



Australian Government

Geoscience Australia

Accounting for a dynamic planet: GNSS, precise positioning and dynamic datums

Dr Stuart Minchin

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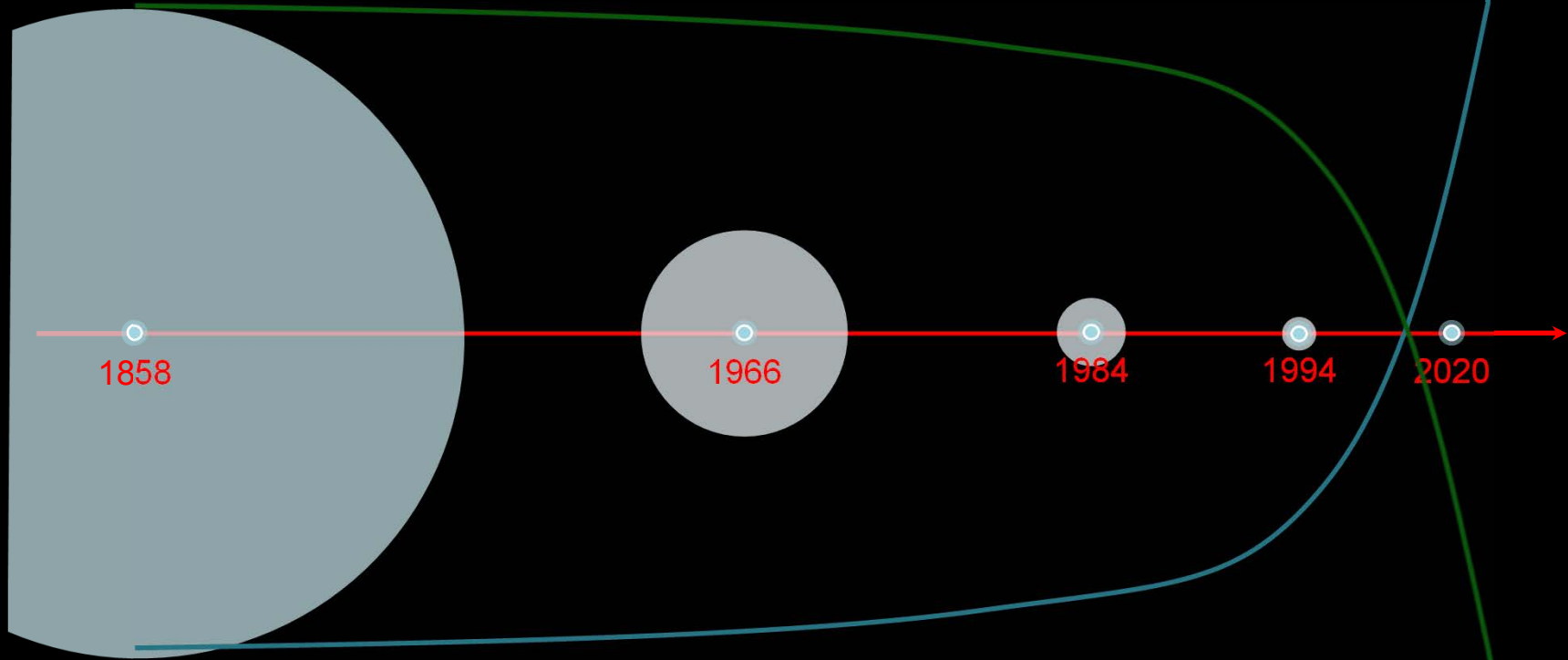
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So, what's the issue?

Months to weeks



Small number of experts.
Hard to measure.

Time Access to accurate position

High number of novices.
Easy to measure.

The number of positioning applications are exploding

Precise positioning will contribute 2.1% of Australia's GDP by 2030



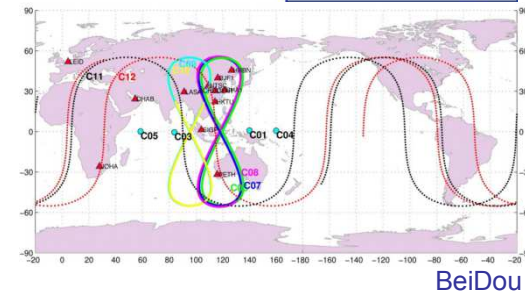
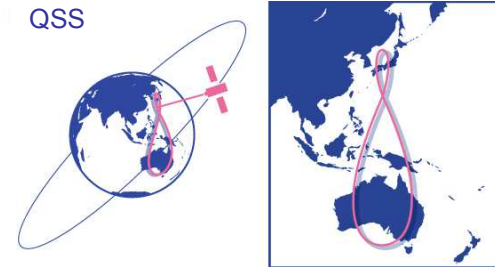
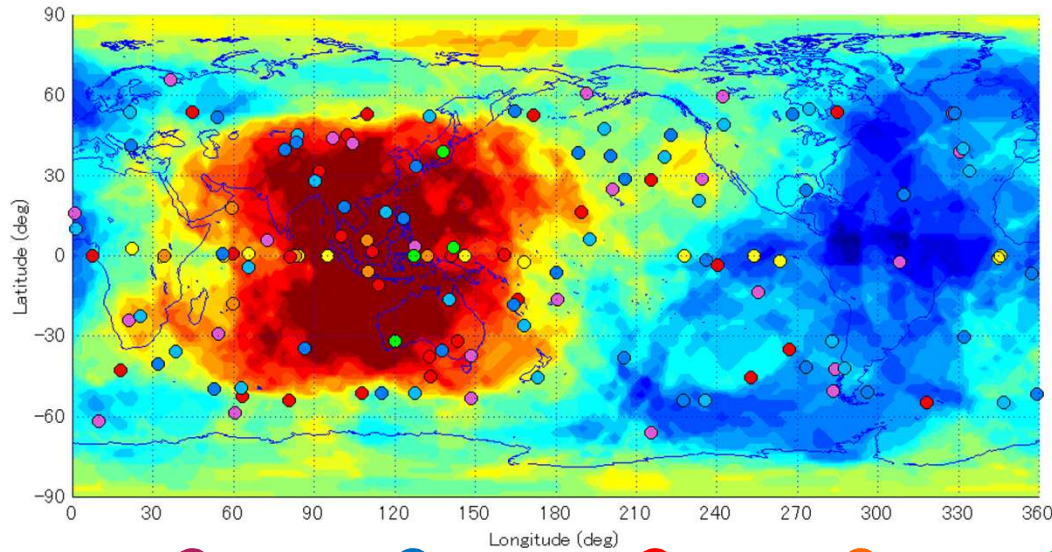
GPS/GNSS receivers are everywhere



Multi-GNSS chipsets
now less than \$100

GPS to GNSS

Future GNSS Satellites (mask angle 30 degrees)

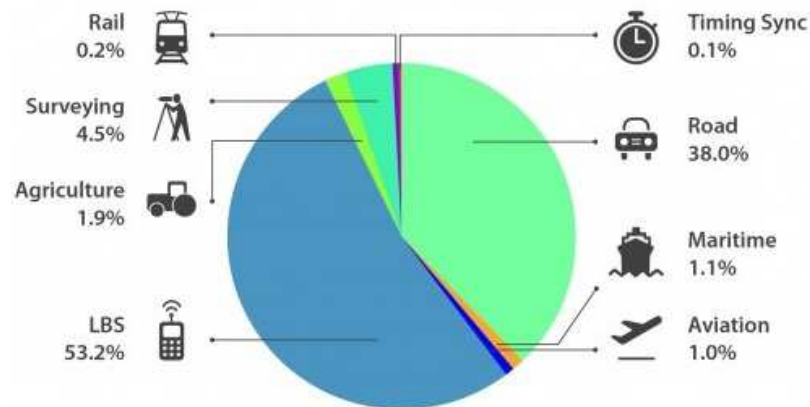


GPS(32)+Glonass(24)+Galileo(26)+BeiDou(29)+IRNSS(7)+QSS(4)+SBAS(13)



Who are the users of Global Navigation Satellite Systems?

GNSS Market Report 2015



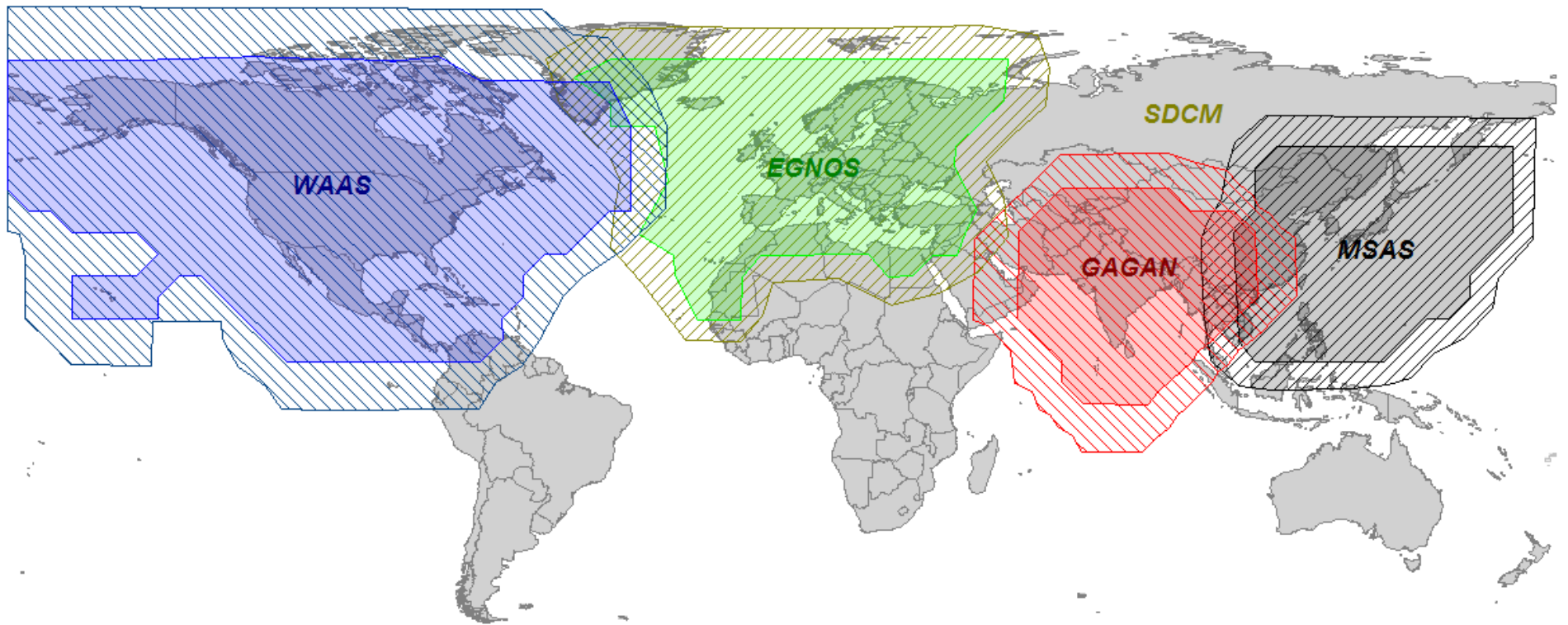
Source: Cumulative Core Revenue (GNSS Chipsets) 2013 - 2023
(European GNSS Agency, 2015)
<http://www.gsa.europa.eu/market/market-report>

1 GNSS device per person on the planet by 2019

App downloads that rely on positioning will reach 7.5 billion by 2019 (2.8b in 2014)

High-end Multi GNSS smartphones will replace some specialised devices

Satellite-Based Augmentation Systems (SBAS)









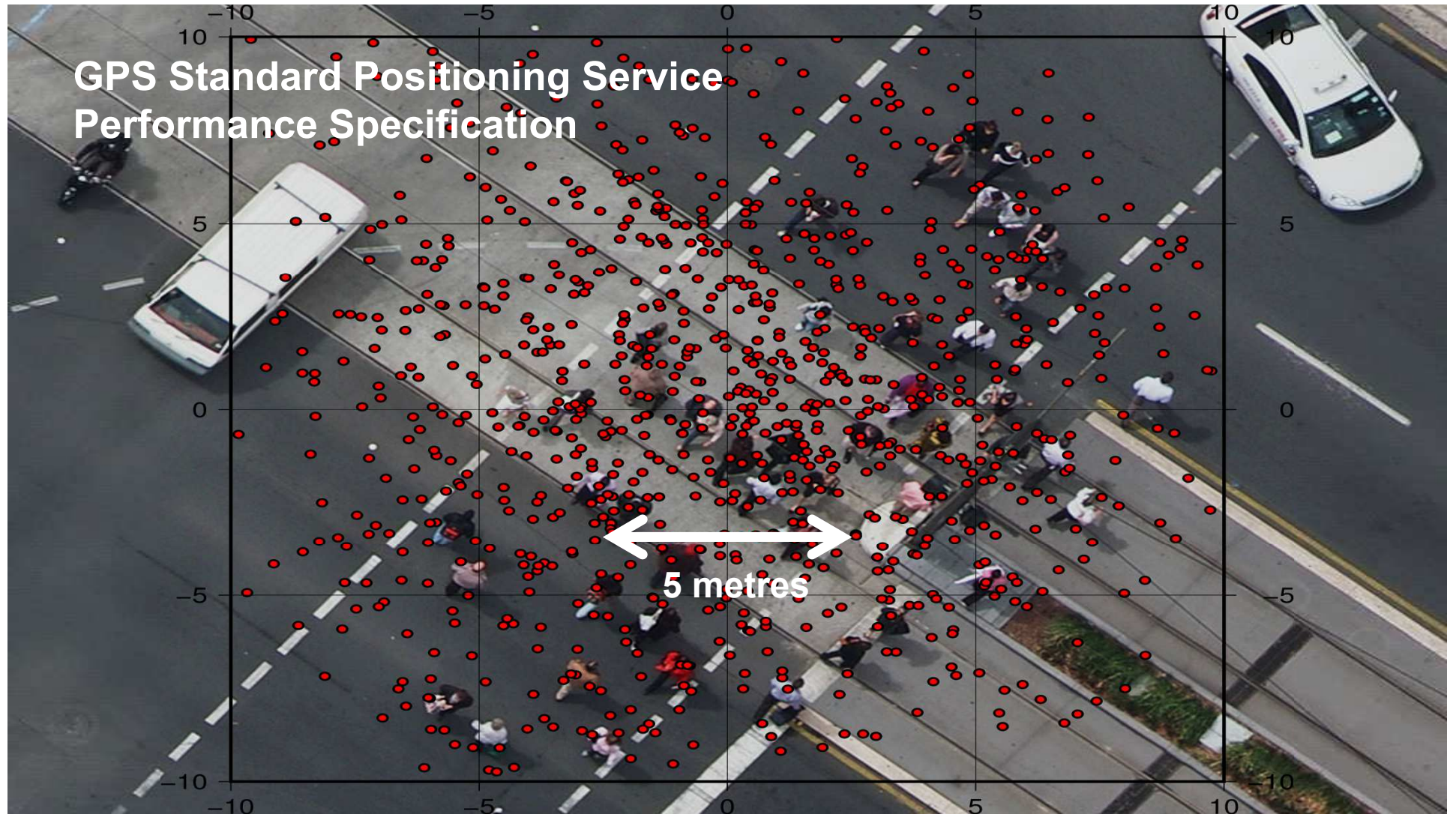








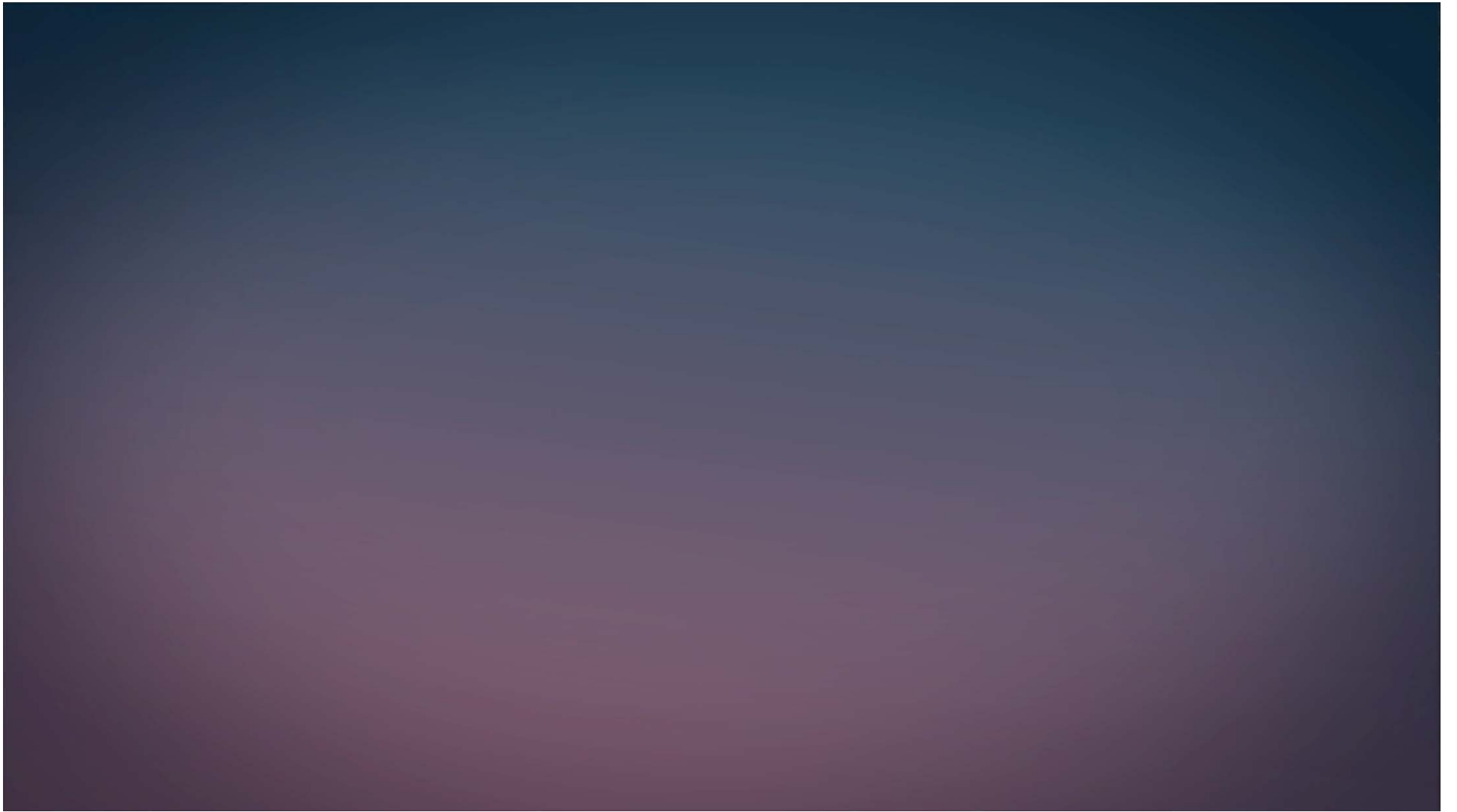
GPS Standard Positioning Service Performance Specification



**Precise Point Positioning
Expected Performance**



5 centimetres





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Questions?

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