Kaustisen seutukunta

Matkapuhelinverkkojen mittausten analyysi

20.10.2022 – mittatunti **6**.

Elinkeino-, liikenne- ja ympäristökeskus

Euroopan maaseudun kehittämisen maatalousrahasto: Eurooppa investoi maaseutualueisiin

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Mittaukset perustuvat kolmelta modeemilta saatuihin mittaustuloksiin. Jokaisella operaattorilla on oma modeemi. 5G tulokset (SS-RSRP, Band, Physical Cell ID) esitetään vain, jos siitä on havaittu mittadataa kyseiseltä ajanjaksolta.

Parametrien tarkasteluun voidaan käyttää oheisia taulukoita:

Lähde: https://www.netvault.net.au/netmon-4g-signal-statistics-explained

RSRP	Signal strength	Description
>= -80 dBm	Excellent	Strong signal with maximum data speeds
-80 dBm to -90 dBm	Good	Strong signal with good data speeds
-90 dBm to -100 dBm	Fair to poor	Reliable data speeds may be attained, but marginal data with drop-outs is possible. When this value gets close to -100, performance will drop drastically
<= -100 dBm	No signal	Disconnection

RSRQ	Signal quality	Description
>= -10 dB	Excellent	Strong signal with maximum data speeds
-10 dB to -15 dB	Good	Strong signal with good data speeds
-15 dB to -20 dB	Fair to poor	Reliable data speeds may be attained, but marginal data with drop-outs is possible. When this value gets close to -20, performance will drop drastically
<= -20 dB	No signal	Disconnection

SINR	Signal strength	Description
>= 20 dB	Excellent	Strong signal with maximum data speeds
13 dB to 20 dB	Good	Strong signal with good data speeds
0 dB to 13 dB	Fair to poor	Reliable data speeds may be attained, but marginal data with drop-outs is possible. When this value gets close to 0, performance will drop drastically
<= 0 dB	No signal	Disconnection

RSRP = Reference Signal Received Power

= tukiasemalta vastaanotetun signaalin teho

RSRQ = Reference Signal Received Quality

= tukiasemalta vastaanotetun signaalin laatu

SINR = Signal to Interference plus Noise Ratio

= signaali-kohinasuhde

Lisäksi esitetty:

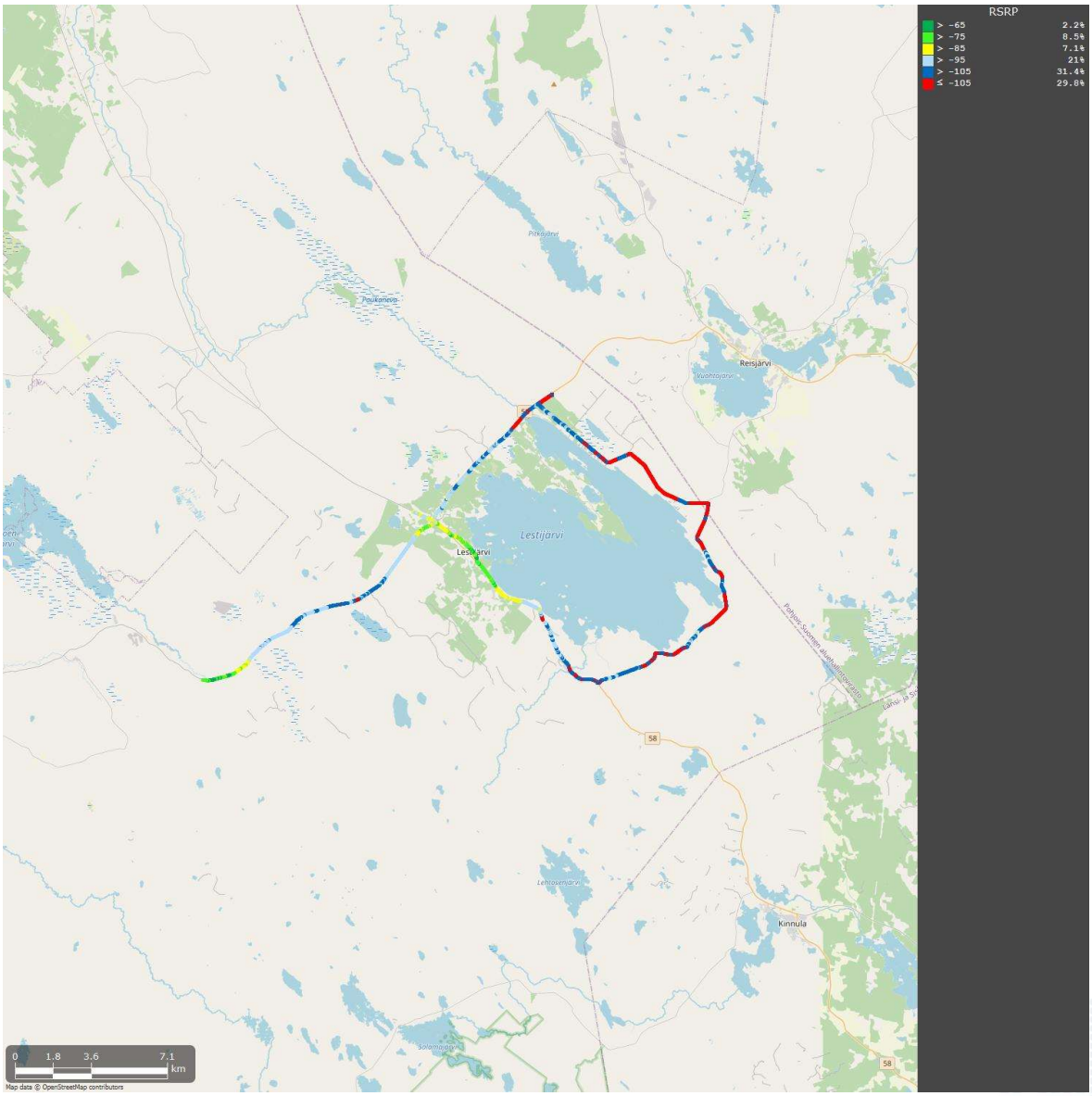
Band = taajuusalue missä modeemi ollut kiinni

Cell id = solu missä modeemi ollut kiinni

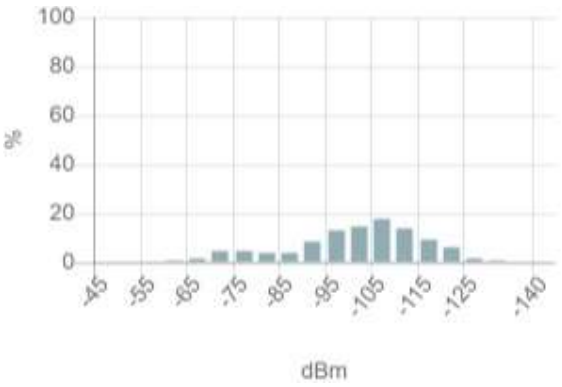
Speed = mittausauton nopeus m/s

Telia mittatunti **6**

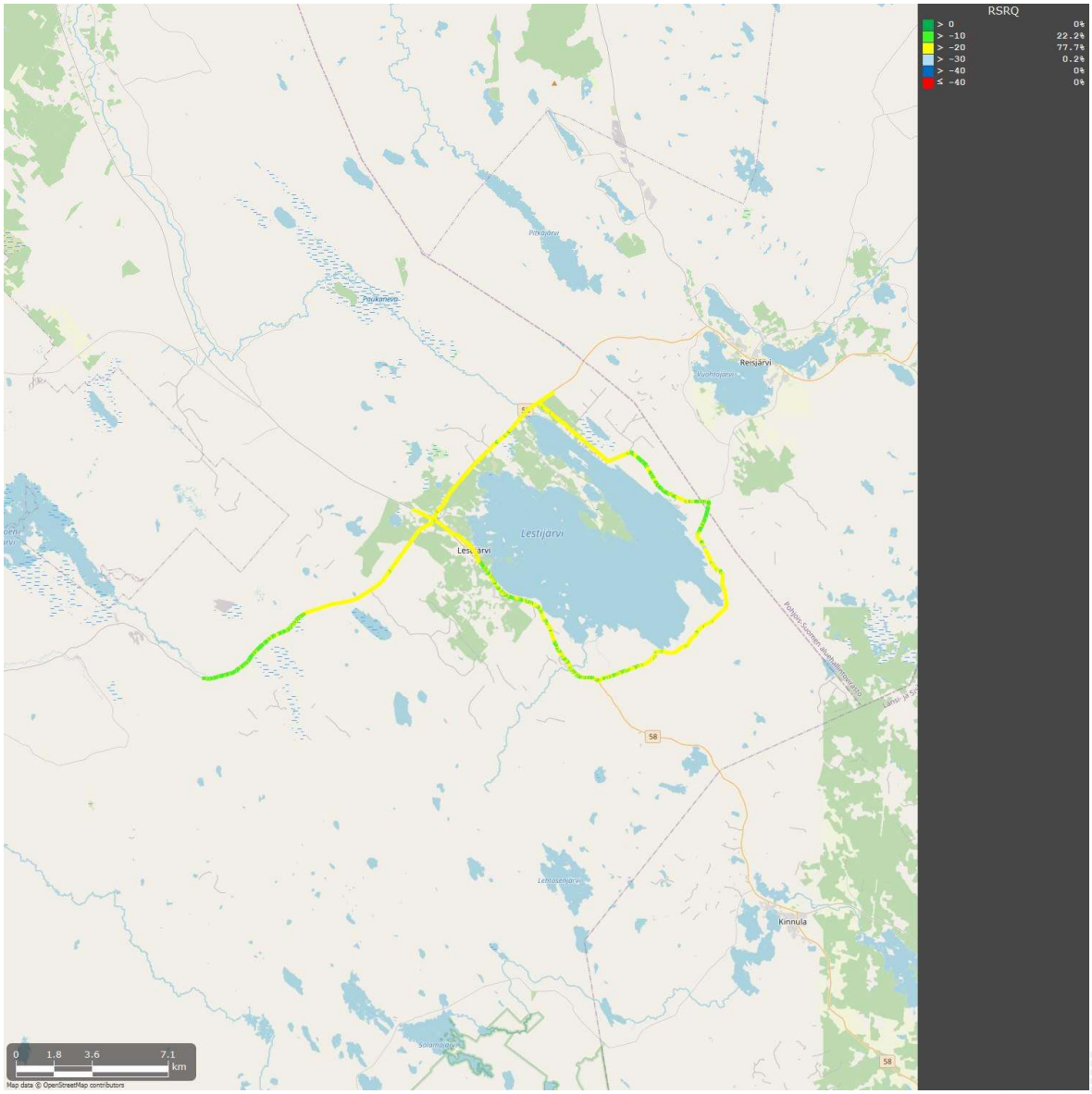
20221020-084240



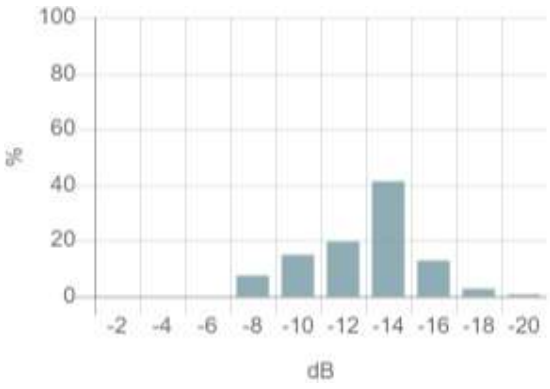
RSRP



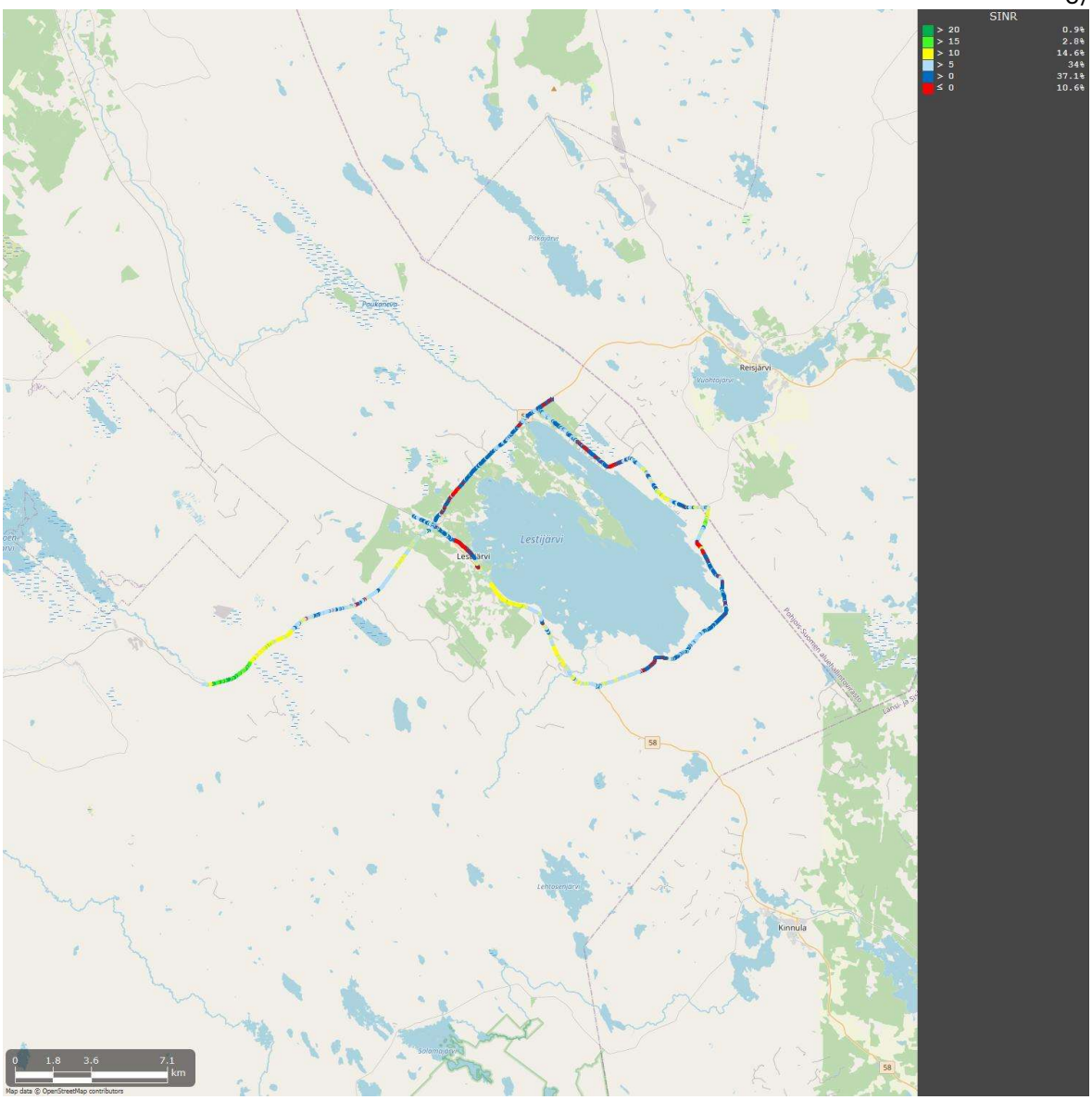
RSRP



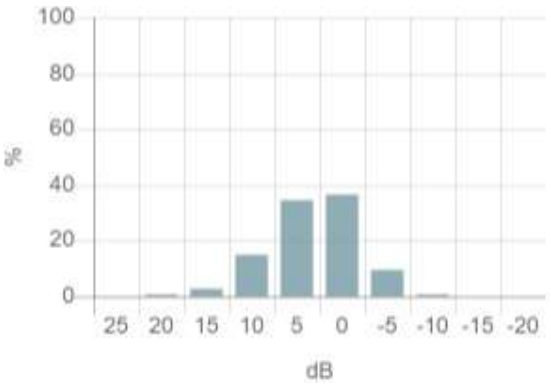
RSRQ



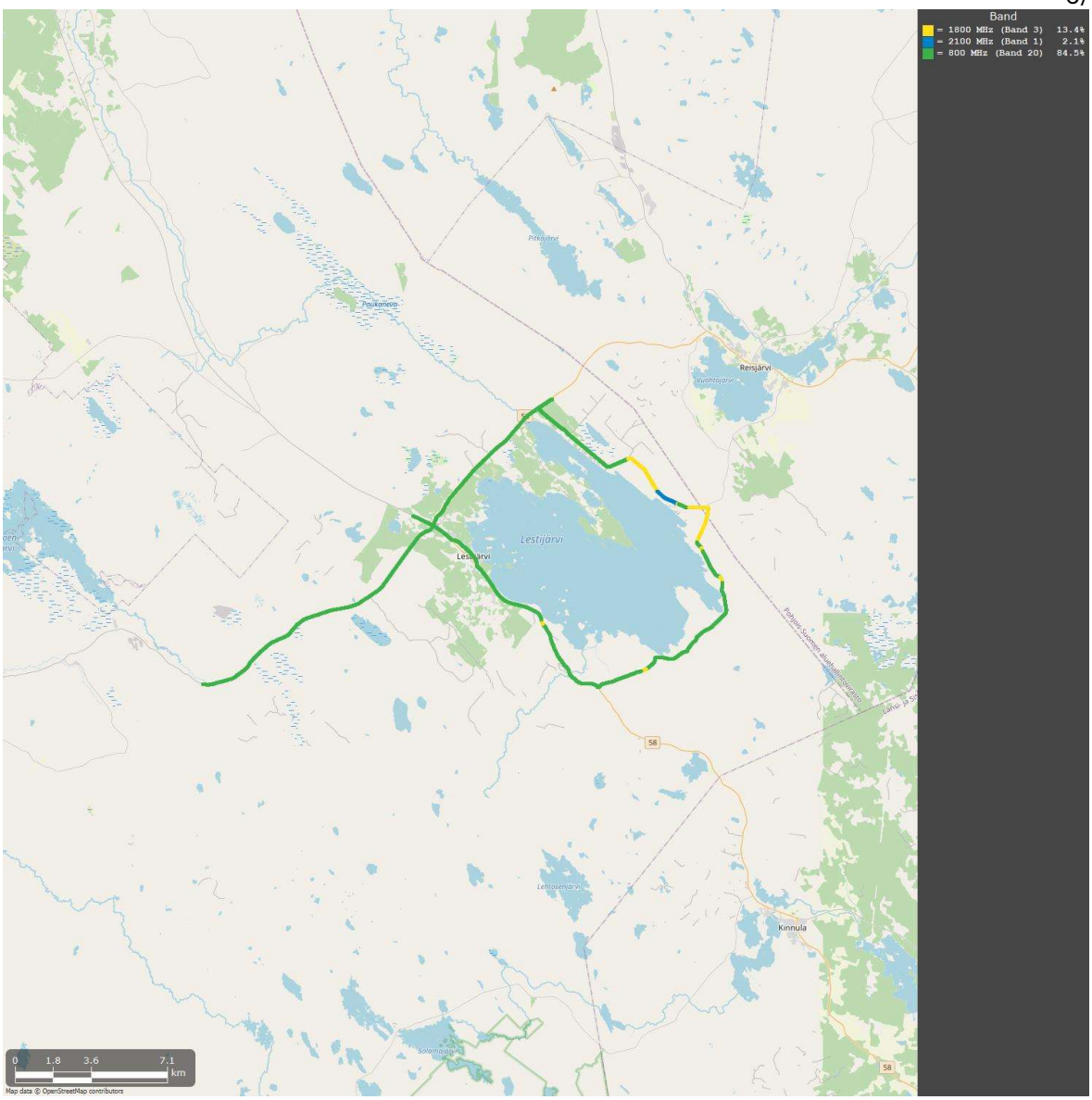
RSRQ


SINR
> 20 0.9%
> 15 2.8%
> 10 14.6%
> 5 34%
> 0 37.1%
≤ 0 10.6%
Lestijärvi
Reisjärvi
Kinnula
0 1.8 3.6 7.1
km
Map data © OpenStreetMap contributors

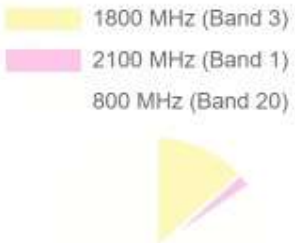
SINR


100
80
60
40
20
0
%R
25 20 15 10 5 0 -5 -10 -15 -20
dB

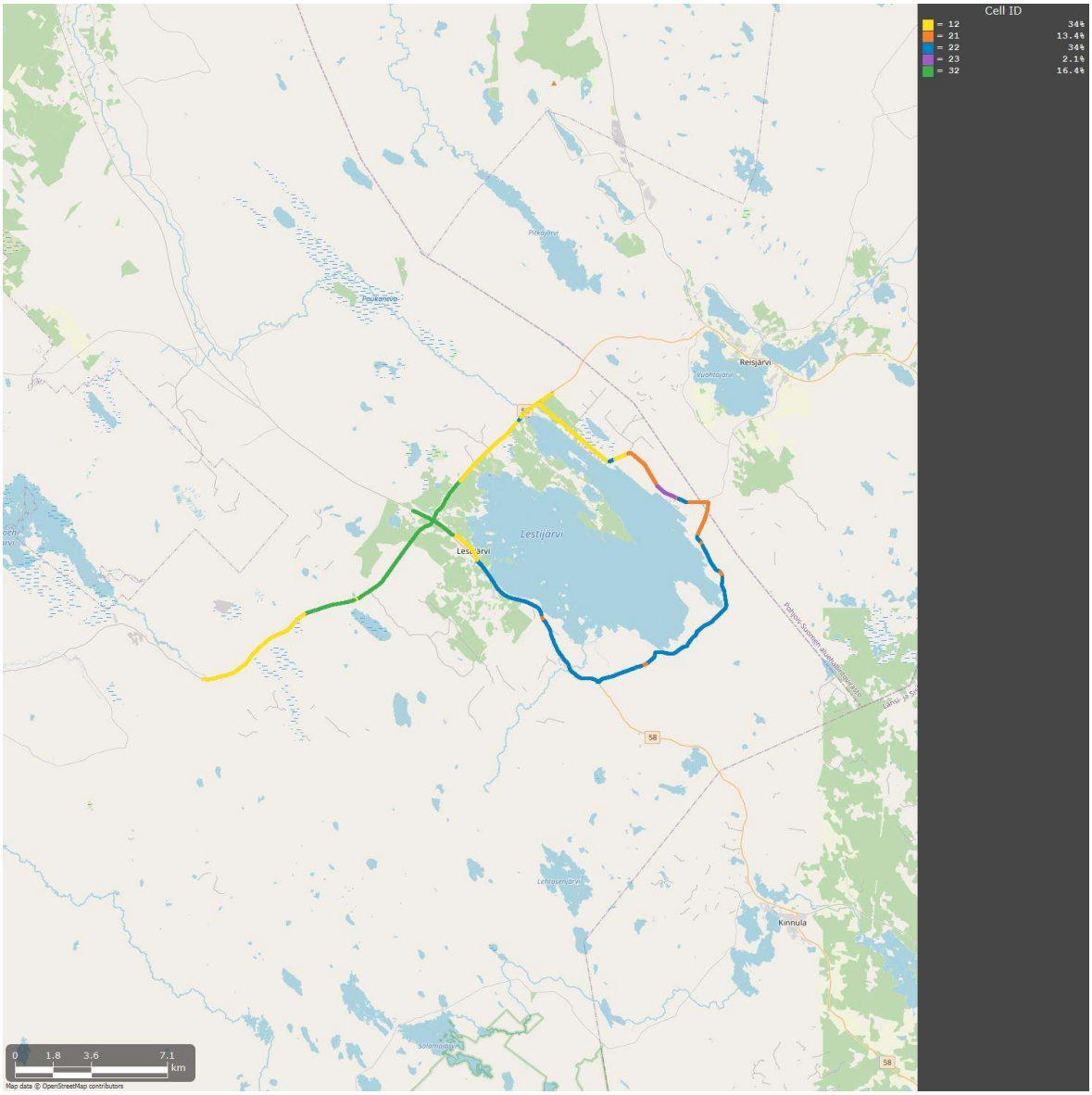
SINR


Band
= 1800 MHz (Band 3) 13.4%
= 2100 MHz (Band 1) 2.1%
= 800 MHz (Band 20) 84.5%
Lestijärvi
Reisjärvi
Kinnula
0 1.8 3.6 7.1
km
Map data © OpenStreetMap contributors

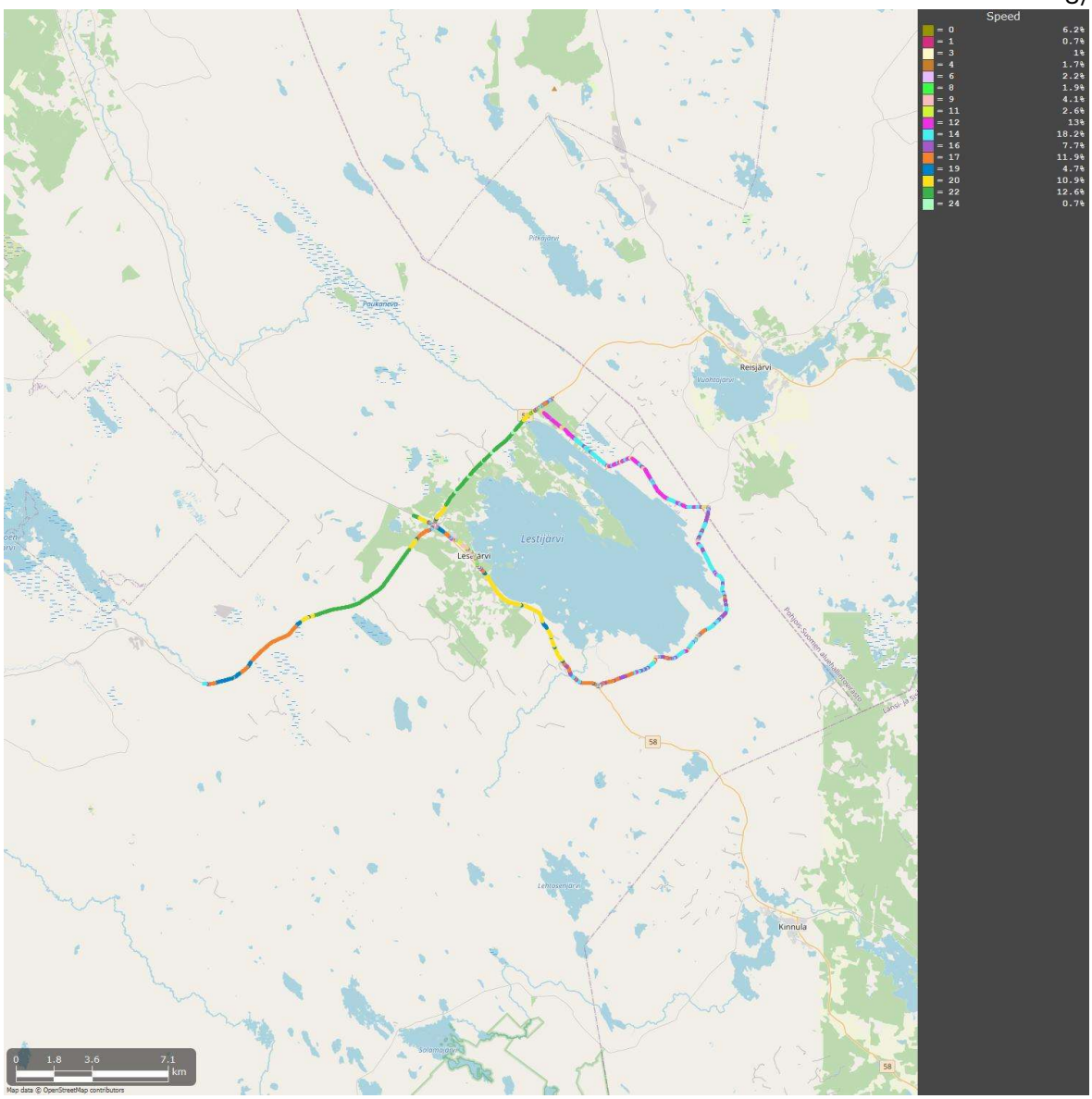
Band


1800 MHz (Band 3)
2100 MHz (Band 1)
800 MHz (Band 20)

Band


Cell ID
= 12 34%
= 21 13.4%
= 22 34%
= 23 2.1%
= 32 16.4%
Lestijärvi
Reisjärvi
Kinnula
58
0 1.8 3.6 7.1
km
Map data © OpenStreetMap contributors

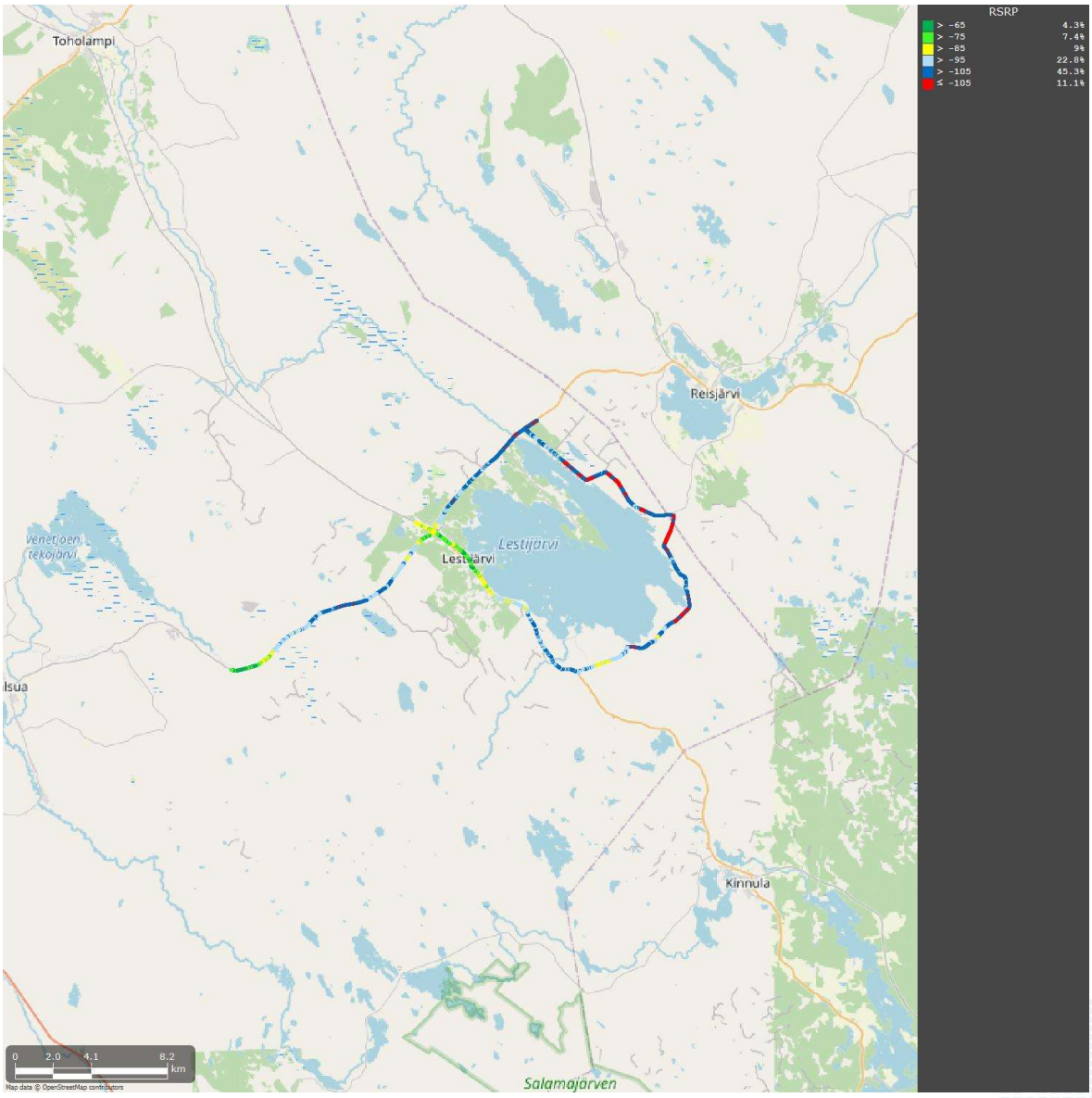
Cell ID


Speed
= 0 6.3%
= 1 0.7%
= 3 1%
= 4 1.7%
= 6 2.2%
= 8 1.9%
= 9 4.1%
= 11 2.6%
= 12 13%
= 14 18.2%
= 16 7.7%
= 17 11.9%
= 19 4.7%
= 20 10.9%
= 22 12.6%
= 24 0.7%
Lestijärvi
Reisjärvi
Kinnula
0 1.8 3.6 7.1
km
Map data © OpenStreetMap contributors

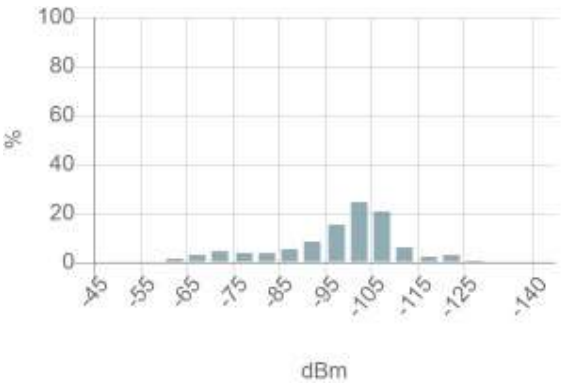
Speed

Elisa mittatunti **6**

20221020-084240

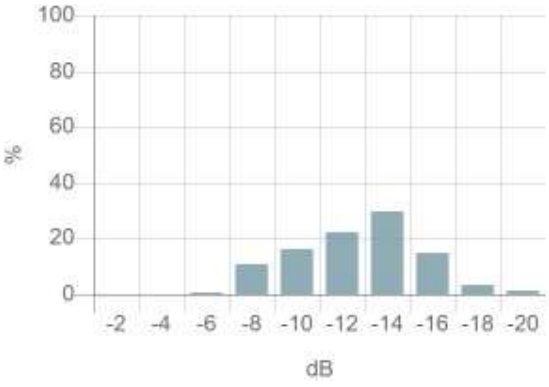


RSRP

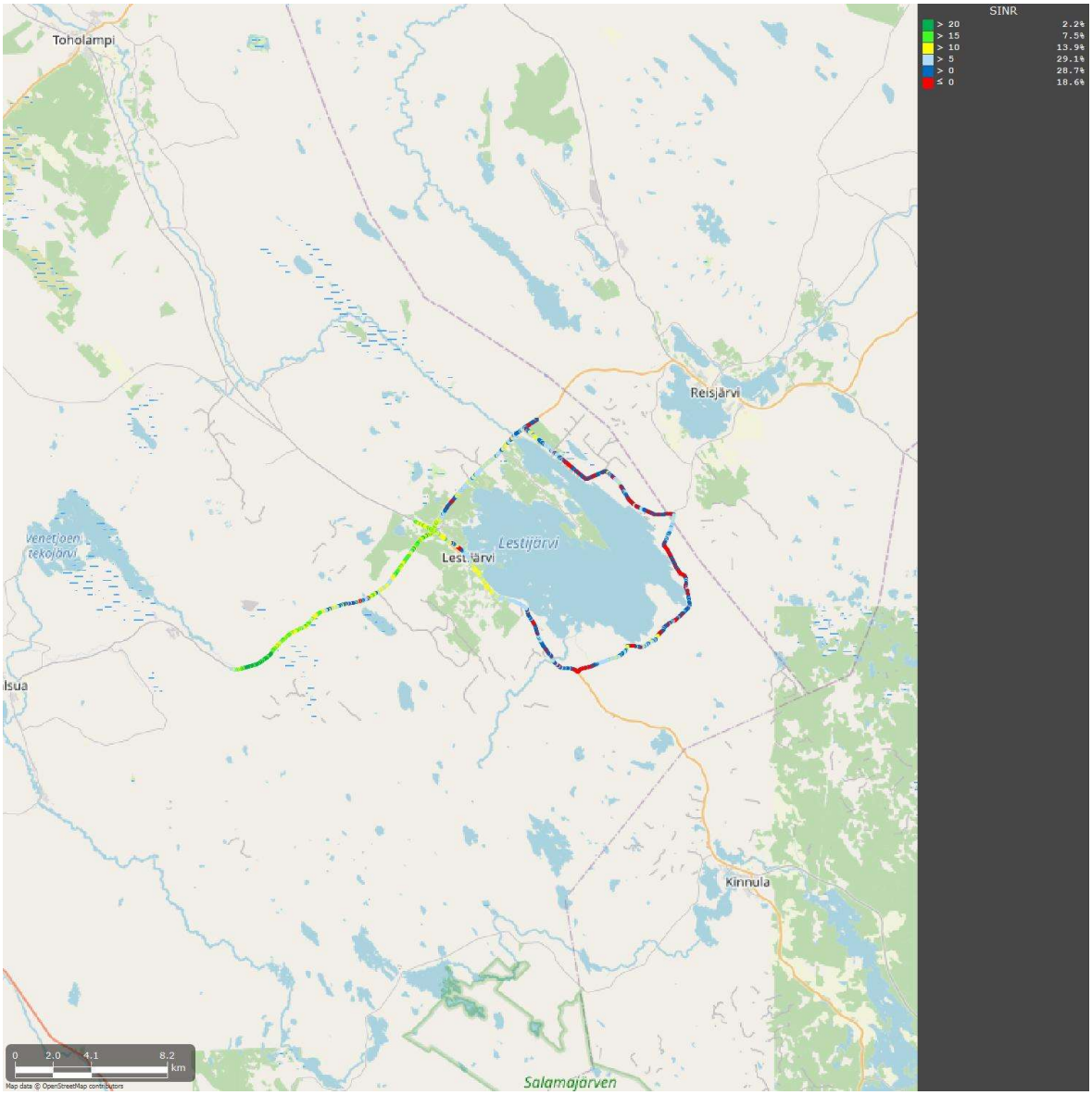


RSRP

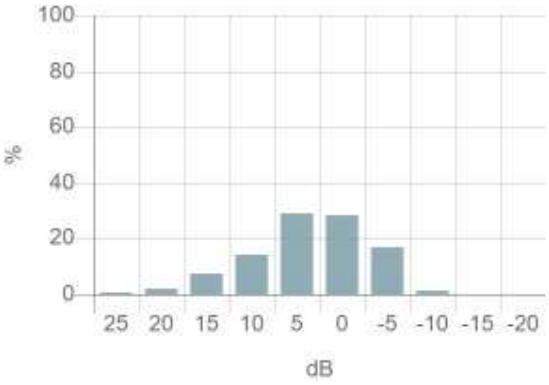
RSRQ



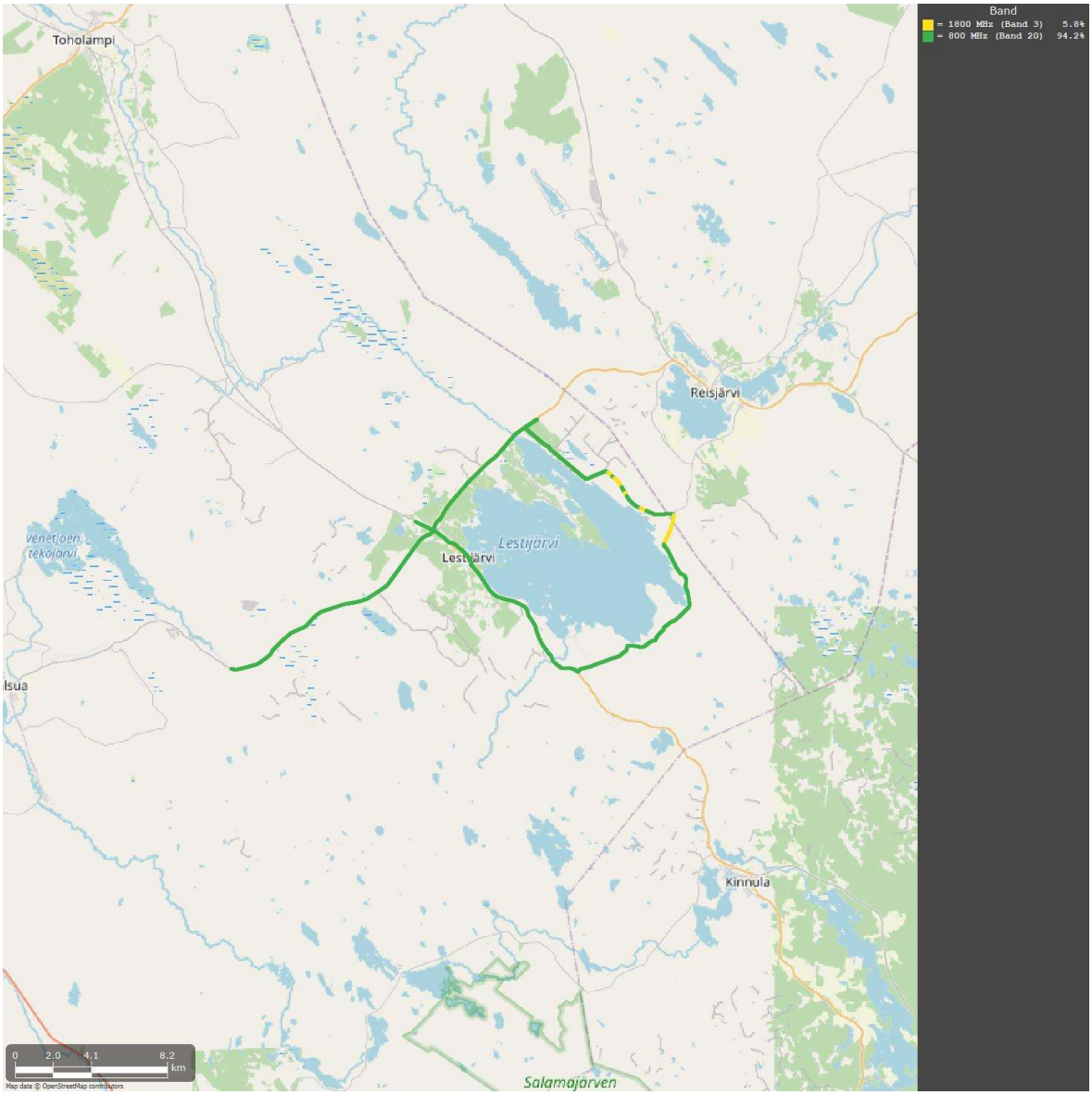
RSRQ


SINR
> 20 2.2%
> 15 7.5%
> 10 13.9%
> 5 29.1%
> 0 28.7%
≤ 0 18.6%
Toholampi
Reisjärvi
Venetjoen tekojärvi
Lestijärvi
Lesti järvi
Isua
Kinnula
Salamajärven
0 2.0 4.1 8.2
km

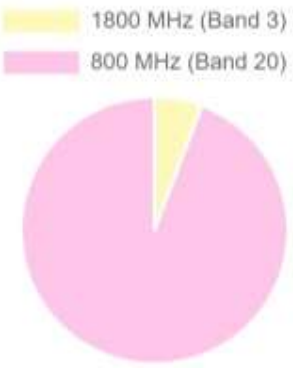
SINR


100
80
60
40
20
0
%
25 20 15 10 5 0 -5 -10 -15 -20
dB

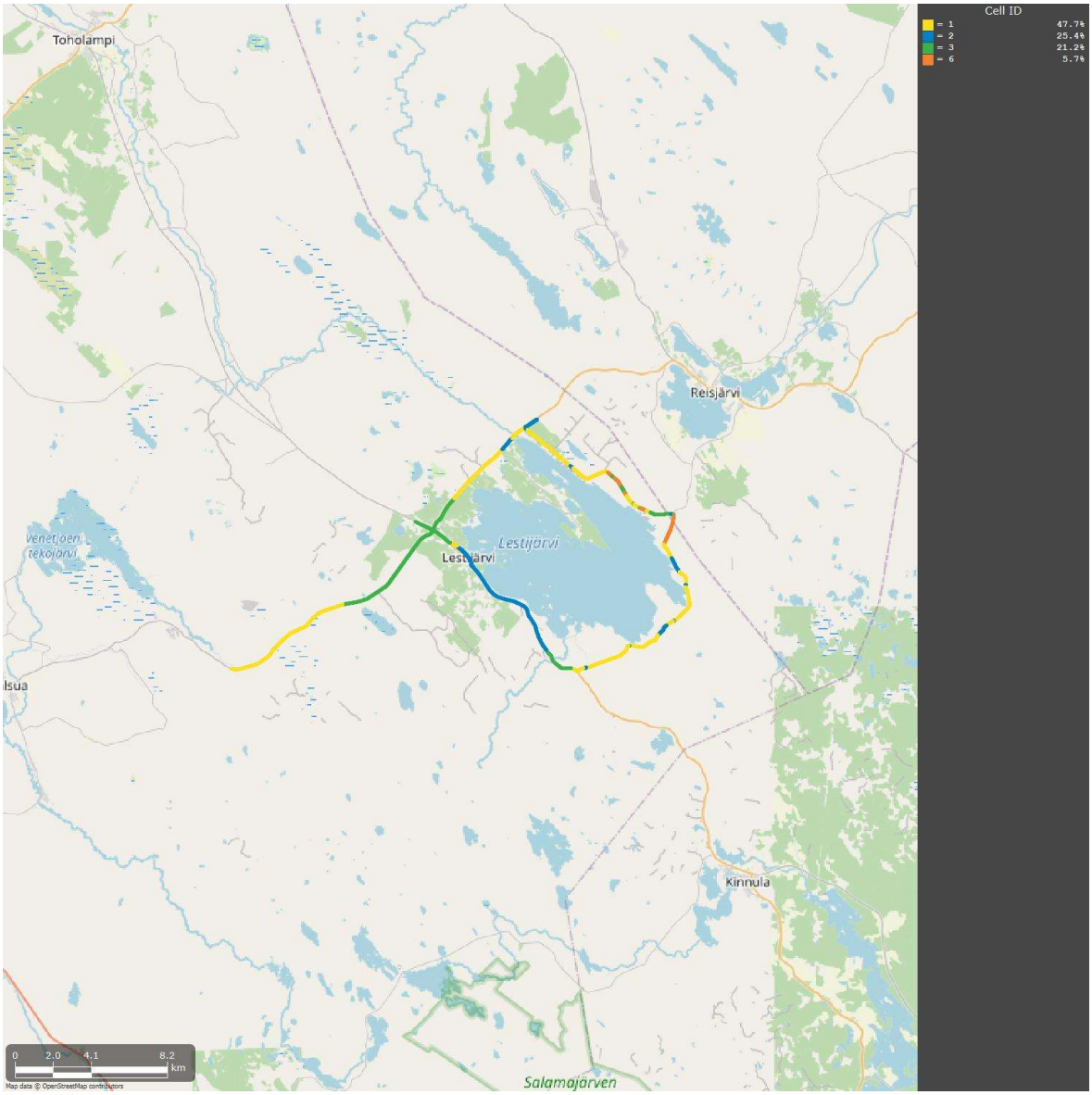
SINR


Band
1800 MHz (Band 3) 5.8%
800 MHz (Band 20) 94.2%
Toholampi
Reisjärvi
Lestijärvi
Lestijärvi
Venetjoen tekojärvi
Isua
Kinnula
Salamajärven
0 2.0 4.1 8.2
km

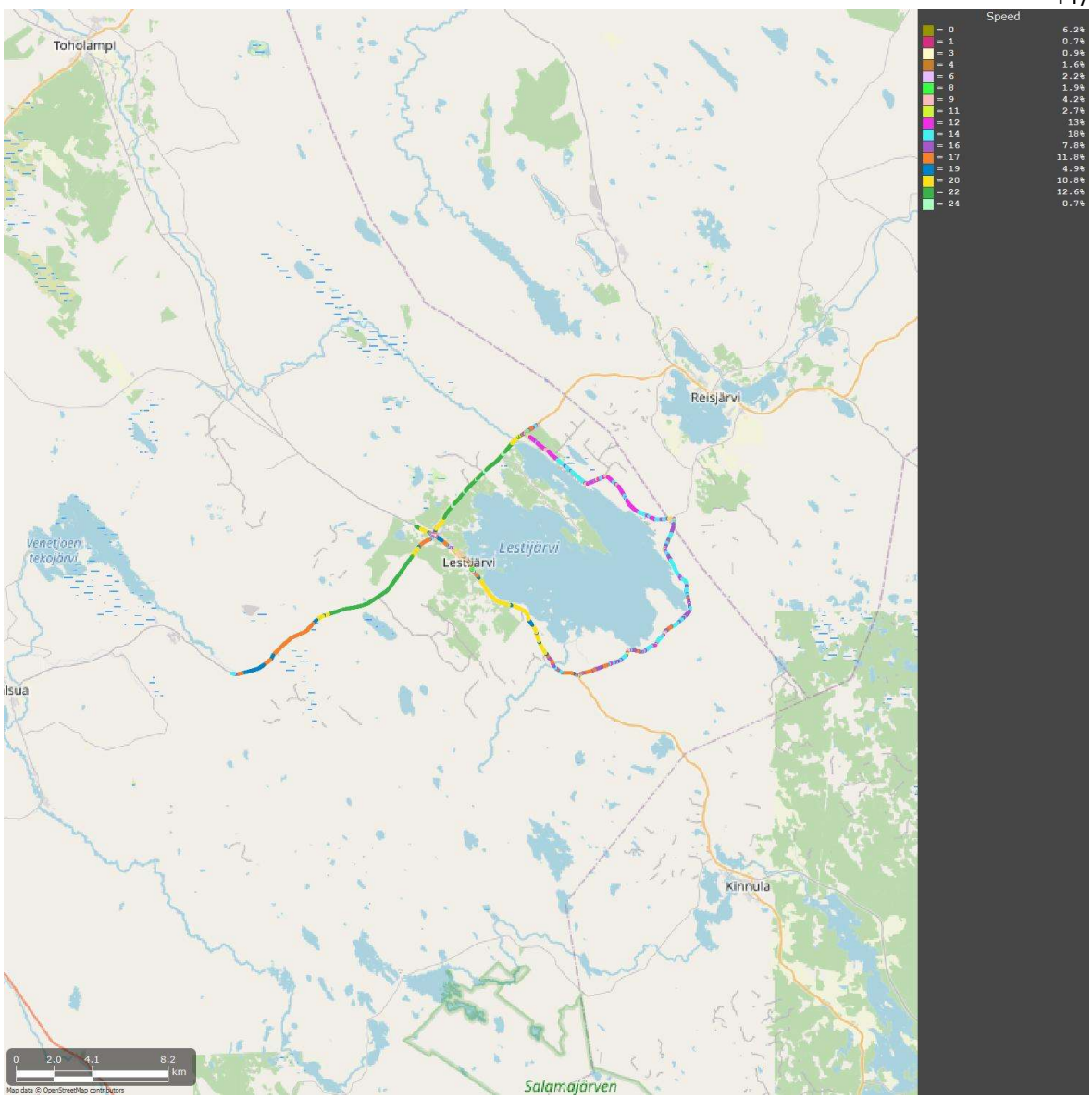
Band


1800 MHz (Band 3)
800 MHz (Band 20)

Band


Cell ID
= 1 47.7%
= 2 25.4%
= 3 21.2%
= 6 5.7%
Toholampi
Reisjärvi
Venetjoen tekojärvi
Lestijärvi
Lestijärvi
Isua
Kinnula
Salamajärven
0 2.0 4.1 8.2
km
Map data © OpenStreetMap contributors

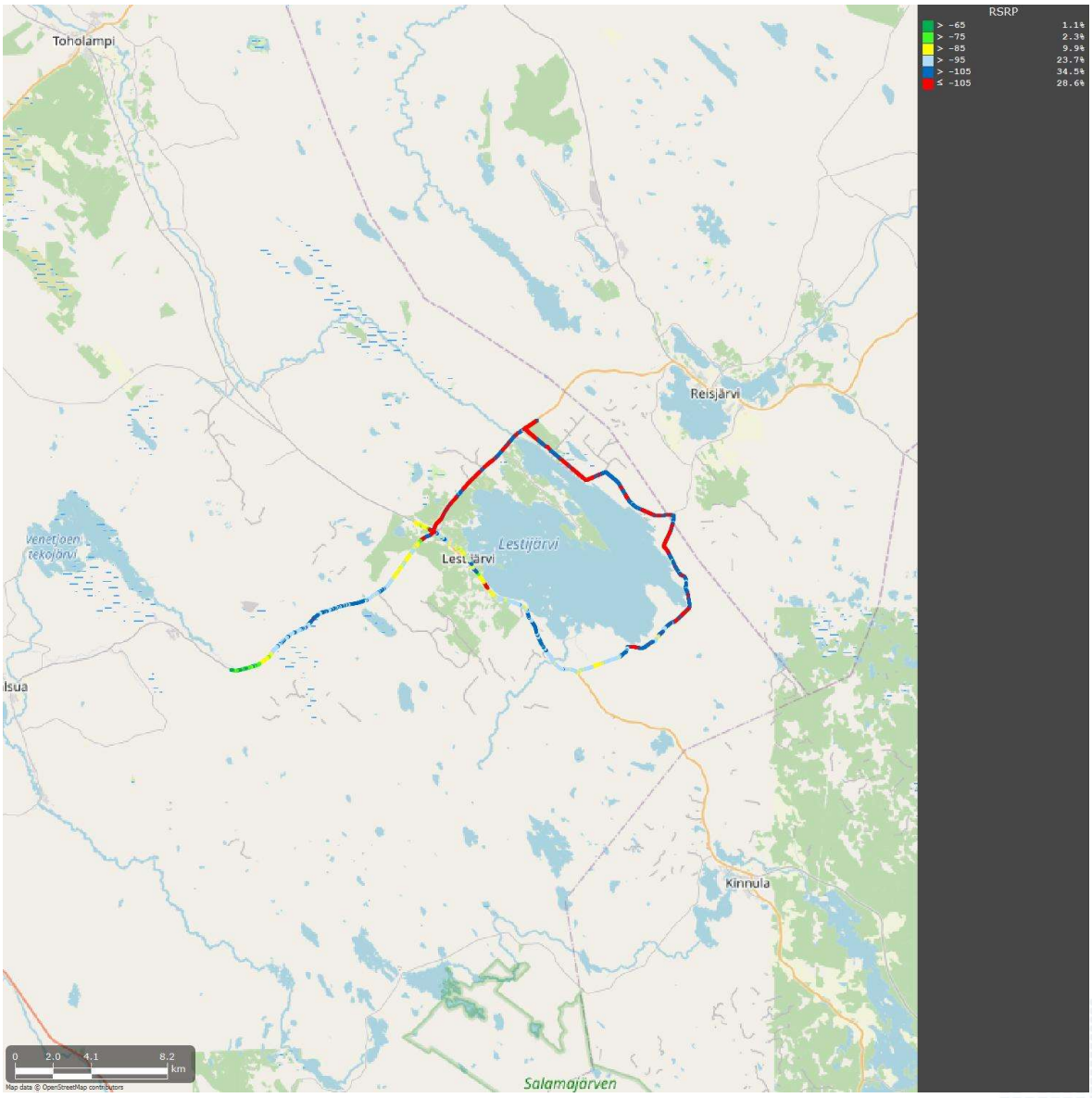
Cell ID


Speed
= 0 6.3%
= 1 0.7%
= 3 0.9%
= 4 1.6%
= 6 2.2%
= 8 1.9%
= 9 4.2%
= 11 2.7%
= 12 13%
= 14 18%
= 16 7.8%
= 17 11.8%
= 19 4.9%
= 20 10.8%
= 22 12.6%
= 24 0.7%
Toholampi
Reisjärvi
Lestijärvi
Lestijärvi
Venetjoen tekojärvi
Isua
Kinnula
Salamajärven
0 2.0 4.1 8.2
km

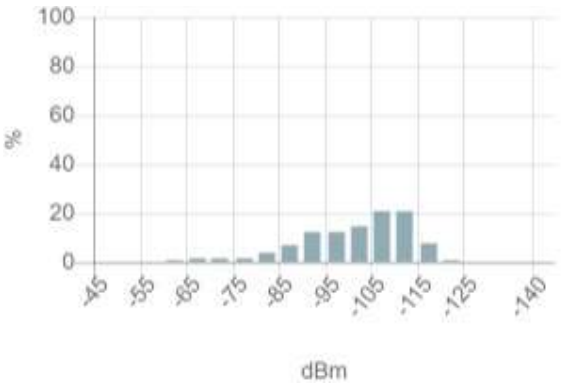
Speed

Dna mittatunti **6**

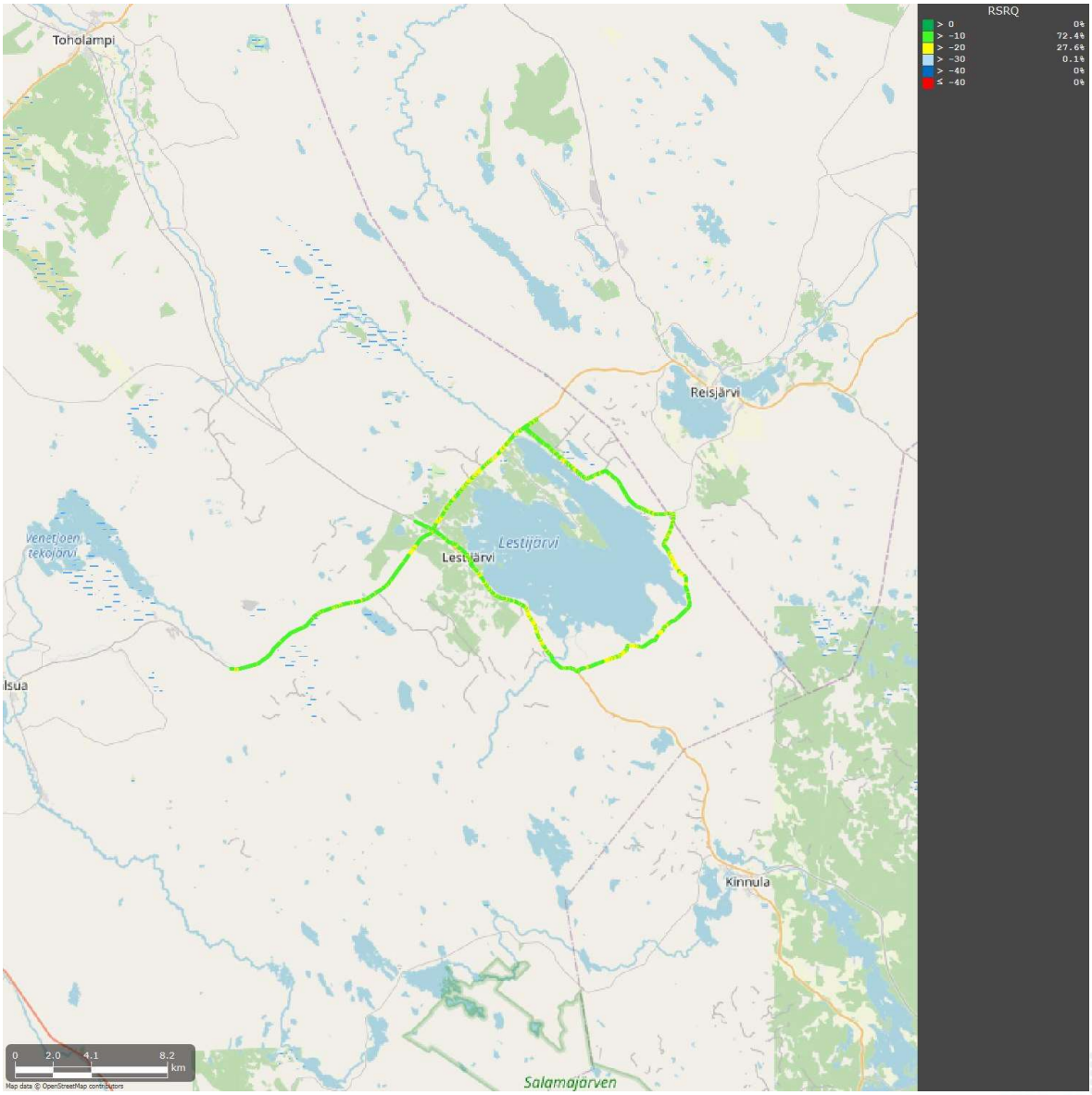
20221020-084240



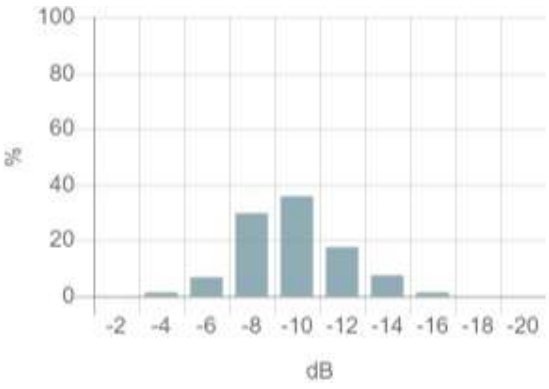
RSRP



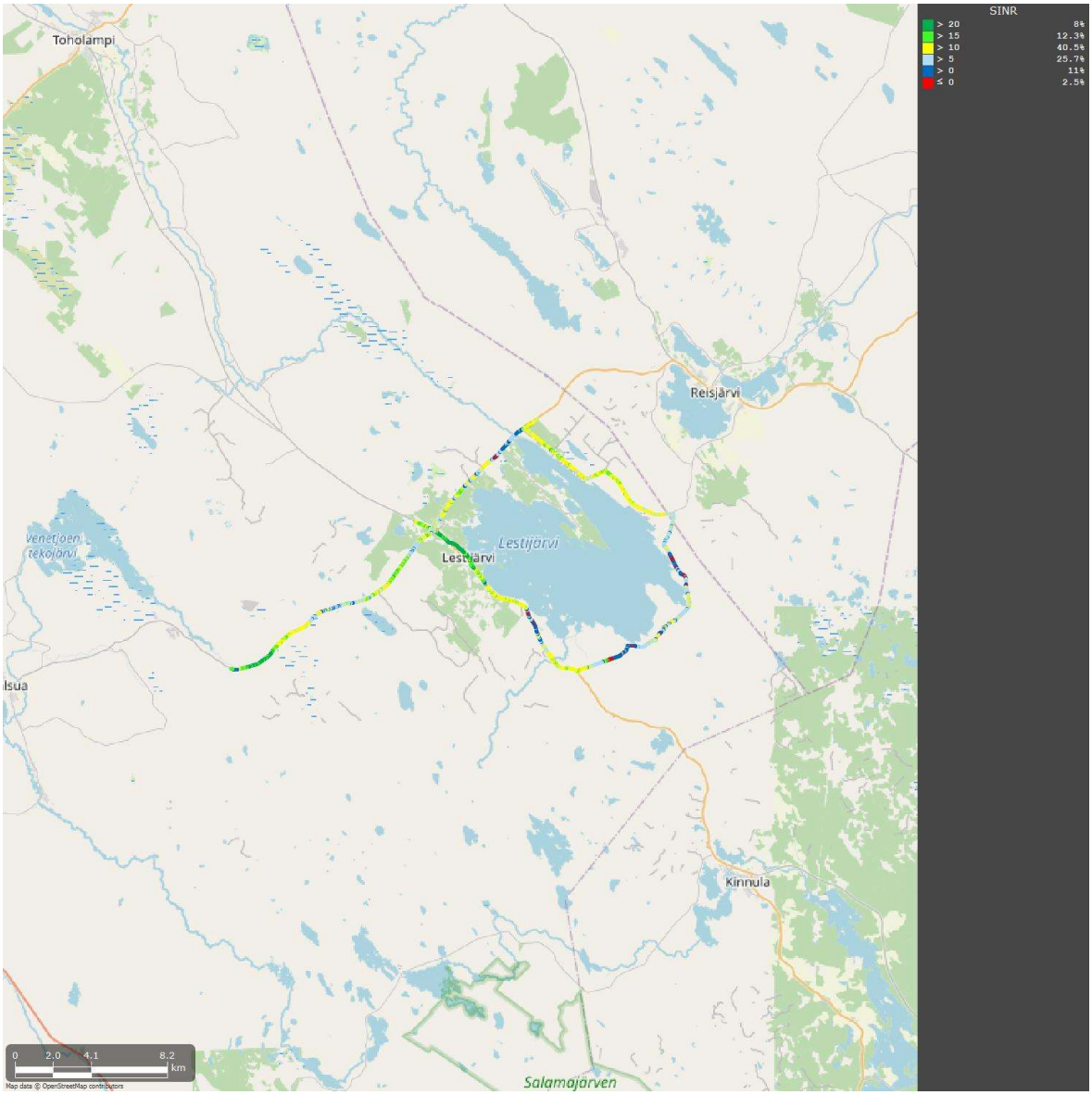
RSRP



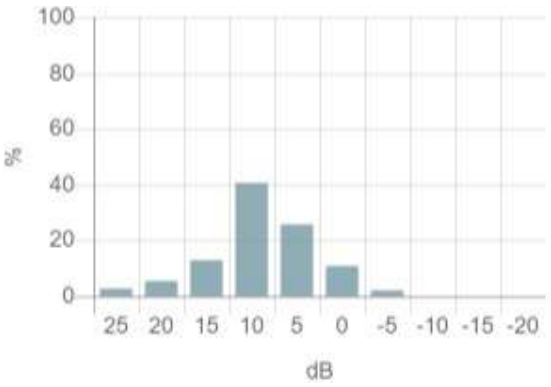
RSRQ



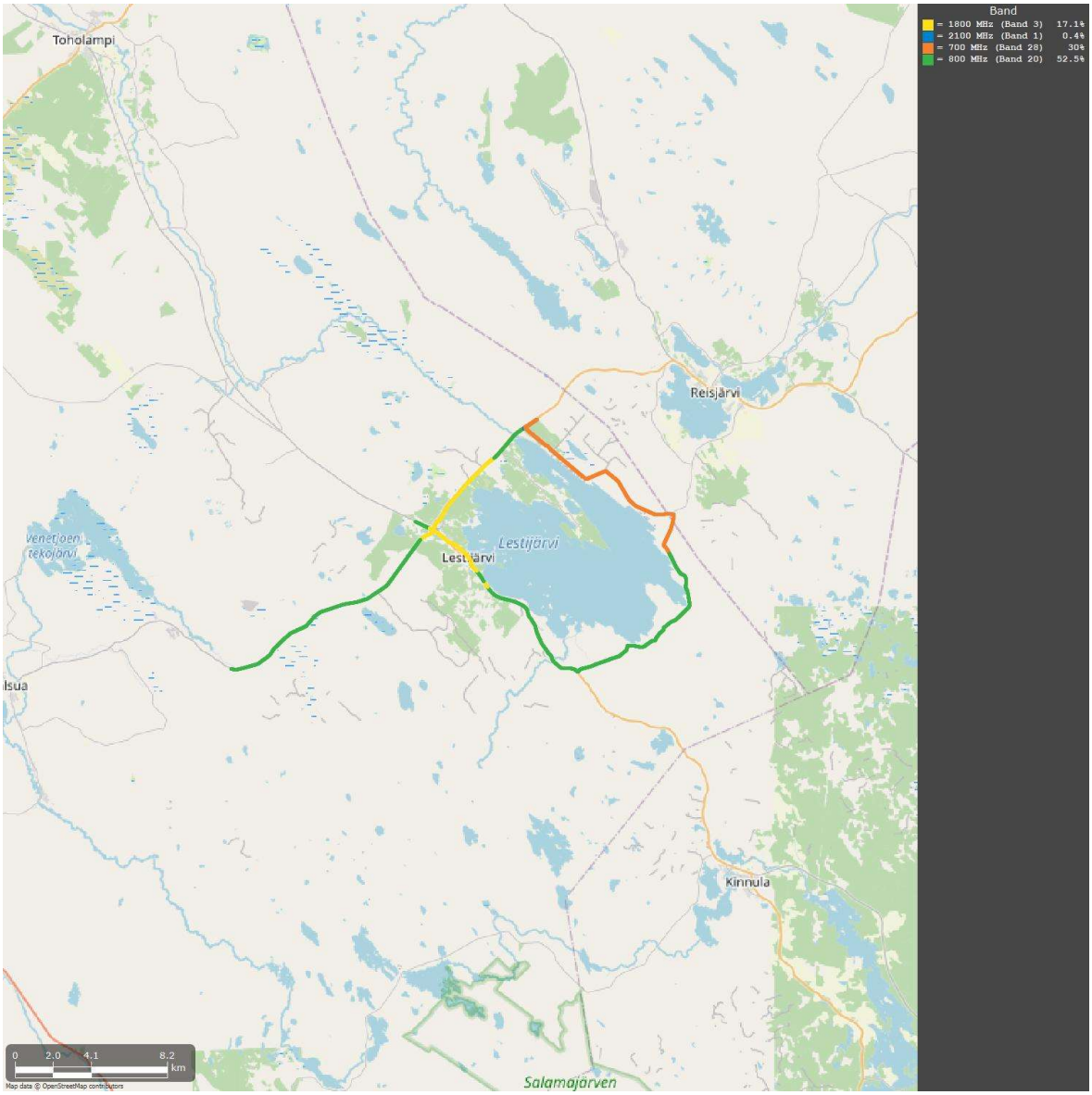
RSRQ


SINR
> 20 8%
> 15 12.3%
> 10 40.5%
> 5 25.7%
> 0 11%
≤ 0 2.5%
Toholampi
Reisjärvi
Lestijärvi
Lestijärvi
Venetjoen tekojärvi
Isua
Kinnula
Salamajärven
0 2.0 4.1 8.2
km

SINR


100
80
60
40
20
0
%
25 20 15 10 5 0 -5 -10 -15 -20
dB

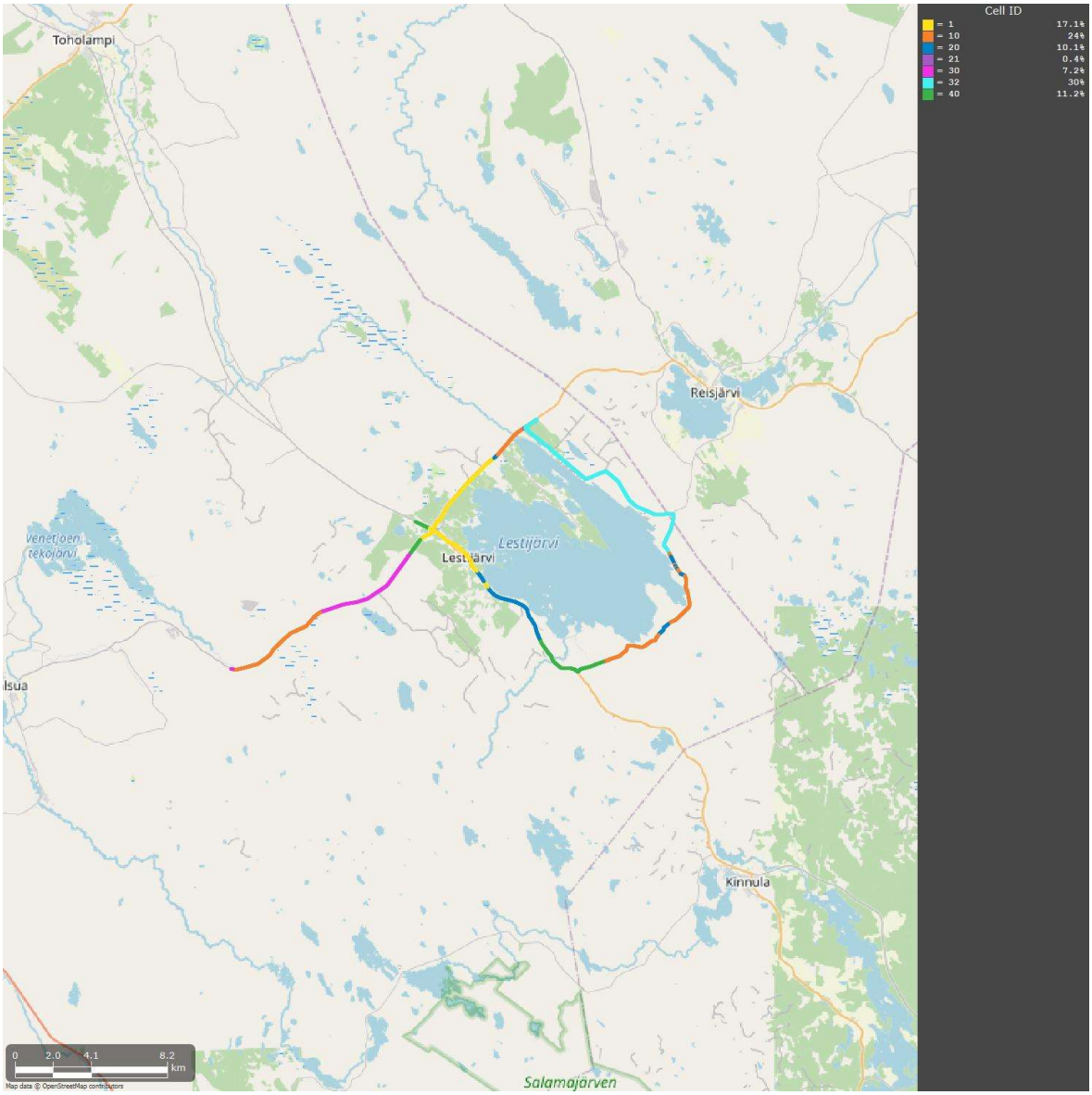
SINR


Band
= 1800 MHz (Band 3) 17.1%
= 2100 MHz (Band 1) 0.4%
= 700 MHz (Band 28) 30%
= 800 MHz (Band 20) 52.5%
Toholampi
Reisjärvi
Lestijärvi
Kinnula
Salamajärven
0 2.0 4.1 8.2
km

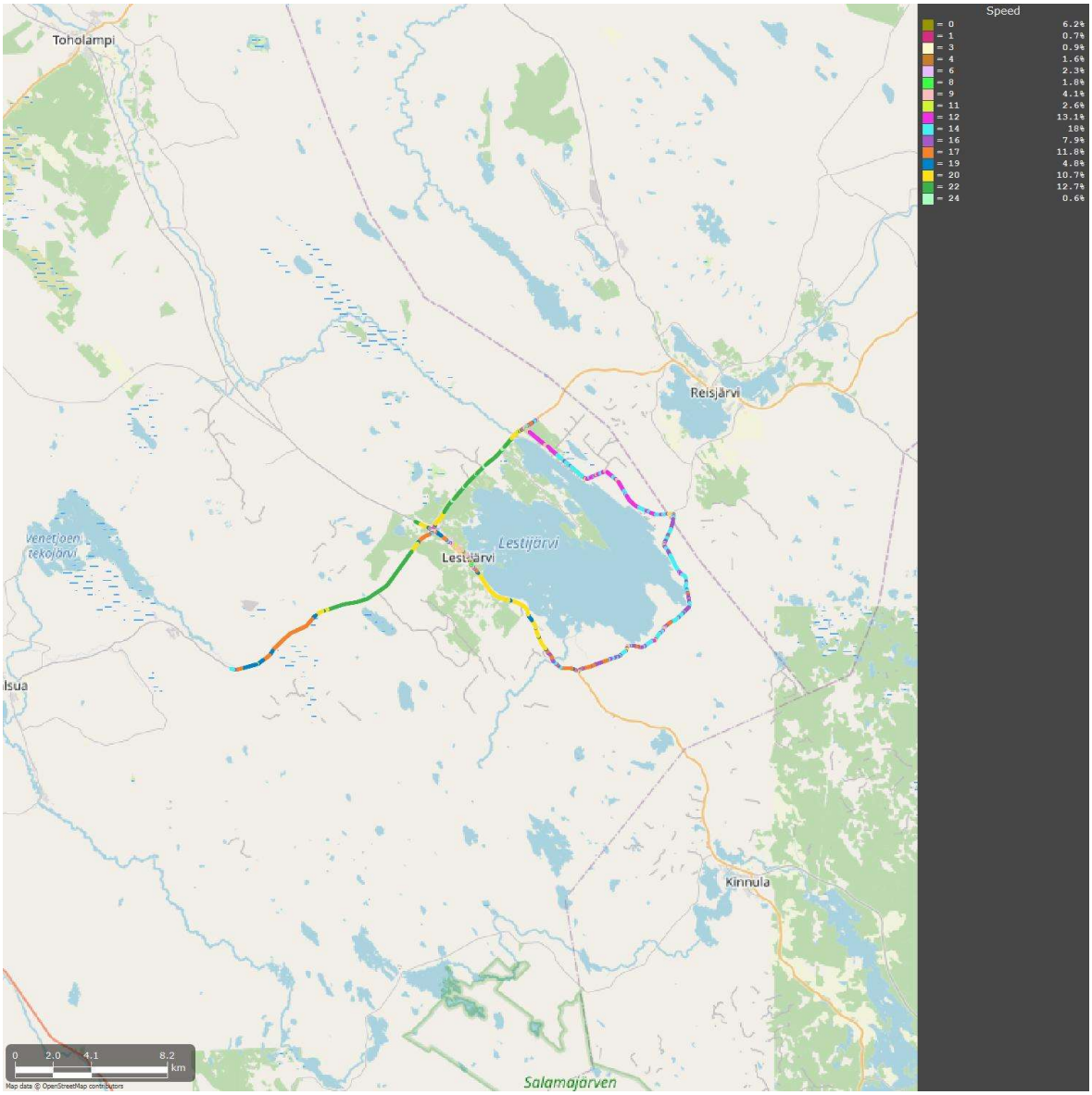
Band


1800 MHz (Band 3)
2100 MHz (Band 1)
700 MHz (Band 28)
800 MHz (Band 20)

Band


Cell ID
= 1 17.1%
= 10 24%
= 20 10.1%
= 21 0.4%
= 30 7.2%
= 32 30%
= 40 11.2%
Toholampi
Reisjärvi
Lestijärvi
Lestijärvi
Venetjoen tekojärvi
Isua
Kinnula
Salamajärven
0 2.0 4.1 8.2
km

Cell ID


Speed
= 0 6.3%
= 1 0.7%
= 3 0.9%
= 4 1.6%
= 6 2.3%
= 8 1.8%
= 9 4.1%
= 11 2.6%
= 12 13.1%
= 14 18%
= 16 7.9%
= 17 11.8%
= 19 4.8%
= 20 10.7%
= 22 12.7%
= 24 0.6%
Toholampi
Reisjärvi
Lestijärvi
Lestijärvi
Venetjoen tekojärvi
Isua
Kinnula
Salamajärven
0 2.0 4.1 8.2
km

Speed