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Spark explores future connectivity options using 5G mmWave

Spark has conducted New Zealand's first rural trial of 5G millimetre wave (mmWave) technology, achieving a peak speed of 2.4 Gbps at a range of 3 km and 1.4 Gbps at an extended range of 7 km. Spark is exploring 5G technology operating in mmWave spectrum to showcase the potential benefits of faster 5G data speeds.

First trial of mmWave with PGG Wrightson

A 5G mmWave test site has been set up in Mouse Point, North Canterbury by Spark and technology partner Nokia with spectrum loaned from the Ministry of Business Innovation & Employment (MBIE).

Agricultural supply business PGG Wrightson has a store in nearby Culverden, 6 km south from the test site, and is participating in the trial of the 5G mmWave service, which will allow them to run their rural operations over 5G connectivity.

Stephen Guerin, CEO of PGG Wrightson says, "Connectivity for some of our more rural store locations can be a real challenge. We believe that bringing high-speed connectivity into these stores will allow our people to operate more efficiently for our customers. For instance, our livestreaming service for livestock auctions, bidr, runs live auctions from saleyards and on-farm. This type of new connectivity technology could provide our online customers with high-definition livestreaming with minimal delays of our auctions. Our business is looking forward to seeing how Spark's 5G mmWave technology can make a difference."

The future potential of mmWave

5G networks in New Zealand today use frequencies adjacent to 4G. However, in the future, New Zealand 5G networks will be able to use a higher frequency range, known as mmWave. 5G in this frequency range offers the opportunity for optimised performance, faster speeds on 5G connectivity, and improved customer experience.

Renee Mateparae, Technology Evolution Lead for Spark says, "mmWave is a future step that will allow us to further deliver on 5G's potential – with super-fast speeds and significantly more capacity. While use cases are still emerging, 5G mmWave will be valuable for business applications such as ultra-HD video streaming, advanced analytics and machine learning, intelligent transport systems, e-health, education and much more.

"We're starting to plan for this future step now by trialing mmWave technology in different scenarios. mmWave is likely best suited to areas where a high number of users are concentrated – places like shopping centres, crowded stadiums, and university campuses could all benefit from the capabilities of mmWave.

"We are already working with the business community to identify and test other cutting edge use cases for 5G mm-wave technology, such as in a high-density urban setting, and plan to do more of this over the coming 18 months."

Spark's testing is enabled by mmWave spectrum on loan from MBIE, as well as high-capacity AirScale 5G mmWave equipment from network technology partner Nokia.

Dr Rob Joyce, Chief Technology Officer for Australia and New Zealand at Nokia says, "Together with Spark, we conducted this world leading trial of 5G mmWave technology using our commercial AirScale baseband and mmWave radios. Achieving faster data speeds for an extended range of up to 7 km is a concrete proof point of how 5G evolution can bring a new level of mobile connectivity also for rural areas, as well as enabling exciting new use cases. We look forward to supporting Spark in rolling out this technology into their network when the spectrum becomes more widely available."

The Ministry of Business, Innovation and Employment (MBIE) has said that it hopes to make mmWave spectrum available as soon as practicable, subject to the conclusion of ongoing consultation regarding the spectrum.

ENDS

Notes to editor

- Spark's **3G and 4G services** use spectrum between 700– 2600MHz. Today in New Zealand, **5G** is defined between about 3400MHz and 3800MHz. Spark has been allocated management rights to 60MHz of this spectrum by the Government for our 5G rollout.
- In future, high frequency spectrum, known as mmWave, above 24GHz has been identified as spectrum for the expansion of 5G because it offers significantly greater capacity (and therefore speed) than any of the bands currently in use in cellular networks. Its reach is materially lower than existing bands, so deployments are likely to be focused on highly localised areas where a high speed, high-capacity service is needed.

For more information contact

Spark

Angely Cullerne

Corporate Relations Partner

(64) 21 303 403

angely.cullerne@spark.co.nz

About Spark

As New Zealand's largest telecommunications and digital services company, Spark's purpose is to help all of New Zealand win big in a digital world. Spark provides mobile, broadband, and digital services to millions of New Zealanders and thousands of New Zealand businesses.

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