

Increase Wireless Channel Capacity Using Advanced Hilbert Filters

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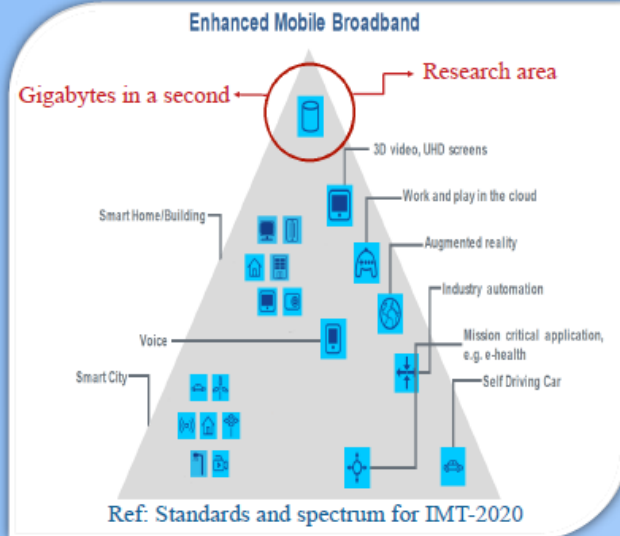


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Problems/Challenges

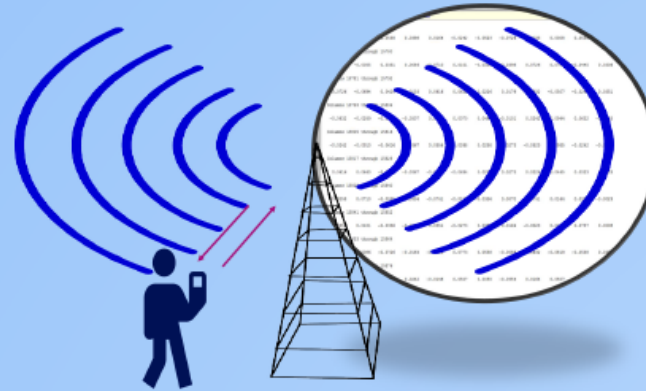
Existing mobile technologies will not be able to provide the capabilities to meet market demands beyond 2020. Sustained research will be needed to create a high performance generation of mobile.



Aim

Design a powerful waveform using advanced digital filters to improve the performance of transmission in terms of Capacity and Bit Error Rate .

Data transmission



Digital data

Demodulation
&
Down sampling

Modulation
&
Over sampling

Methodology

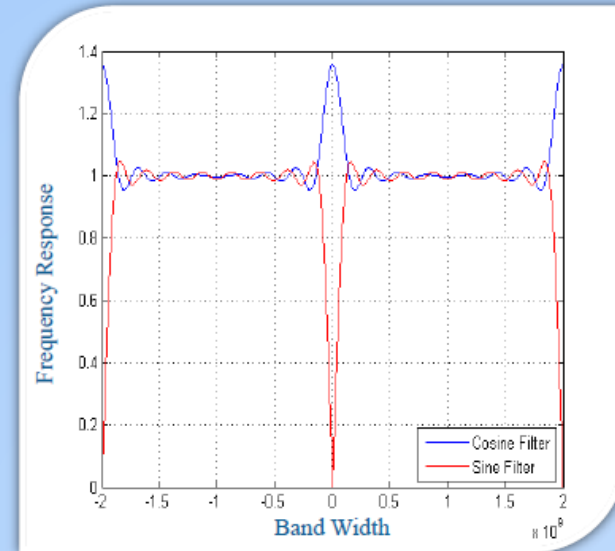
Matching filter
&
Decomposition

Shaping filter
&
Synthesis

Transmitting
&
Receiving

Objectives

Increase the Capacity of transmission for wireless communication 10 times the available techniques to achieve 1 Gbytes/s with accepted limits of errors.



Conclusion/So far

The first results of our experiment have shown increase (double) in the capacity of each transmitted carrier by 2 dB with same limits of Signal to Noise Ratio.