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High-Speed Mobile Communications in Hostile Environments

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With the inexorable increase in the use of mobile devices, for both general communications and mission-critical applications, wireless connectivity is required anytime and anywhere. This requirement is addressed in office buildings through the use of Wi-Fi technology but Wi-Fi is ill adapted for use in large experiment halls and complex underground environments such as the LHC tunnel and experimental caverns. CERN is instead investigating the use of 4G/LTE technology to address issues such as radiation tolerance and distance constraints. This presentation will describe these studies, presenting results on the level of data throughput that can be achieved and discussing issues such as the provision of a consistent user experience as devices migrate between Wi-Fi and 4G/LTE.

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