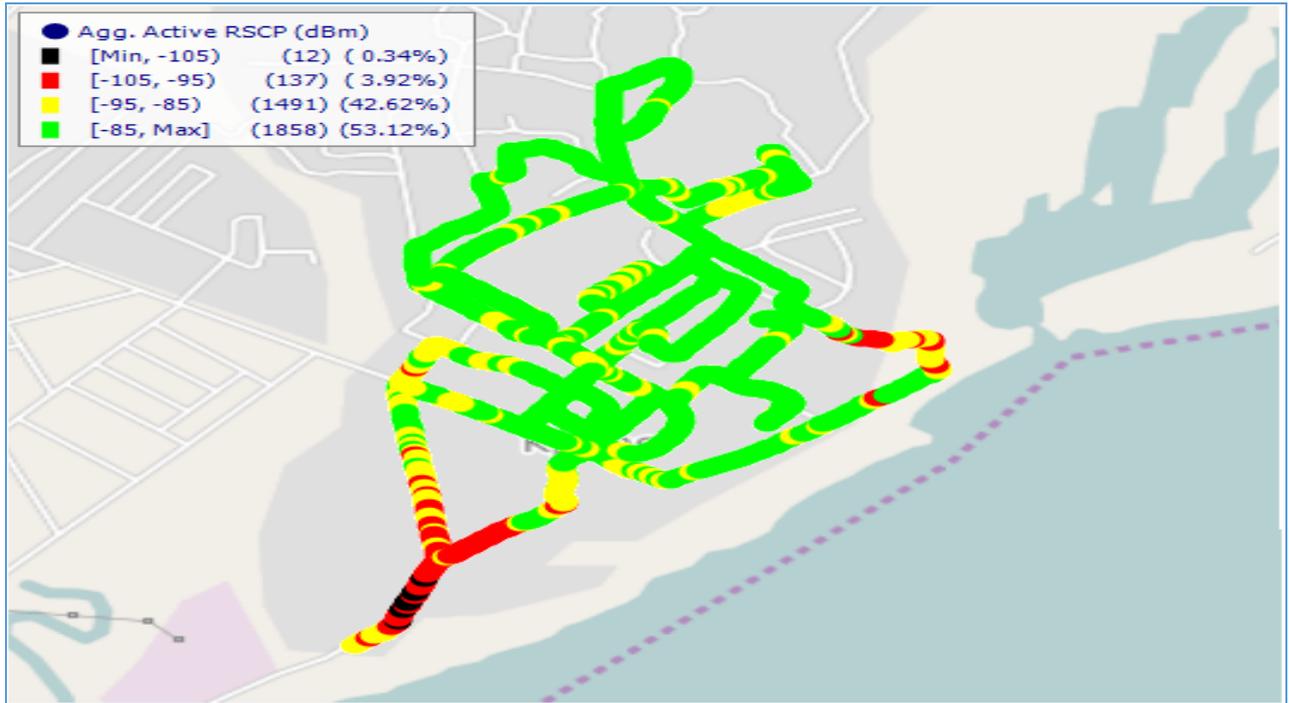


Fig. 43 – Airtel 3G Coverage Map, Kpone - August 2016
Remarks: Good 3G coverage at Kpone.

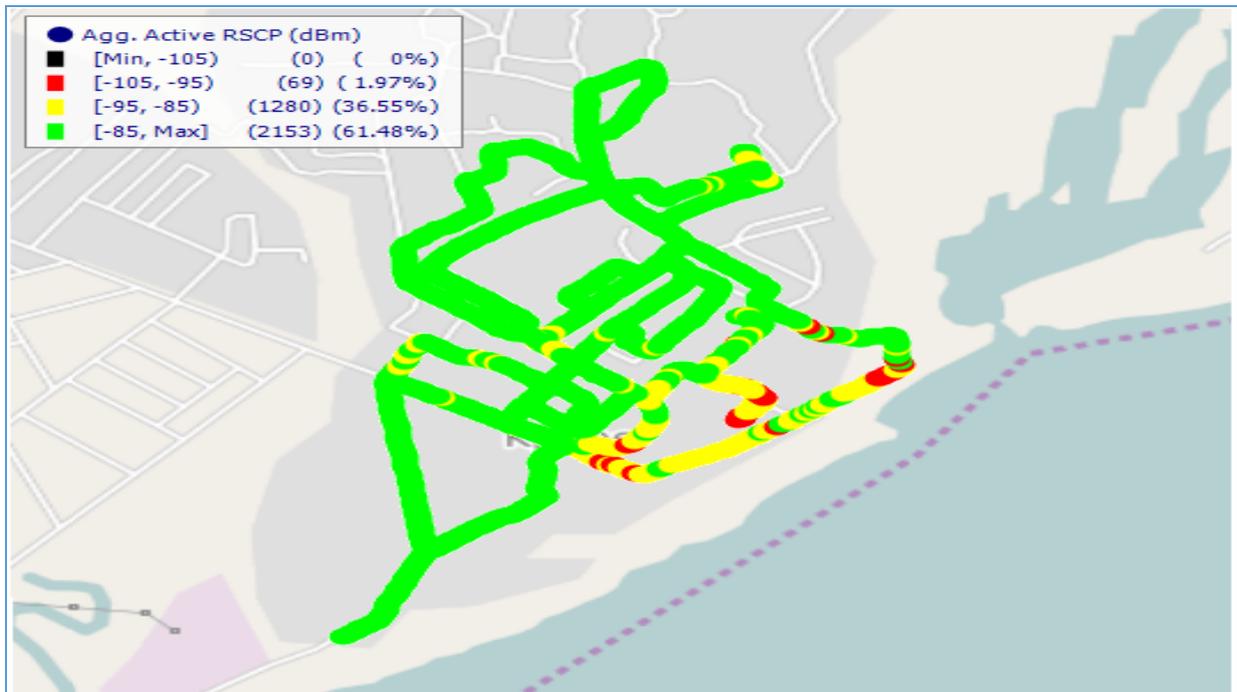


Fig. 44 – Glo 3G Coverage Map, Kpone - August 2016
Remarks: Good 3G coverage at Kpone.

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COVERAGE AT LA

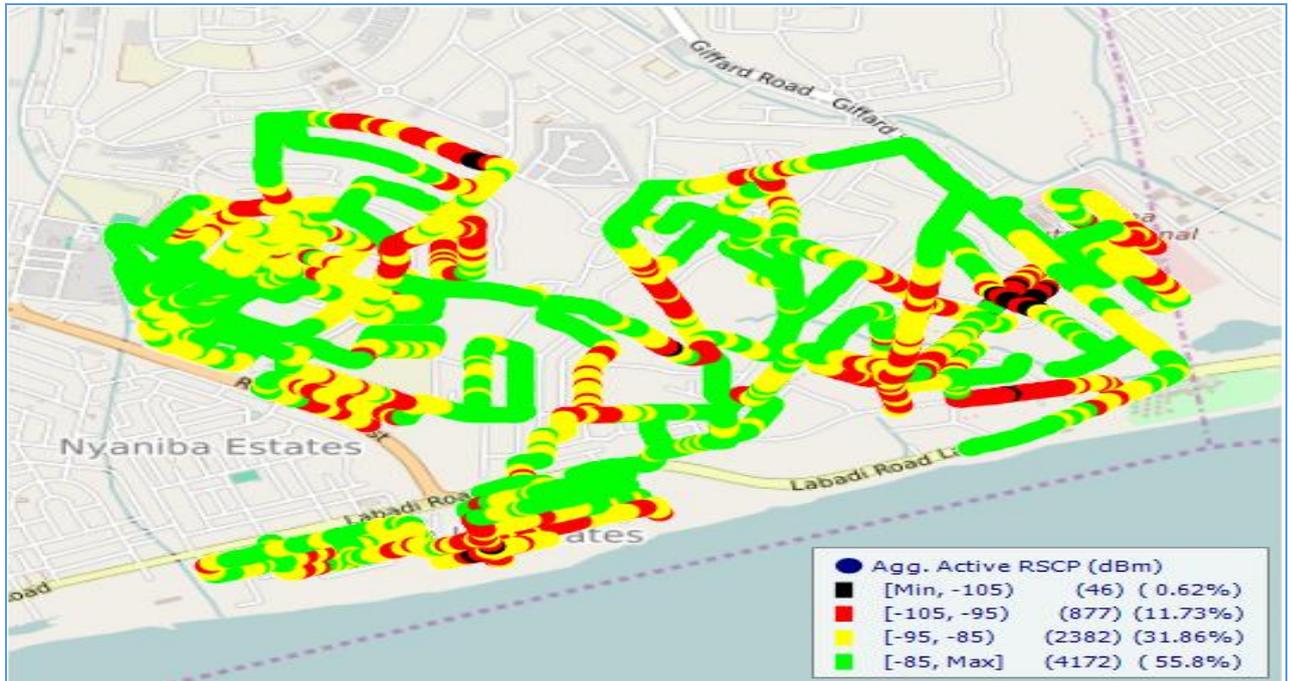


Fig. 45 - MTN 3G Coverage Map, La- August 2016

Remarks: Good 3G coverage in La.

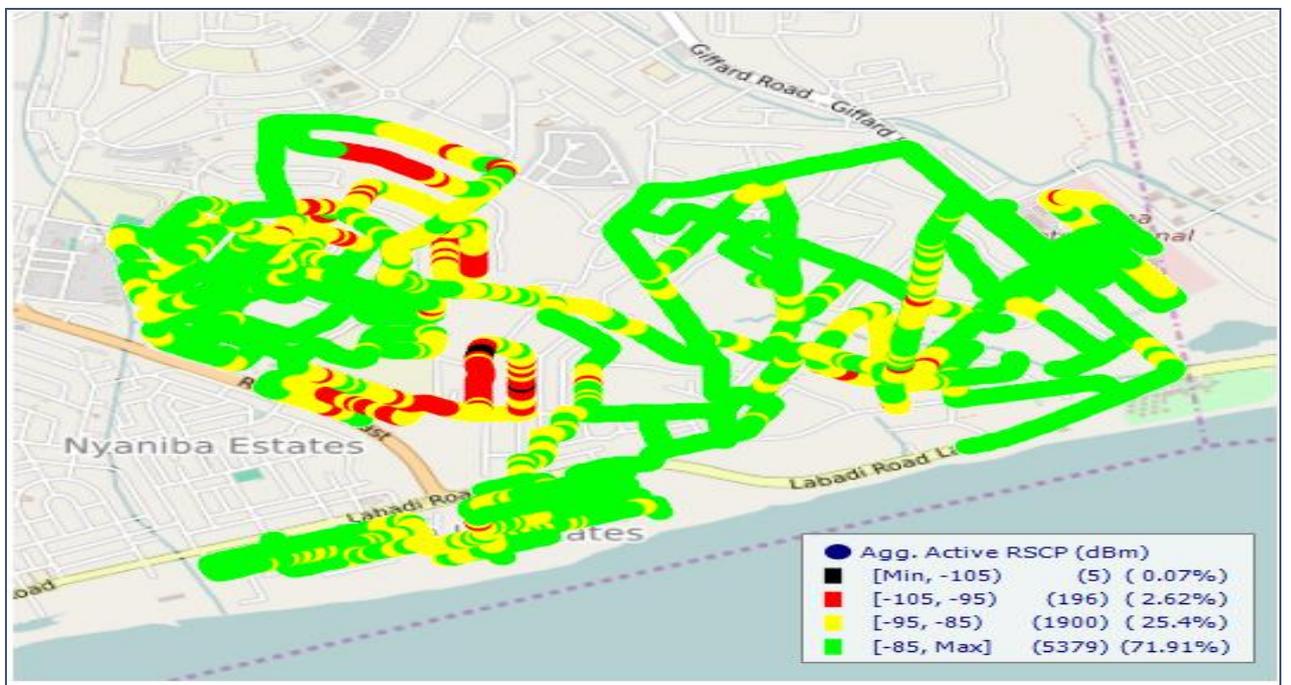


Fig. 46 - Vodafone 3G Coverage Map, La - August 2016

Remarks: Good 3G network coverage in La

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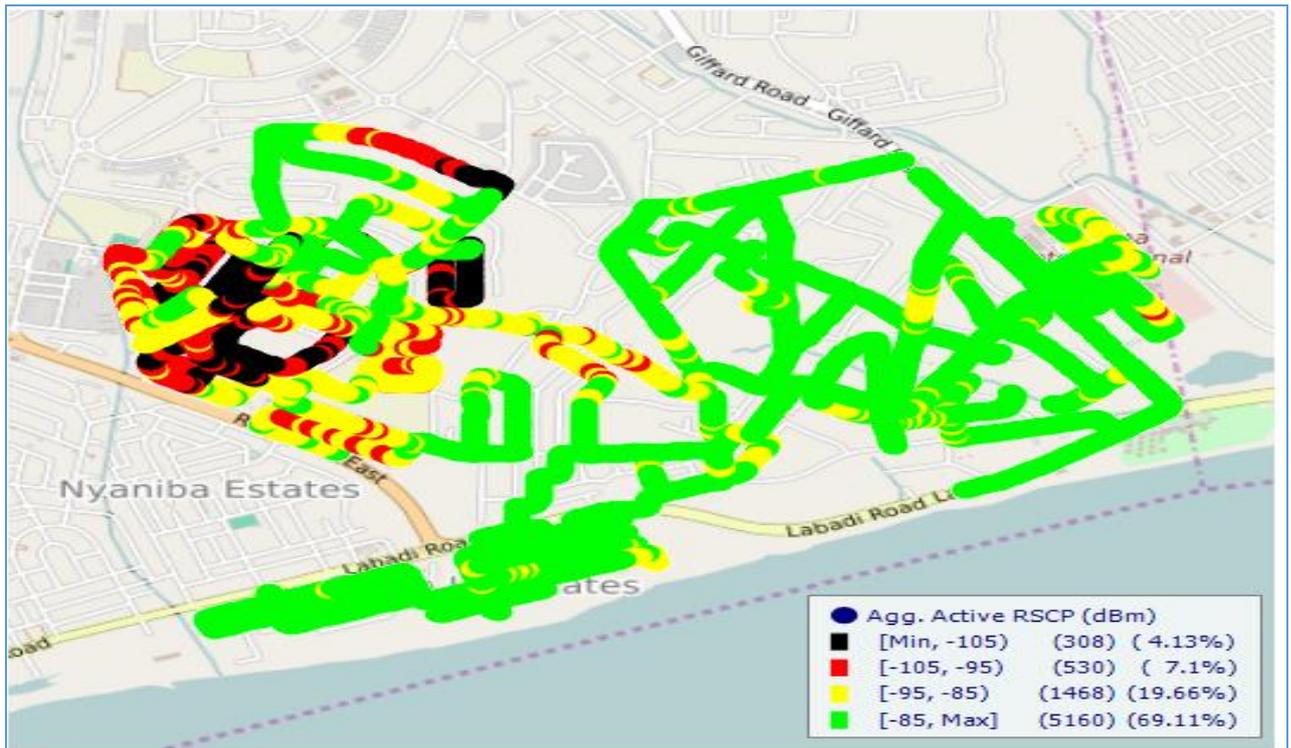


Fig. 47 - Tigo 3G Coverage Map, La - August 2016

Remarks: Good 3G coverage in La

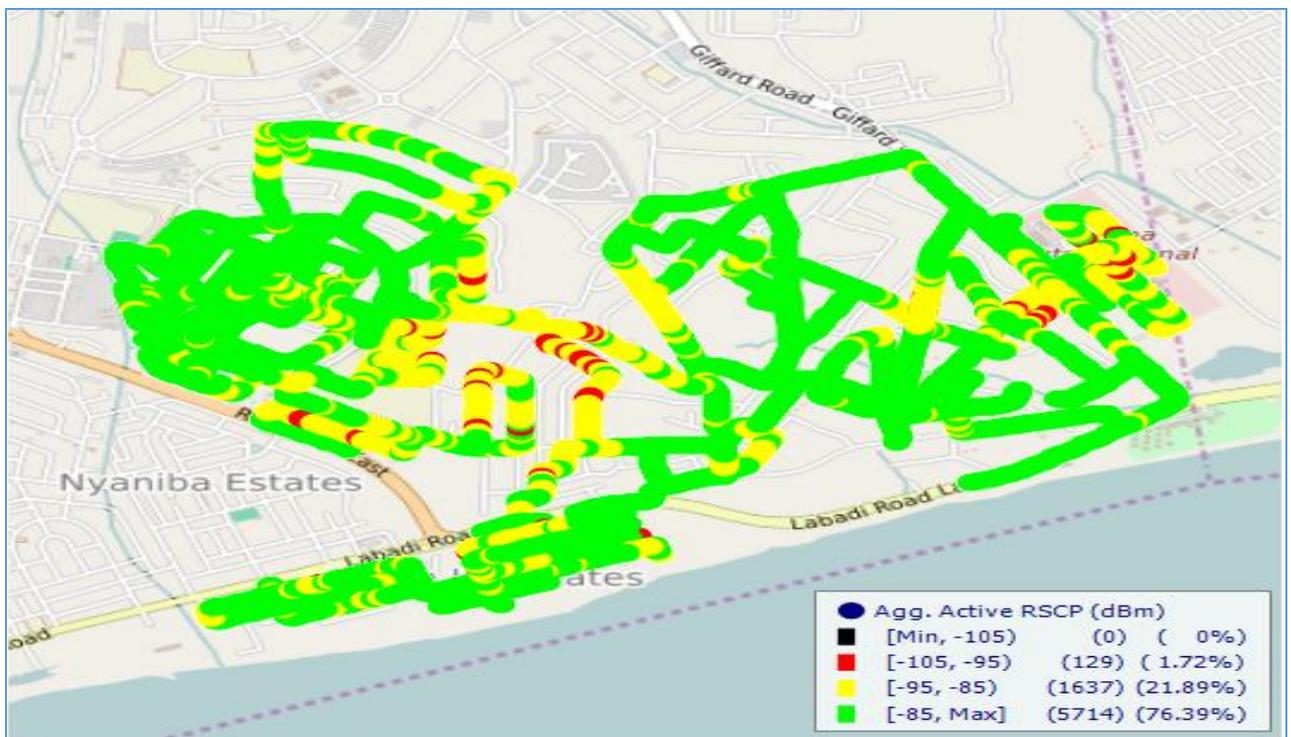


Fig. 48 - Airtel 3G Coverage Map, La - August 2016

Remarks: Good 3G coverage in La

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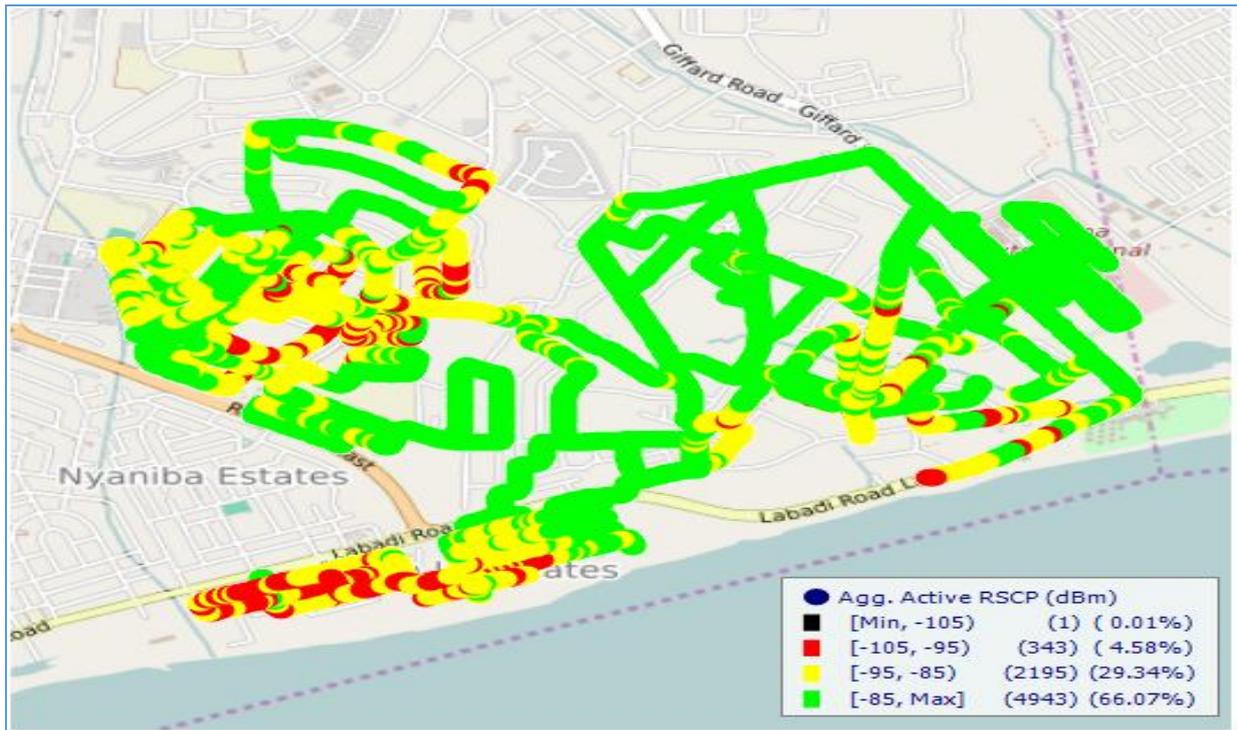


Fig. 49 – Glo 3G Coverage Map, La - August 2016

Remarks: Good 3G coverage in La

COVERAGE AT MADINA

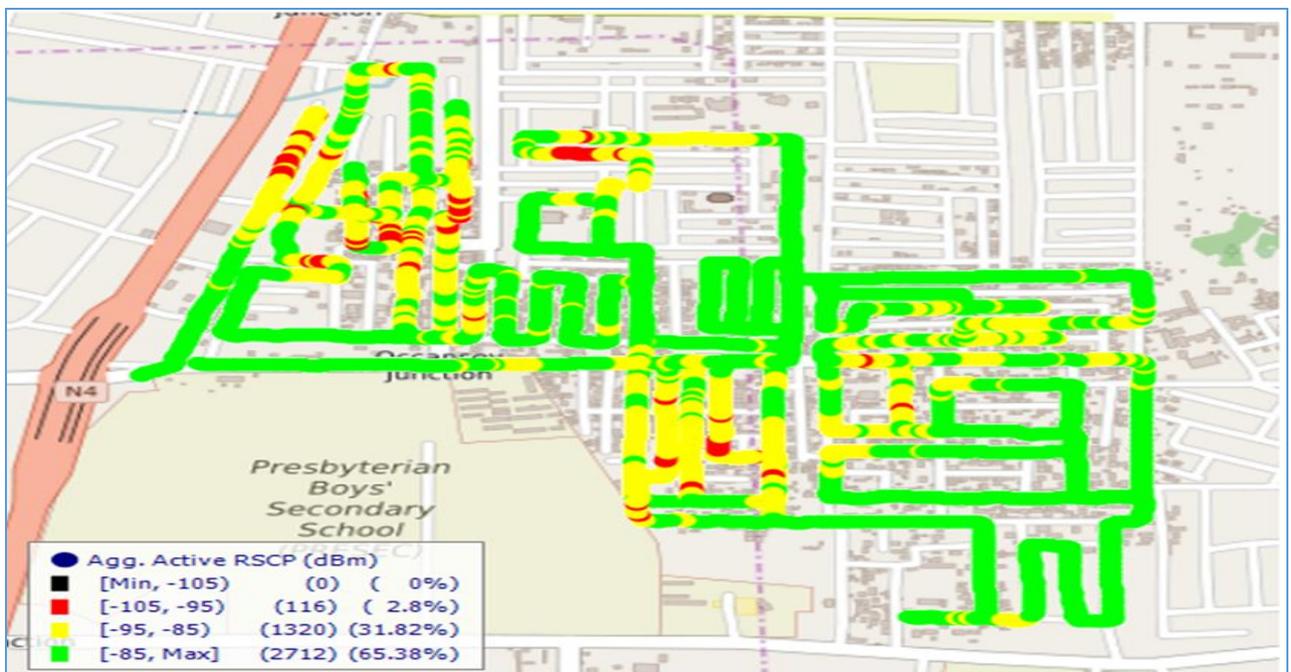


Fig. 50 - MTN 3G Coverage Map, Madina - August 2016

Remarks: Good 3G network coverage

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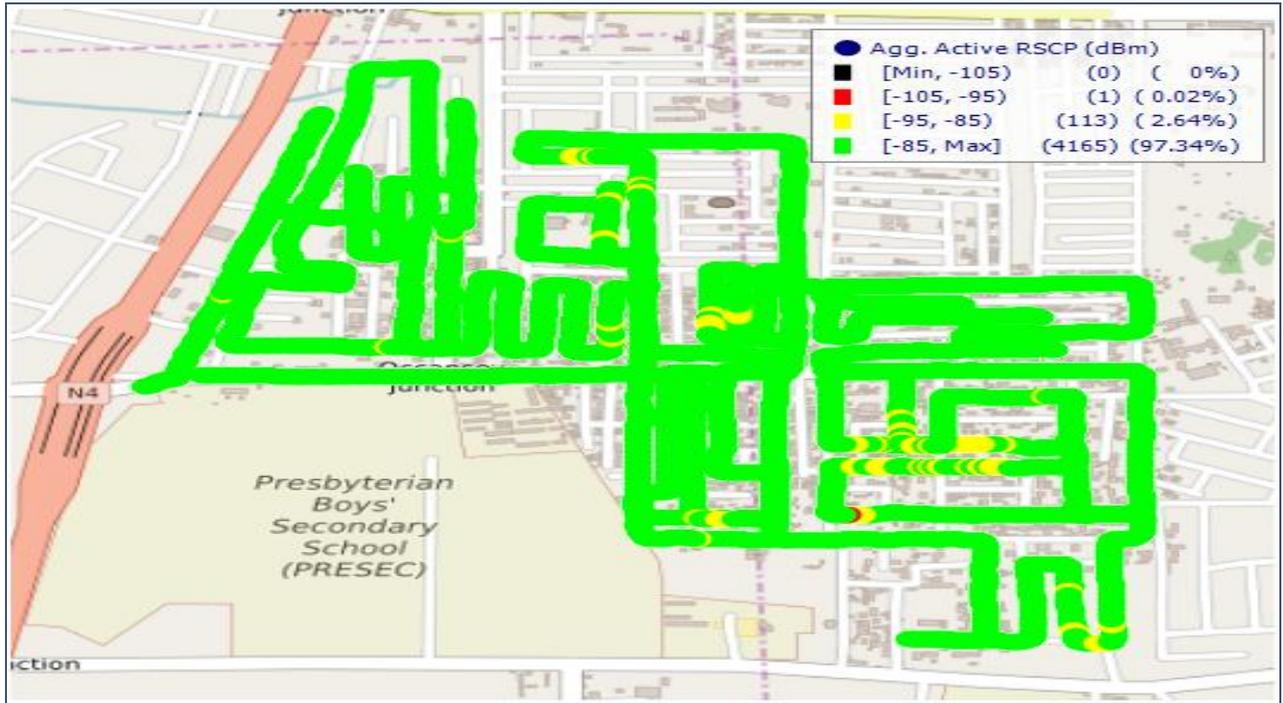


Fig. 51 - Vodafone 3G Coverage Map, Madina - August 2016

Remarks: Good 3G network coverage

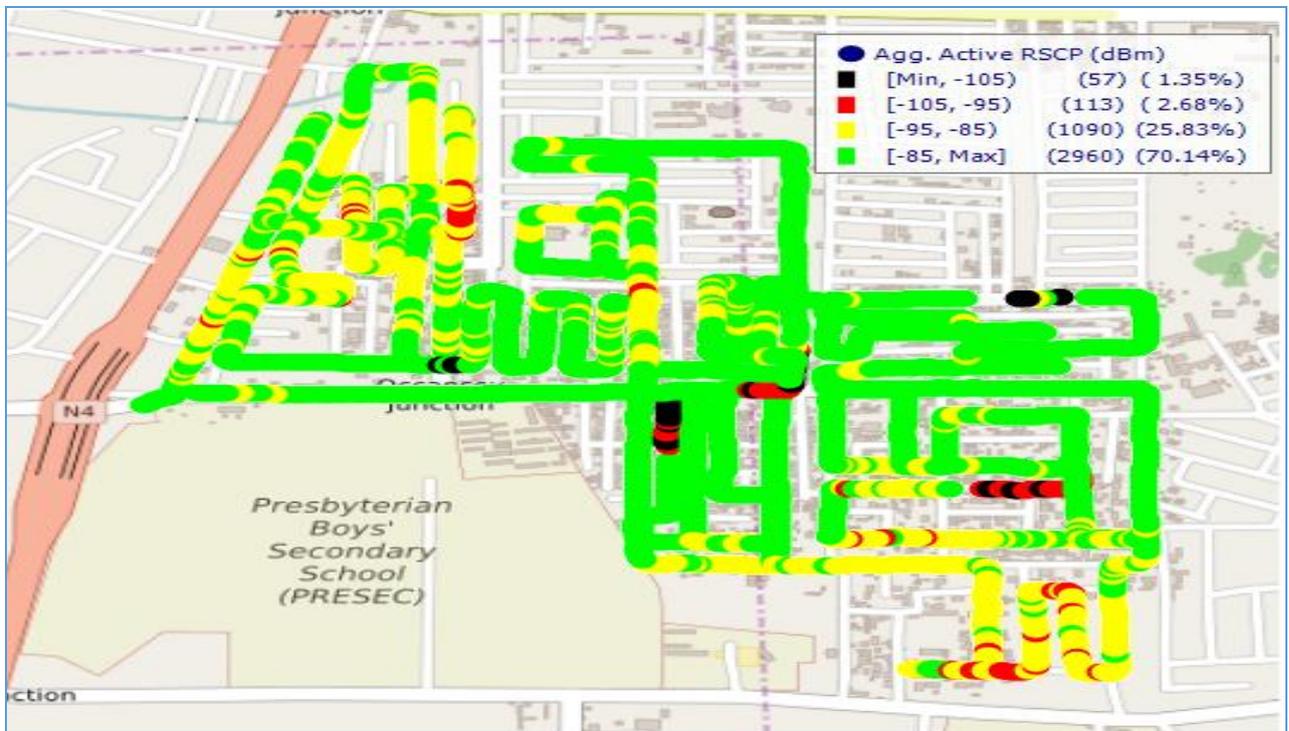


Fig. 52 - Tigo 3G Coverage Map, Madina - August 2016

Remarks: Good 3G network coverage

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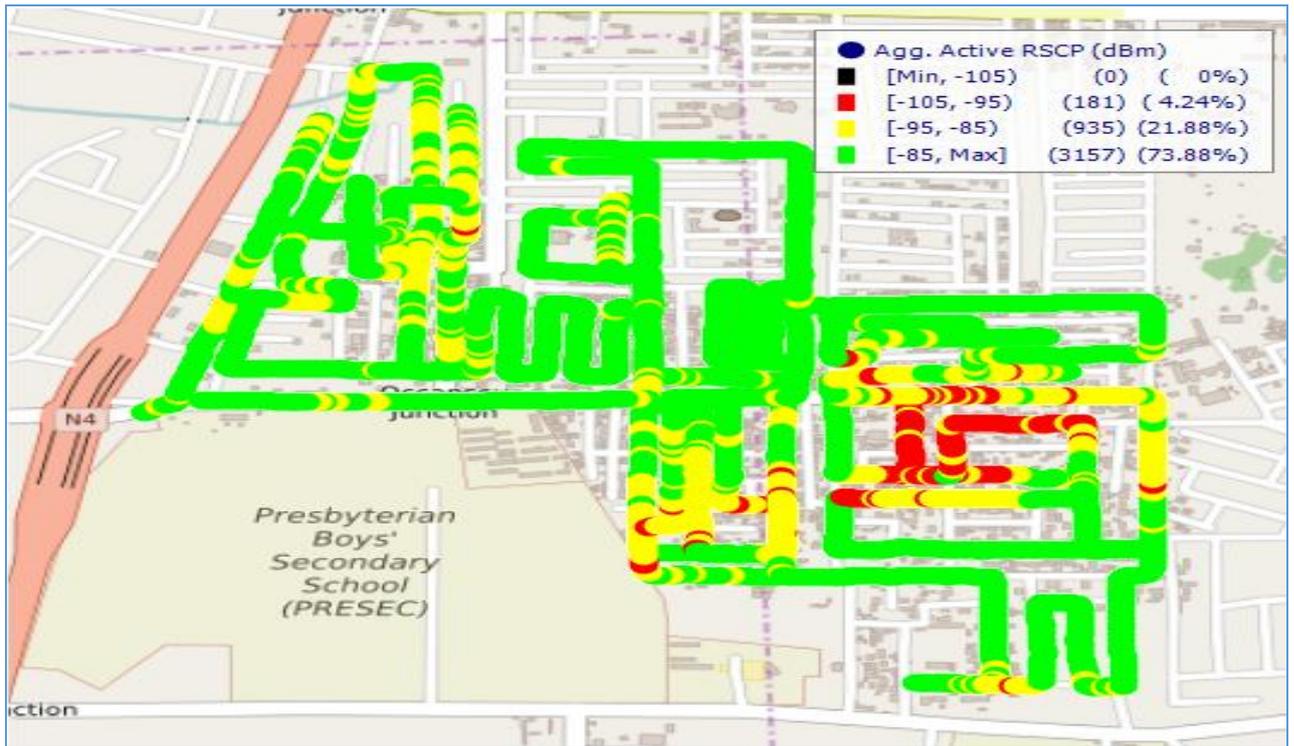


Fig. 53- Airtel 3G Coverage Map, Madina - August 2016
Remarks: Good 3G network coverage

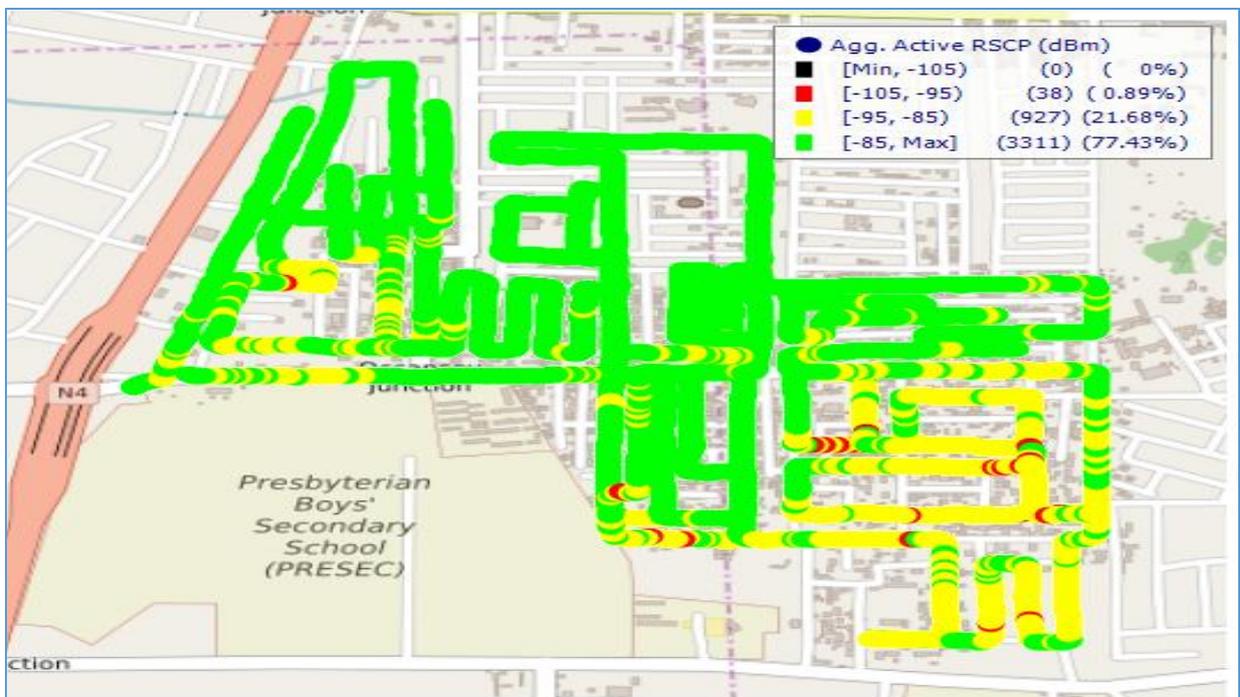


Fig. 54 – Glo 3G Coverage Map, Madina - August 2016
Remarks: Good 3G network coverage

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COVERAGE AT PRAMPARAM

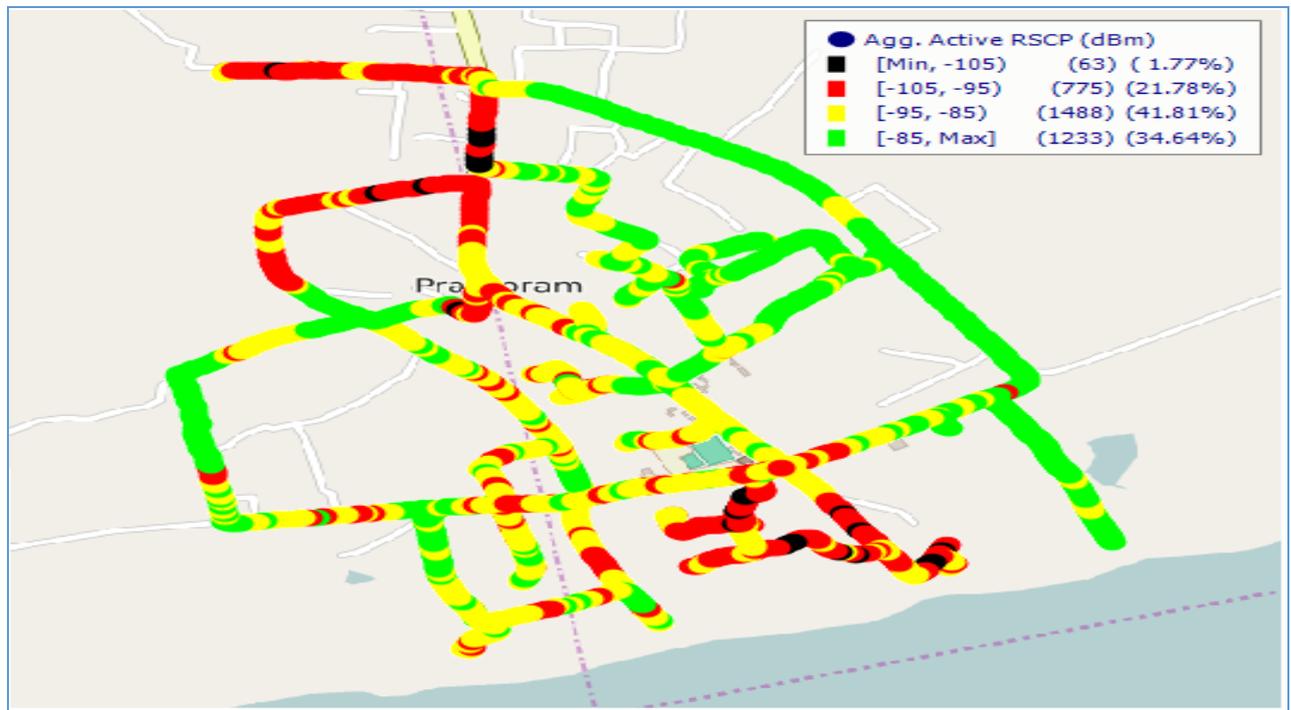


Fig. 55 - MTN 3G Coverage Map, Prampram - August 2016

Remarks: Fair 3G network coverage in Prampram which requires improvement

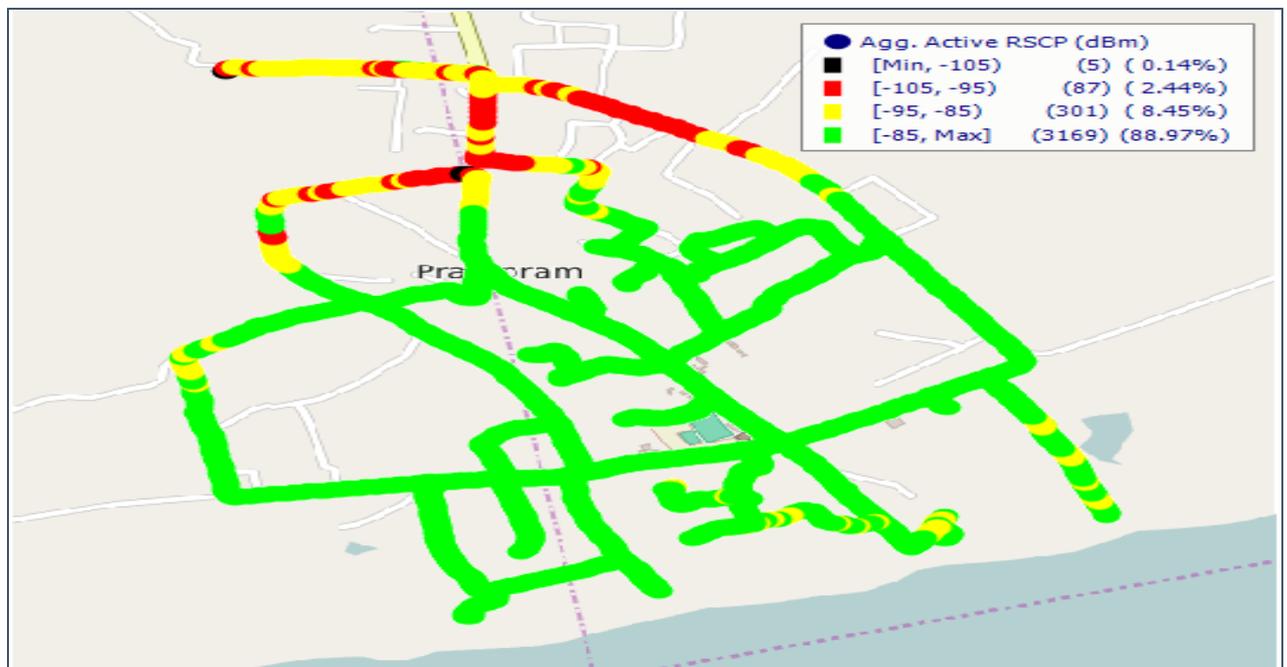


Fig. 56 - Vodafone 3G Coverage Map, Prampram - August 2016

Remarks: Good 3G network coverage in Prampram.

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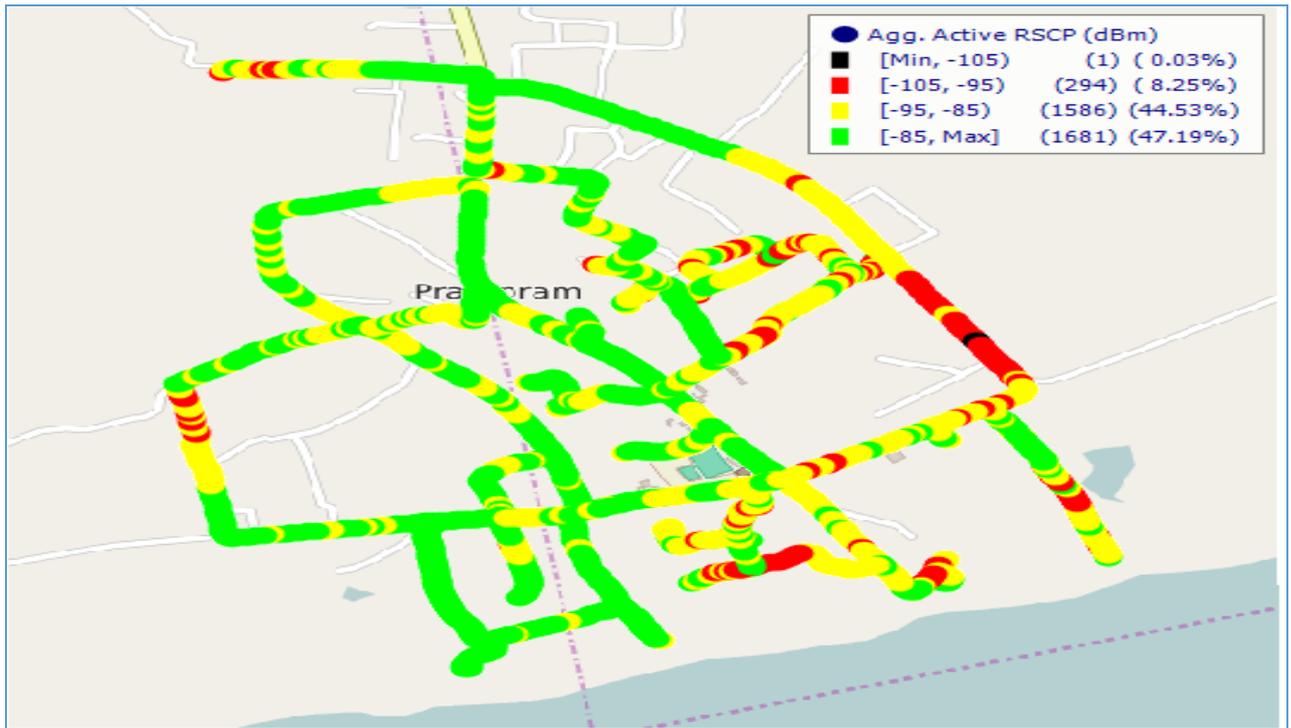


Fig. 57 - Tigo 3G Coverage Map, Prampram - August 2016

Remarks: Good 3G network coverage in Prampram.

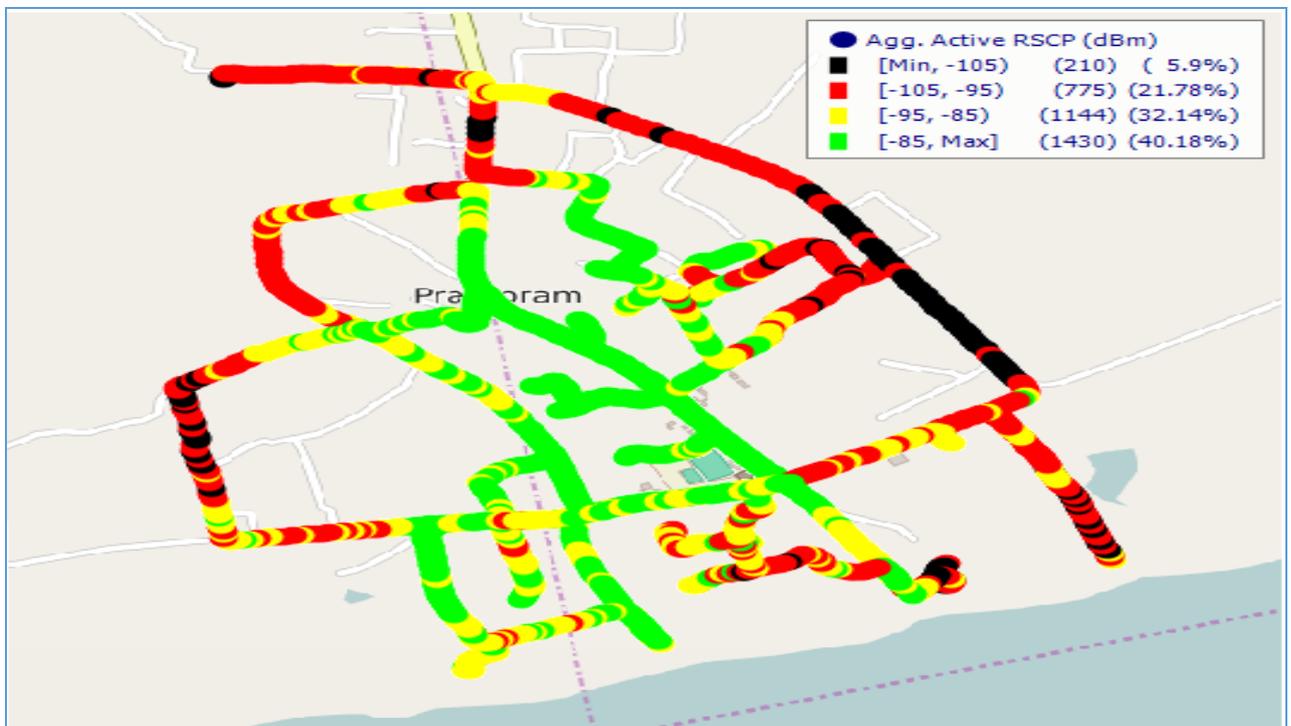


Fig. 58 - Airtel 3G Coverage Map, Prampram - August 2016

Remarks: Fair 3G coverage in Prampram; however improvement is needed.

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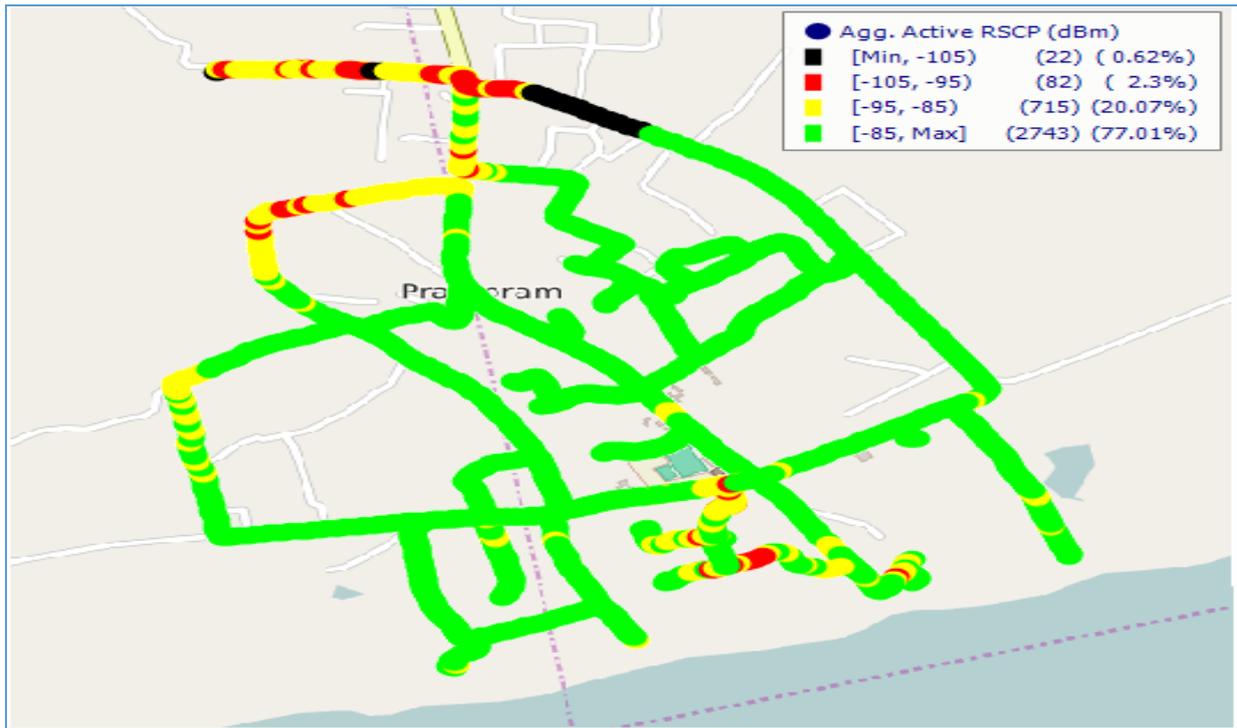


Fig. 59 - Glo 3G Coverage Map, Prampram - August 2016

Remarks: Poor 3G coverage in Prampram; however improvement is needed.

COVERAGE AT SEGE

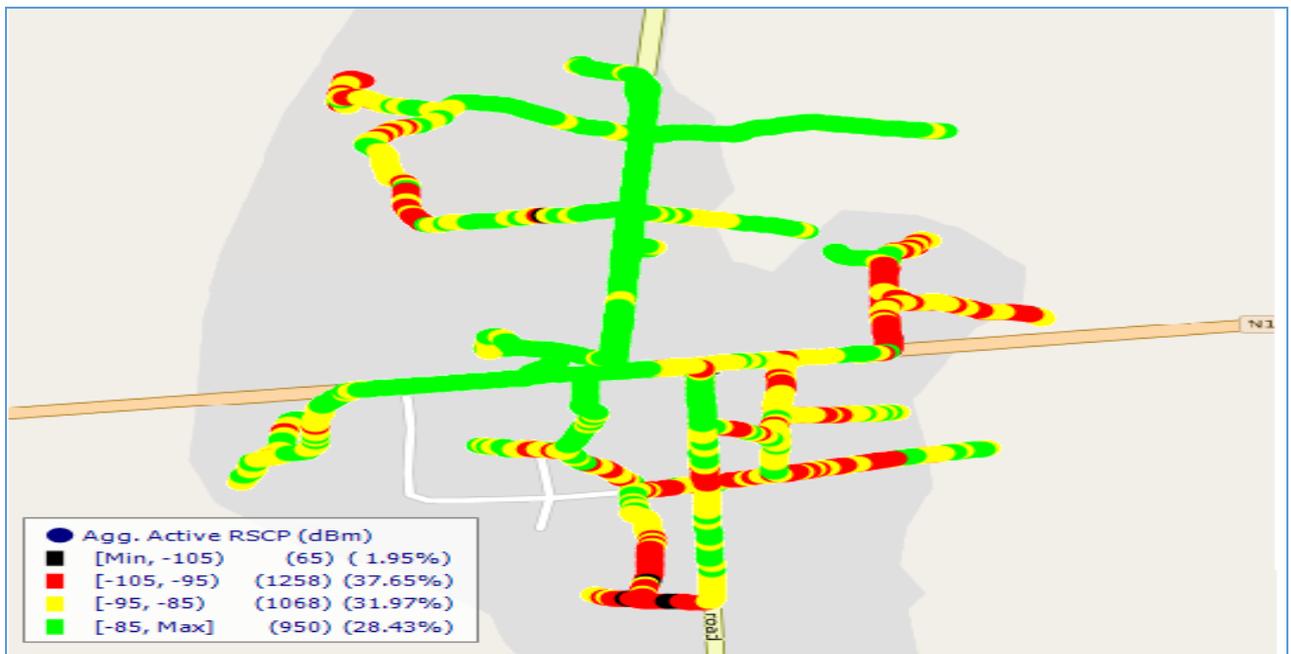


Fig. 60 - MTN 3G Coverage Map, Sege - August 2016

Remarks: Good 3G Coverage in Sege

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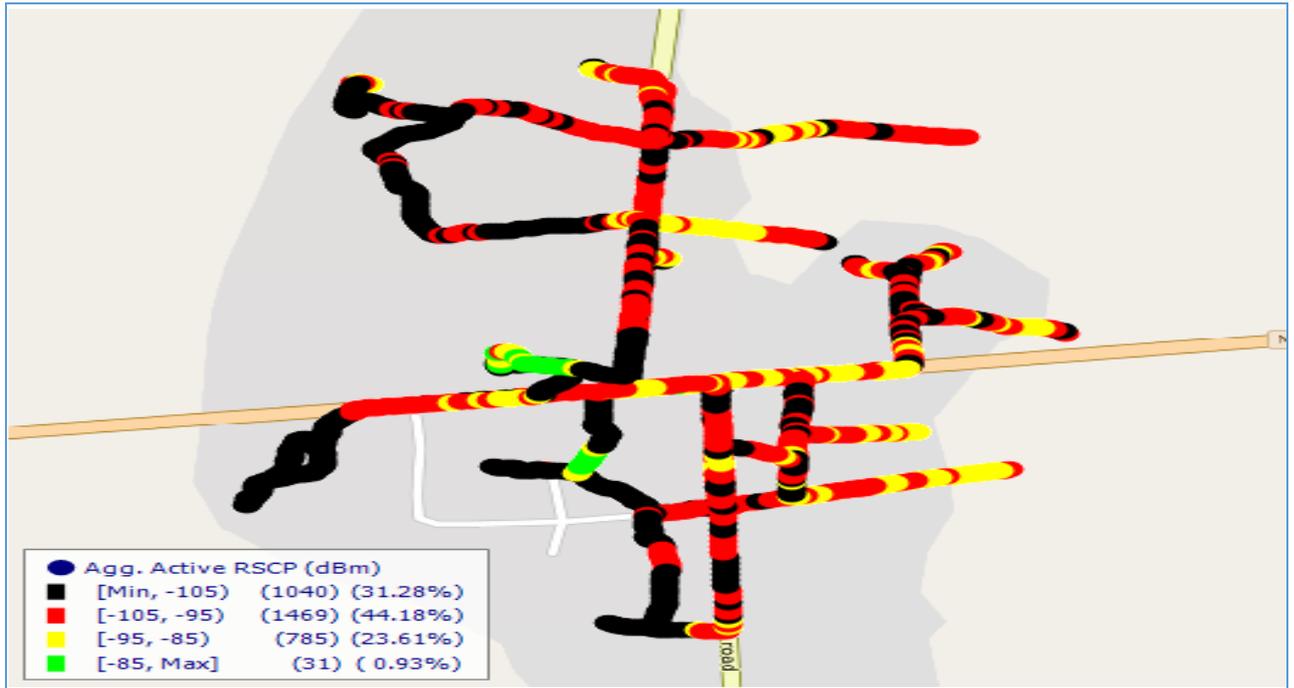


Fig. 61 - Airtel 3G Coverage Map, Sege - August 2016

Remarks: Poor 3G Coverage in Sege. Major improvement is required.

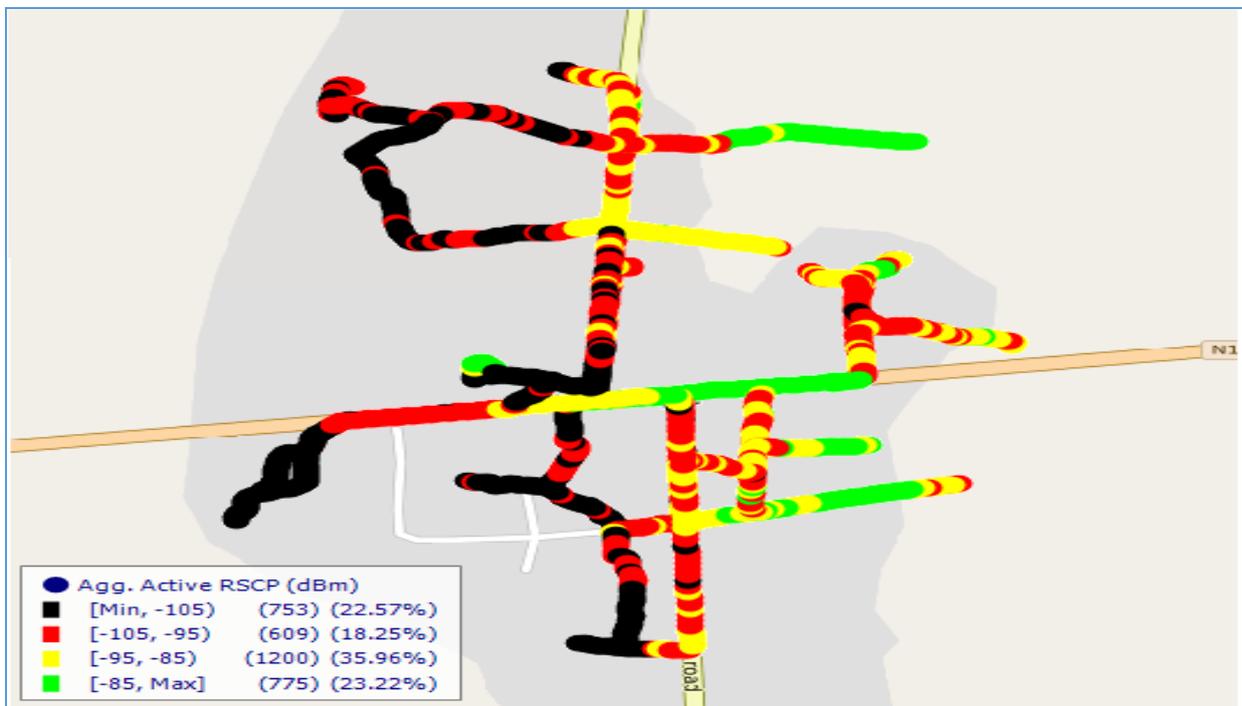


Fig. 62 -Glo 3G Coverage Map, Sege - August 2016

Remarks: Poor 3G Coverage in Sege. Major improvement is required.

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COVERAGE AT SOWUTUOM



Fig. 63 - MTN 3G Coverage Map, Sowutuom - August 2016

Remarks: Good 3G coverage in Sowutuom

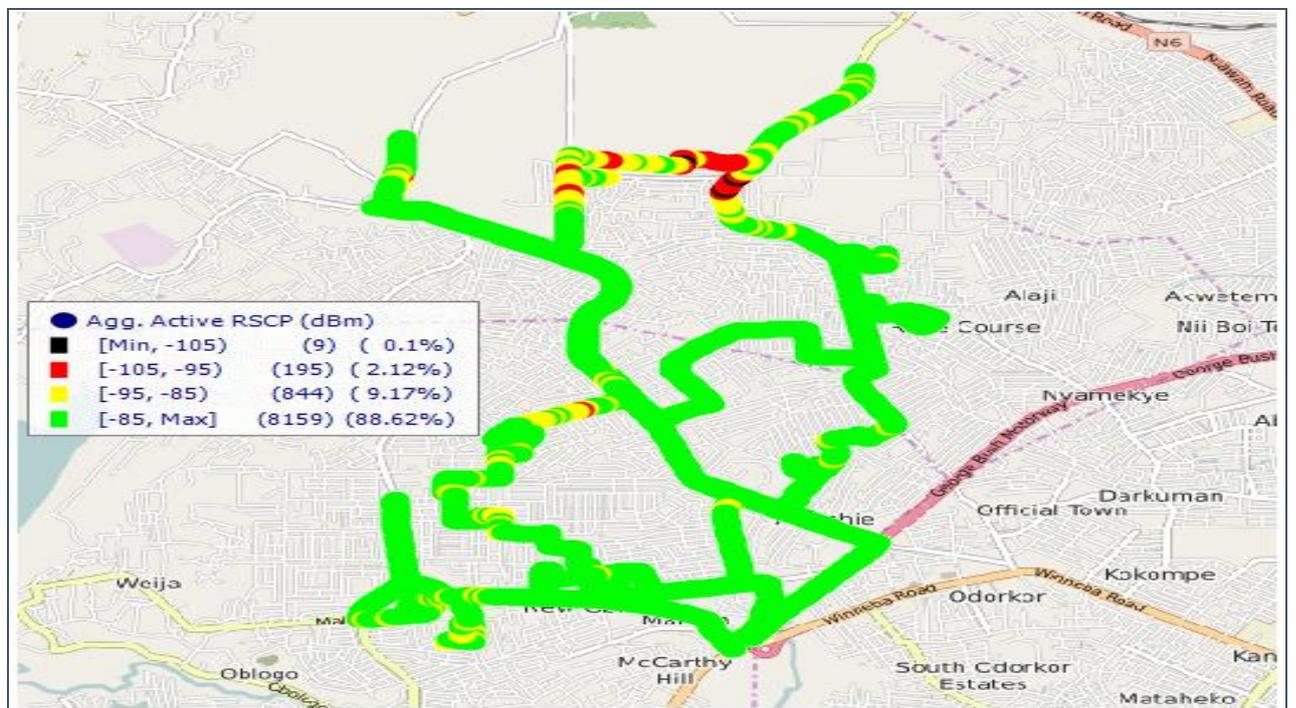


Fig. 64 - Vodafone 3G Coverage Map, Sowutuom - August 2016

Remarks: Good 3G coverage in Sowutuom

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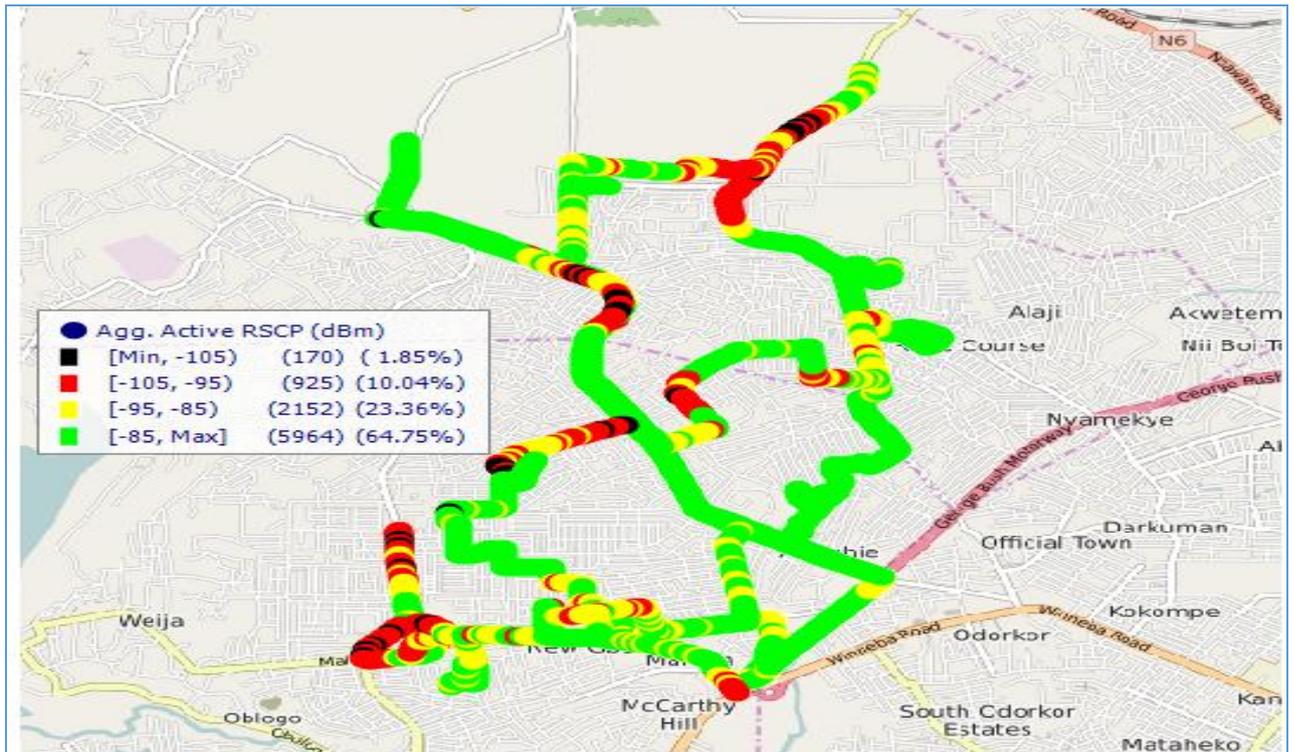


Fig. 65 - Tigo 3G Coverage Map, Sowutuom - August 2016

Remarks: Good 3G coverage in Sowutuom

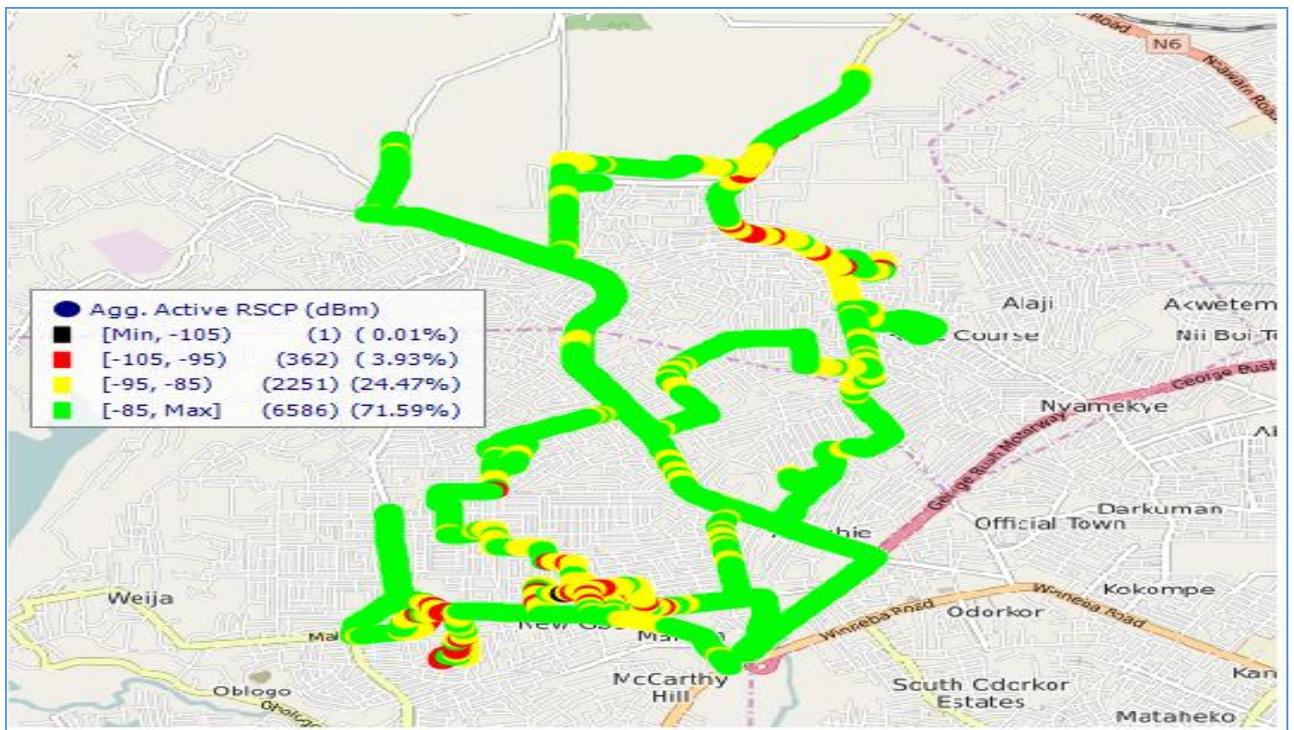


Fig. 66 - Airtel 3G Coverage Map, Sowutuom - August 2016

Remarks: Good 3G coverage in Sowutuom.

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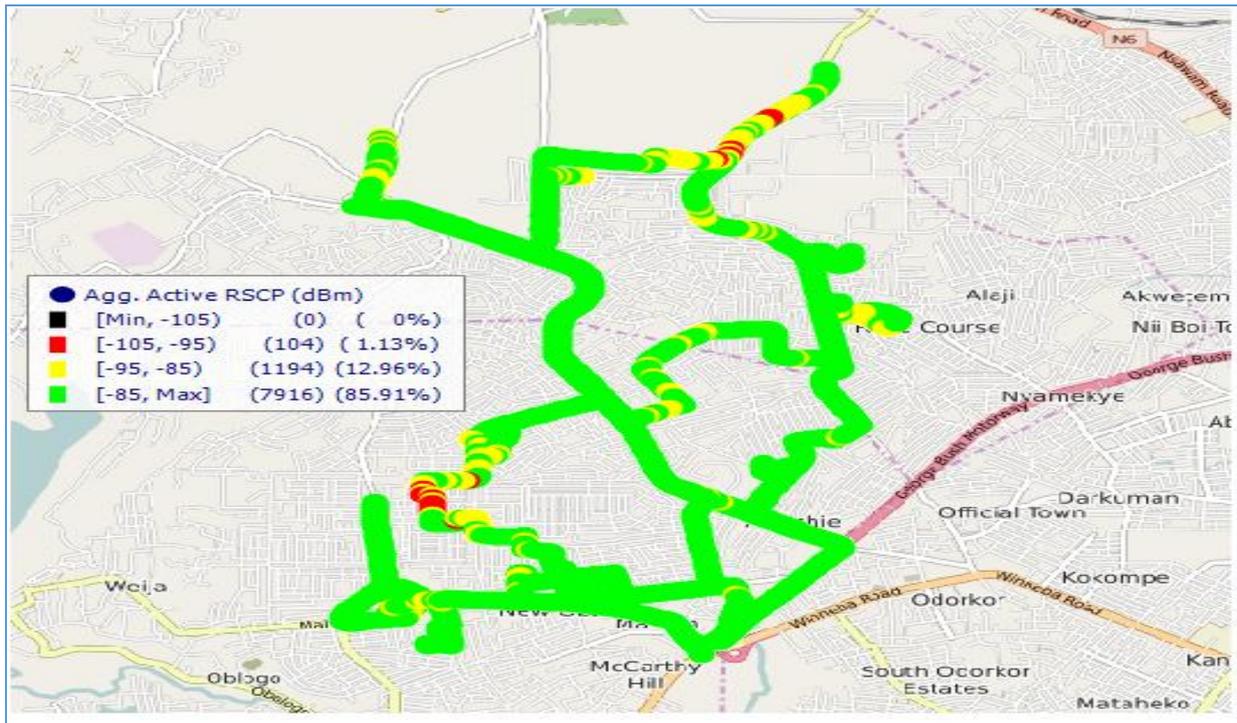


Fig. 67 – Glo 3G Coverage Map, Sowutuom - August 2016

Remarks: Good 3G coverage in Sowutuom.

COVERAGE AT TEMA

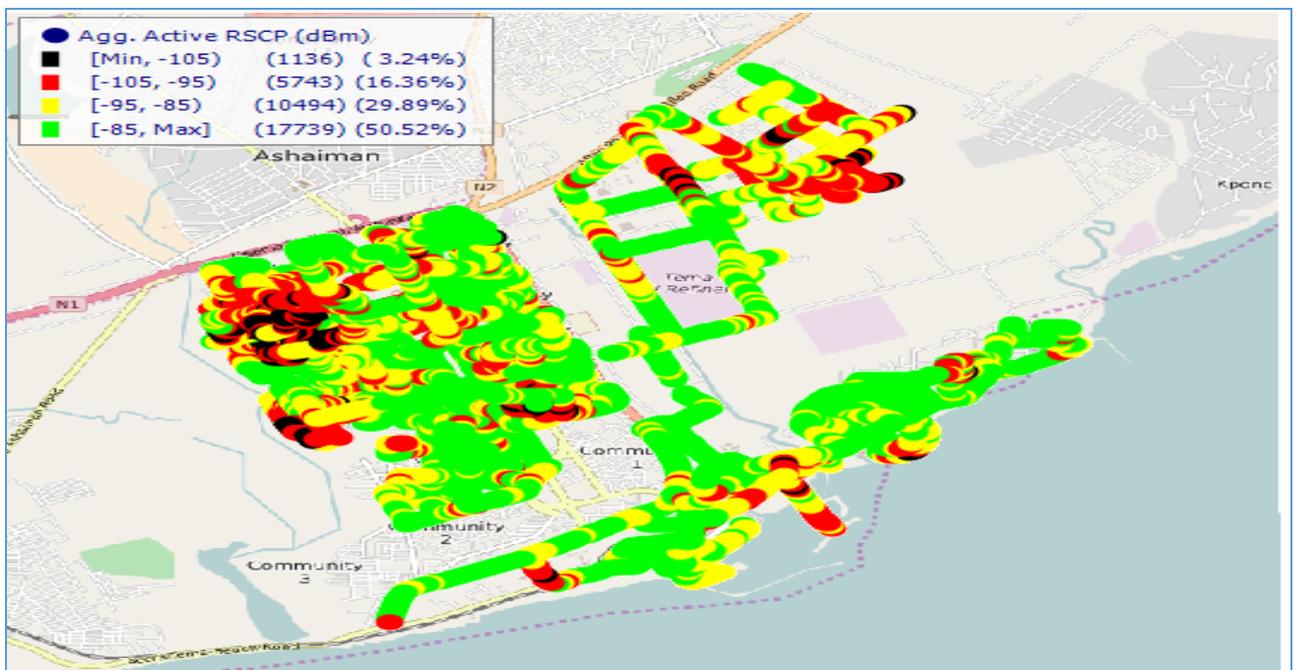


Fig. 68 - MTN 3G Coverage Map, Tema – August 2016

Remarks: Good 3G network coverage in Tema

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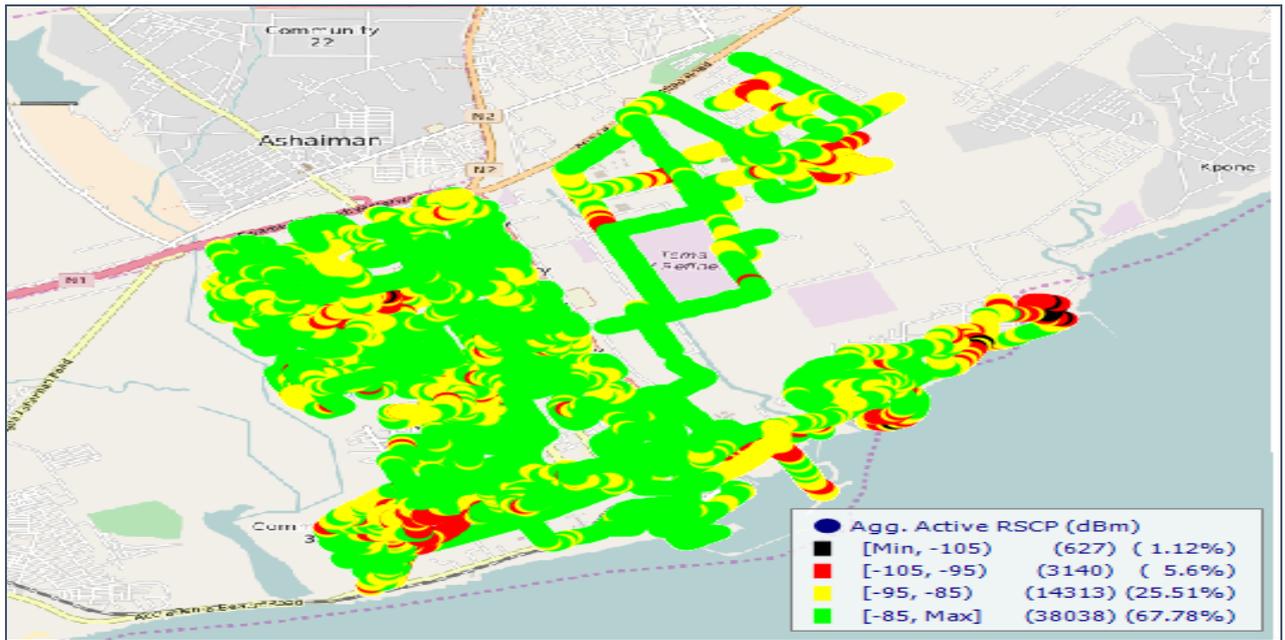


Fig. 69 - Vodafone 3G Coverage Map, Tema – August 2016

Remarks: Good 3G coverage in Tema

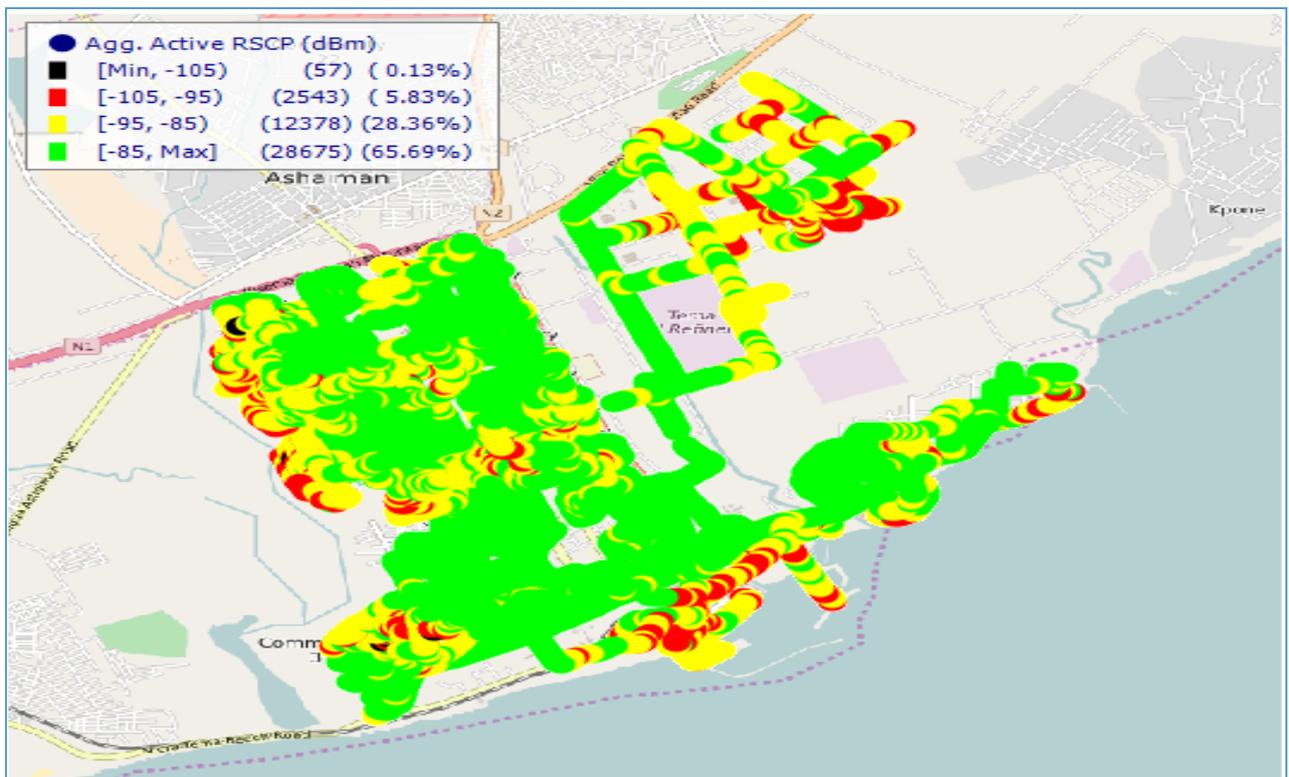


Fig. 70 – Tigo 3G Coverage Map, Tema – August 2016

Remarks: Good 3G coverage in Tema.

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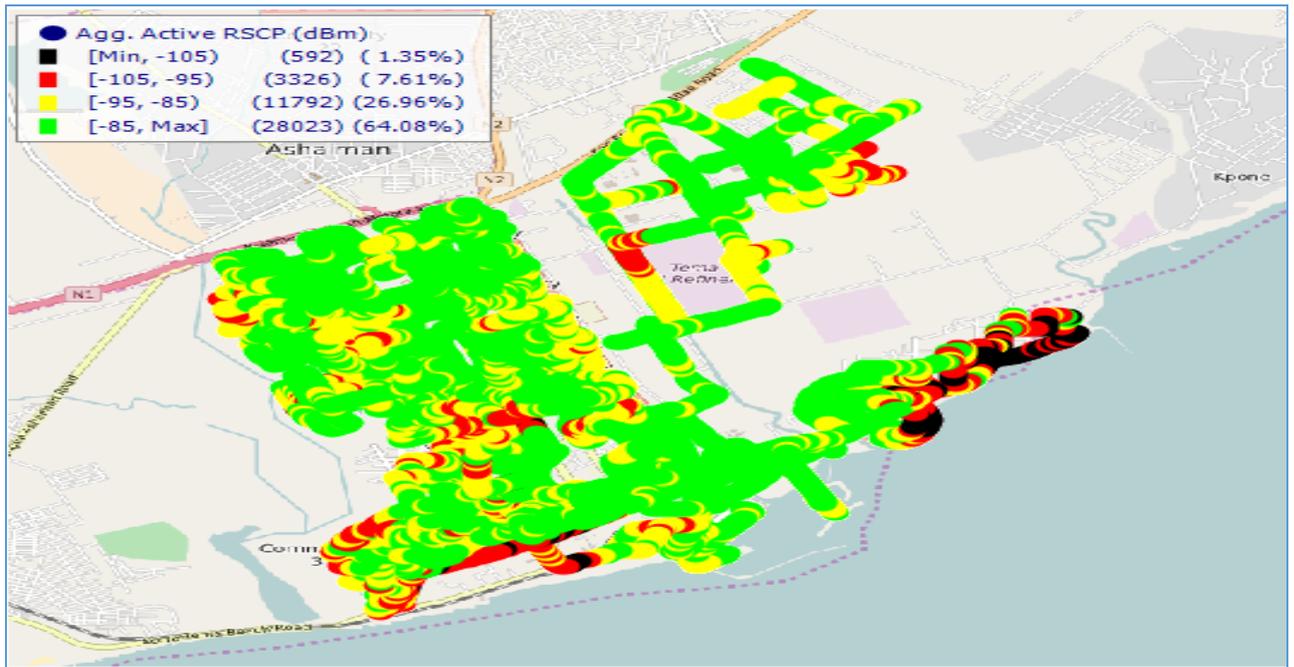


Fig. 71 - Airtel 3G Coverage Map, Tema – August 2016

Remarks: Good 3G coverage in Tema.

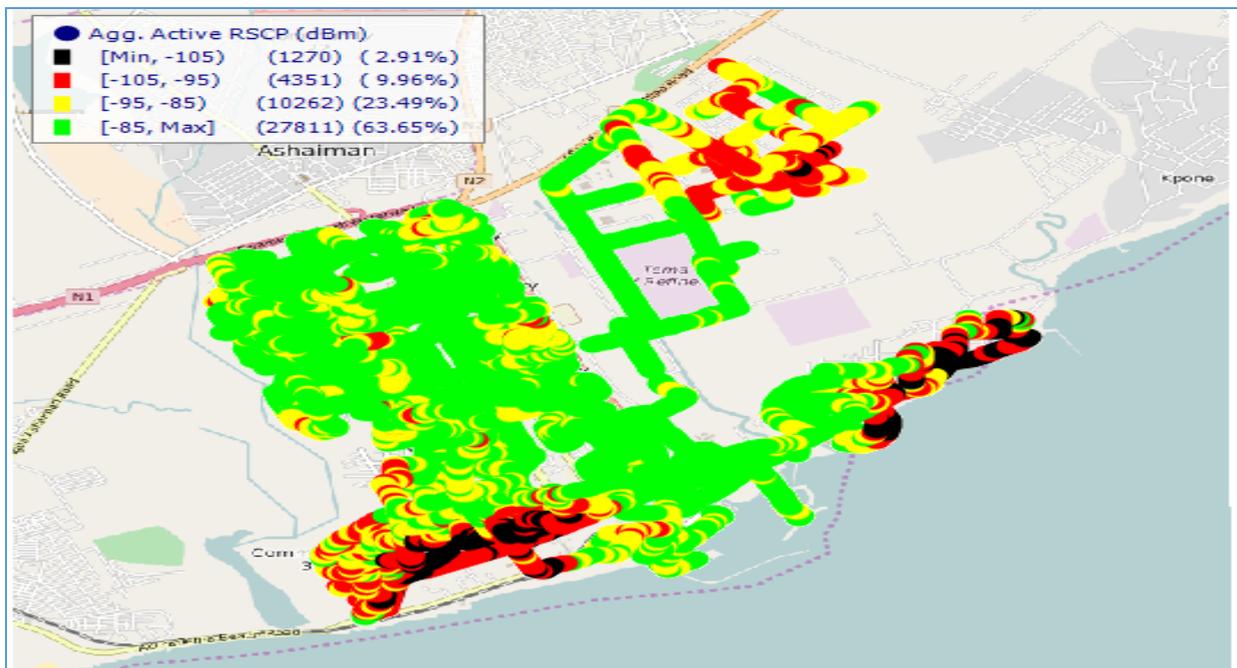


Fig. 72 - Glo 3G Coverage Map, Tema – August 2016

Remarks: Poor 3G coverage in Tema which requires improvement

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COVERAGE AT TESHIE NUNGUA

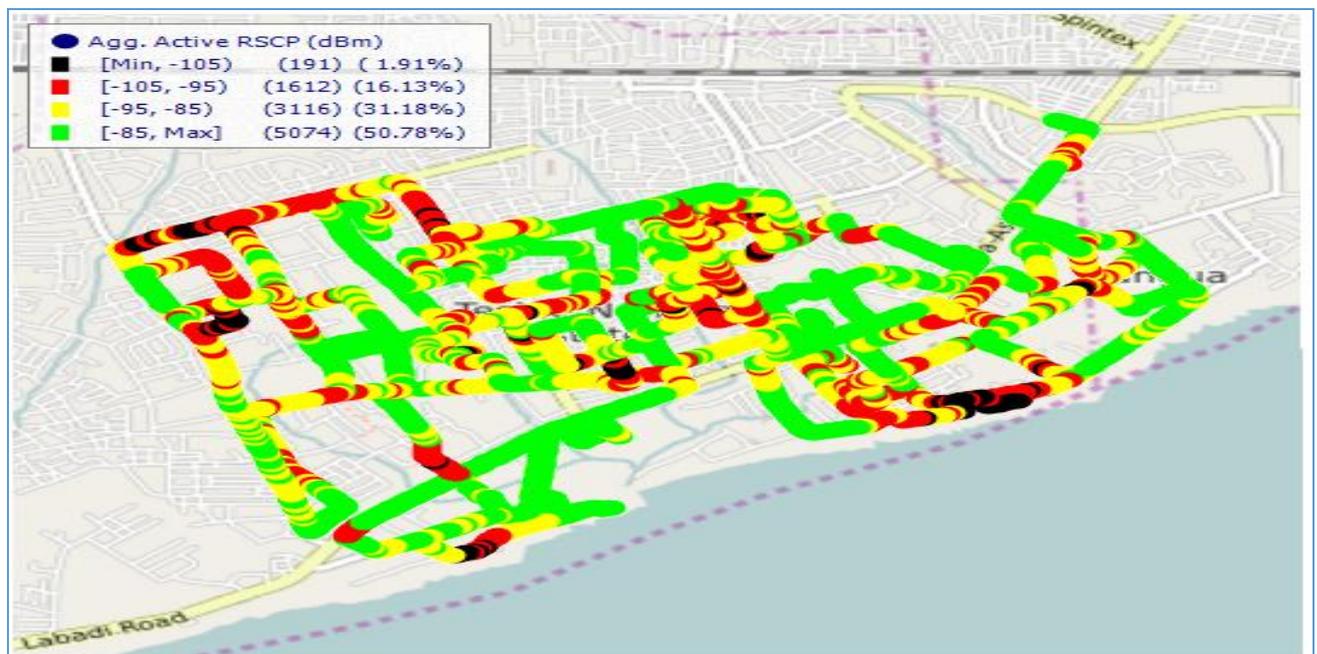


Fig. 73 - MTN 3G Coverage Map, Teshie Nungua – August 2016

Remarks: Good 3G network coverage in Teshie Nungua

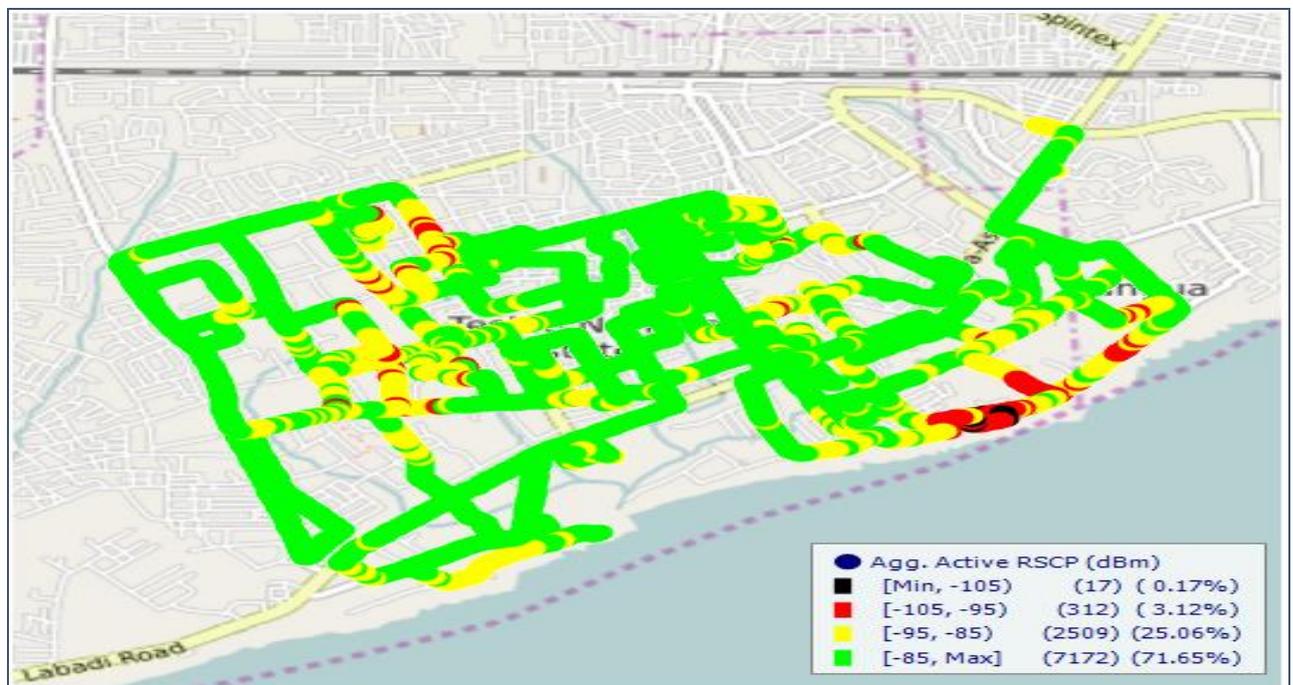


Fig. 74- Vodafone 3G Coverage Map, Teshie Nungua – August 2016

Remarks: Good 3G coverage in Teshie Nungua

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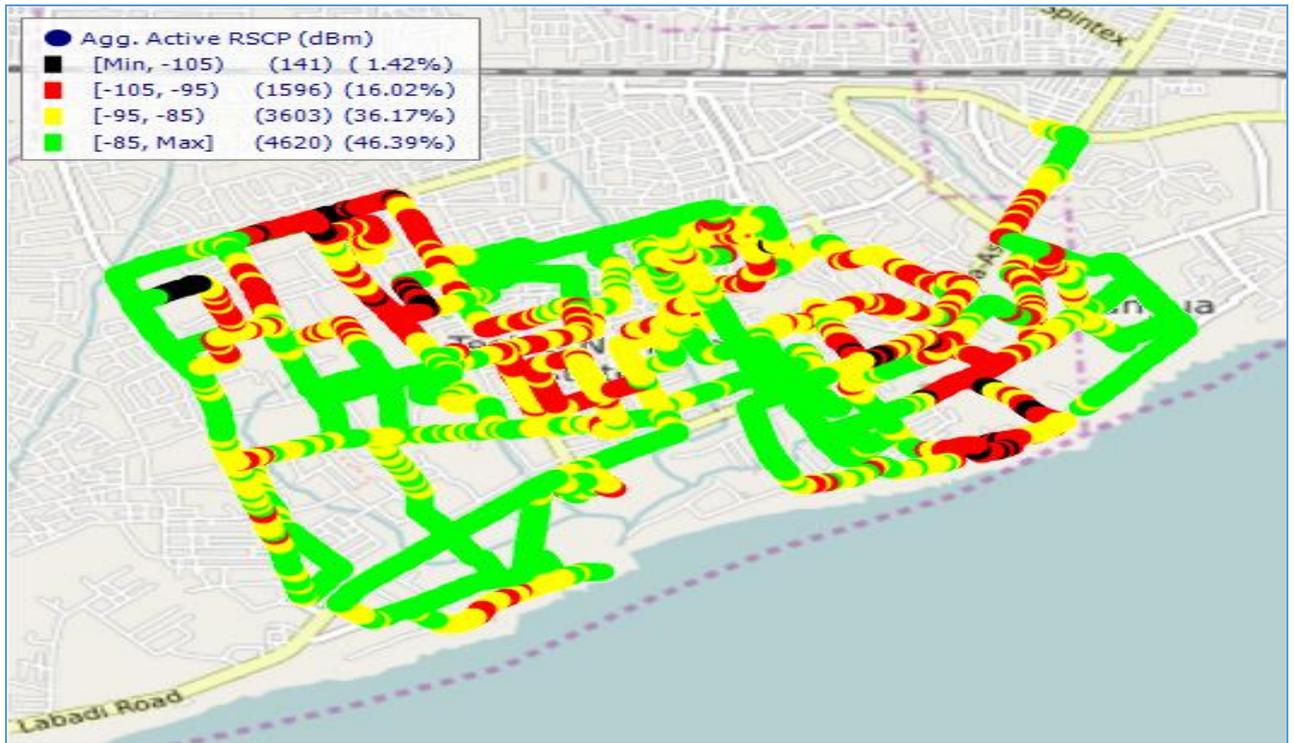


Fig. 75 – Tigo 3G Coverage Map, Teshie Nungua – August 2016

Remarks: Good 3G coverage in Teshie Nungua

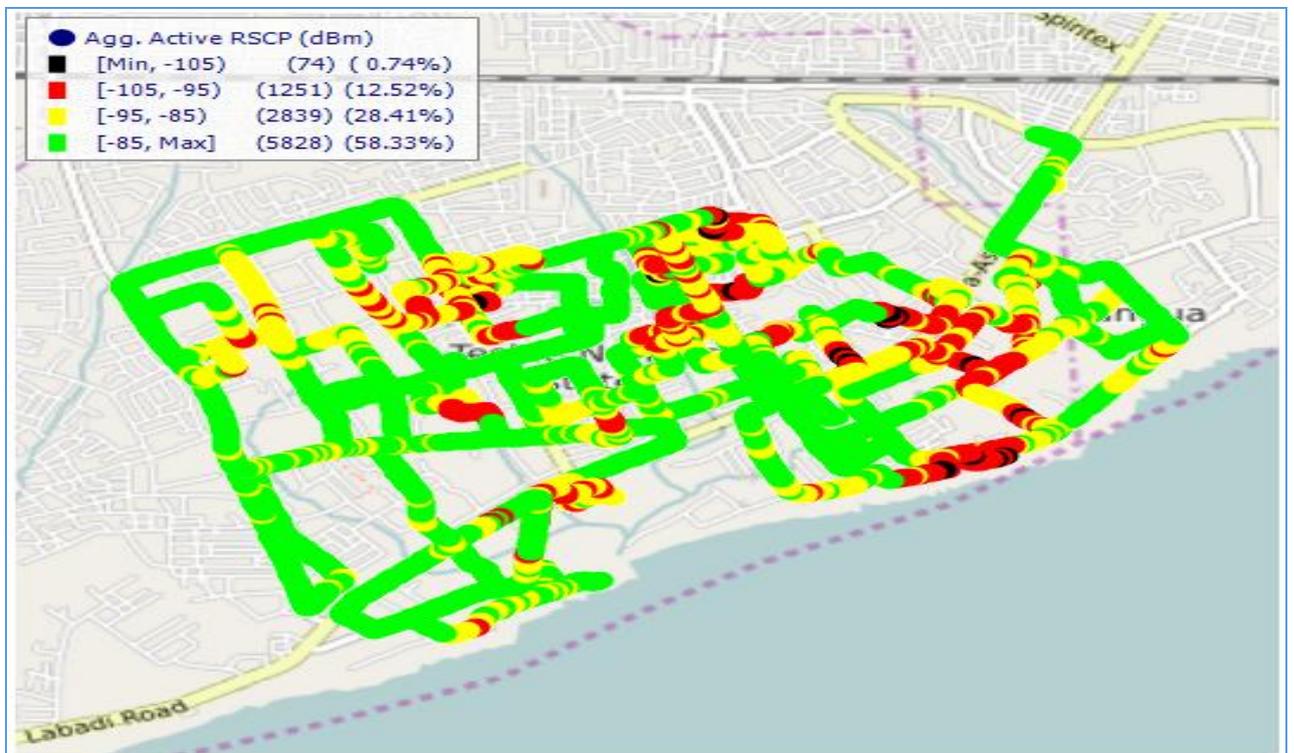


Fig. 76 - Airtel 3G Coverage Map, Teshie Nungua – August 2016

Remarks: Good 3G coverage in Teshie Nungua

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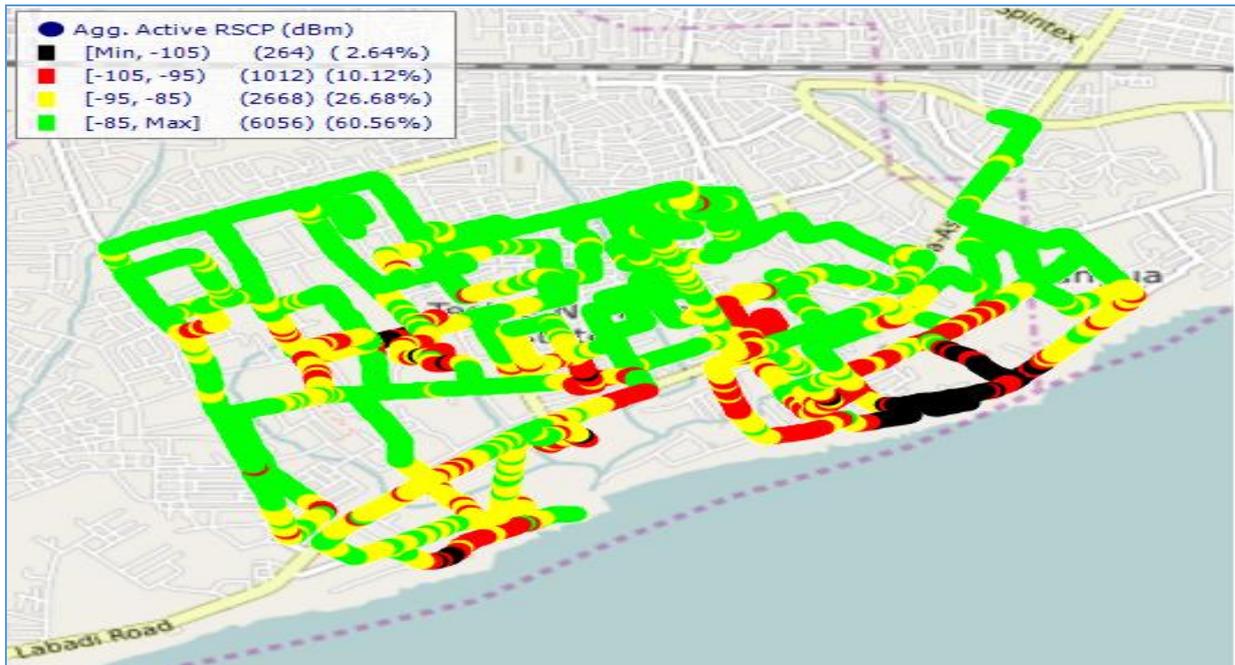


Fig. 77 - Glo 3G Coverage Map, Teshie Nungua – August 2016

Remarks: Poor 3G coverage in Teshie Nungua

APPENDIX II

RSCP SAMPLING DISTRIBUTION

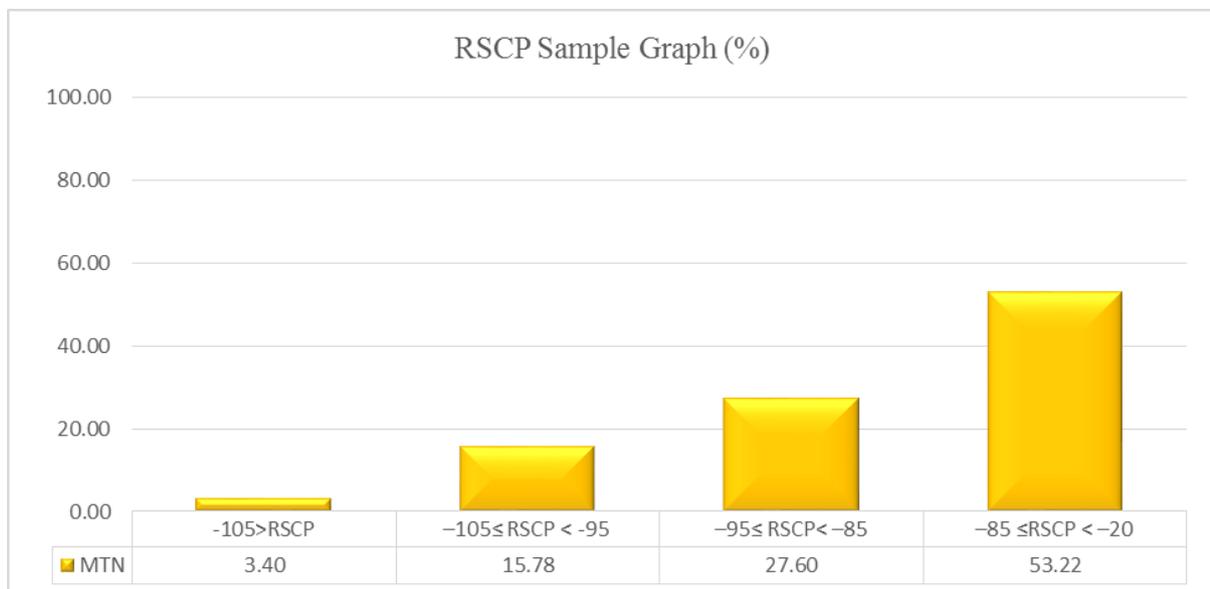


Fig. 78 - MTN 3G Coverage Samples Plot in the Greater Accra Region

Remarks: MTN recorded its highest count of RSCP samples in the range $-85 \leq \text{RSCP} < -20$ dBm; representing “Good” 3G coverage across most of the District Capitals tested in the Greater Accra Region.

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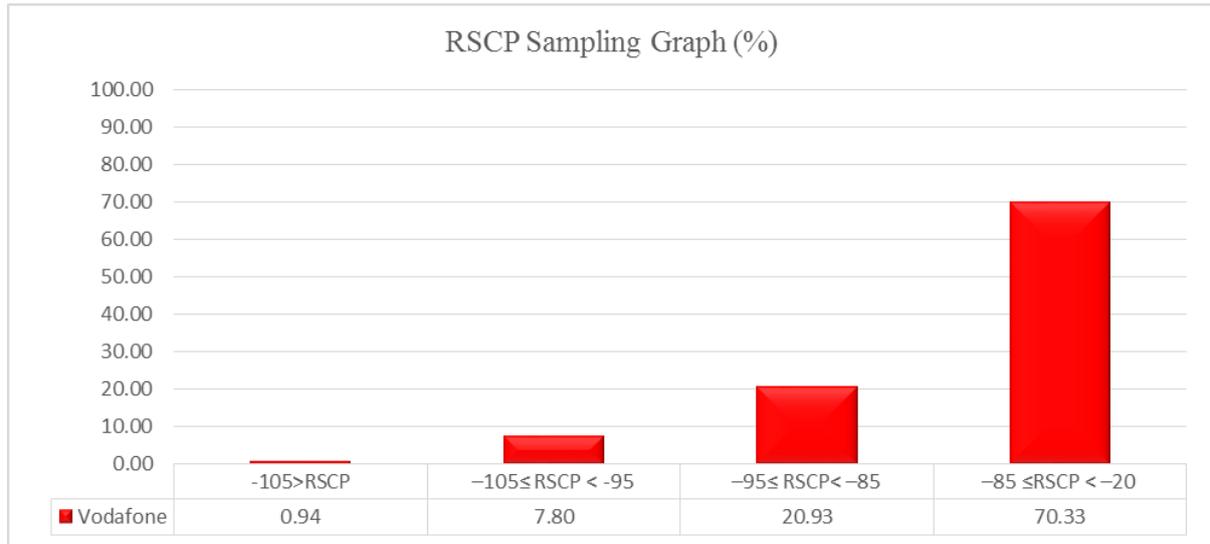


Fig. 79 - Vodafone 3G Coverage Samples Plot in the Greater Accra Region

Remarks: Vodafone recorded its highest count of RSCP samples in the range $-85 \leq \text{RSCP} < -20$ dBm; representing “Good” 3G coverage across most of the District Capitals tested in the Greater Accra Region.

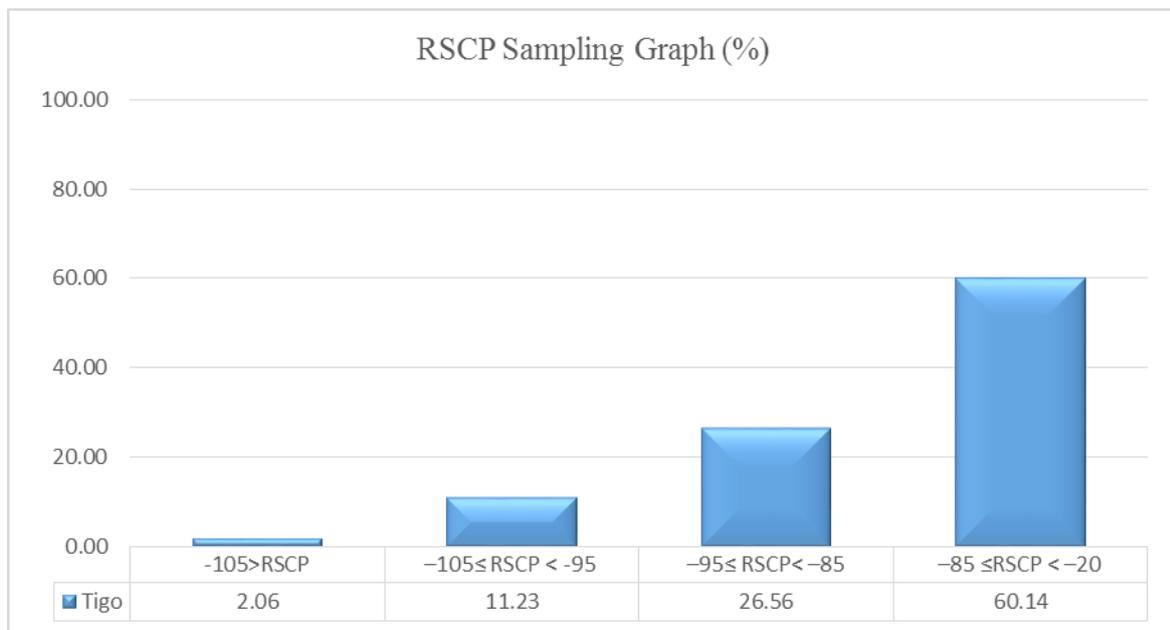


Fig. 80 - Tigo 3G Coverage Samples Plot in the Greater Accra Region

Remarks: Tigo recorded its highest count of RSCP samples in the range $-85 \leq \text{RSCP} < -20$ dBm; representing “Good” 3G coverage across most of the District Capitals tested in the Greater Accra Region

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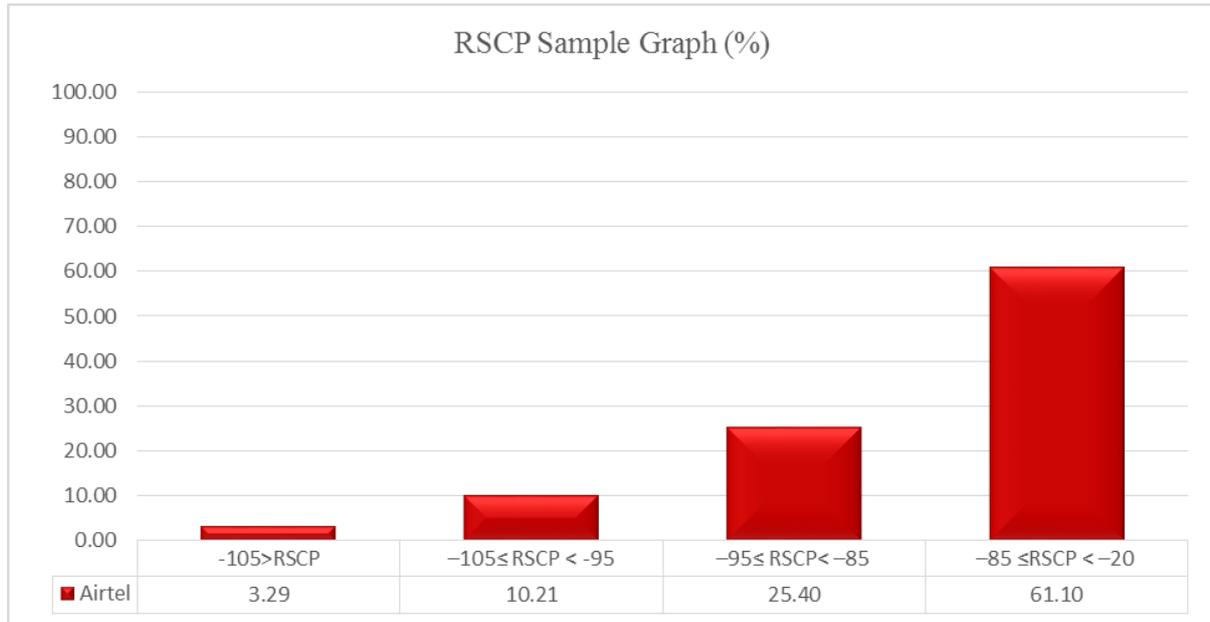


Fig. 81 - Airtel 3G Coverage Samples Plot in the Greater Accra Region

Remarks: Airtel recorded its highest count of RSCP samples in the range $-85 \leq \text{RSCP} < -20$ dBm; representing “Good” 3G coverage across most of the District Capitals tested in the Greater Accra Region.

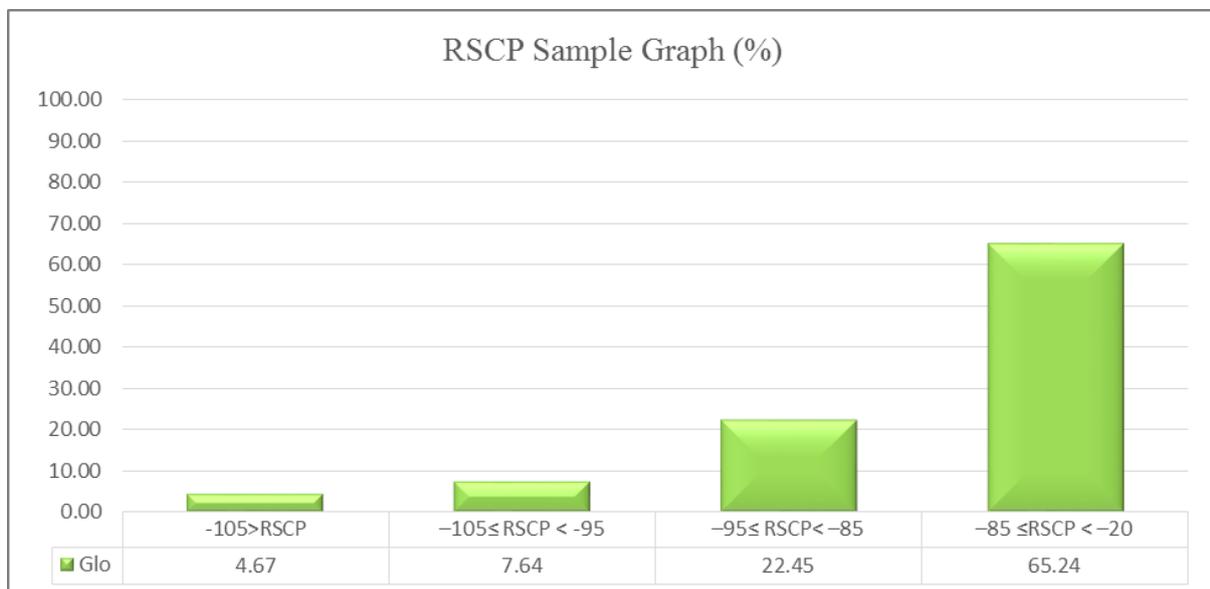


Fig. 82 - Glo 3G Coverage Samples Plot in the Greater Accra Region

Remarks: Glo recorded its highest count of RSCP samples in the range $-85 \leq \text{RSCP} < -20$ dBm; representing “Good” 3G coverage across most of the District Capitals tested in the Greater Accra Region