



Sandia National Laboratories

Digital Communication

Signal Combining and Channel Estimation

POTENTIAL MARKET APPLICATIONS

Satellite Communication Systems

Cellular Communication Systems

GPS

BENEFITS

Improvement of Overall Channel Capacity

Improved Signal to Noise Ratio

Simplification of Signal Receiving Method

INTELLECTUAL PROPERTY

US PATENT # 8009772
(SD #10115)

US PATENT # 7653155
(SD #7376)

TECHNOLOGY SUMMARY

Many communication systems employ multi-channels that transmit and receive a common signal. In these systems, the common signal is combined at the receiver to achieve maximum channel capacity. During the combining of such signals the delay and phase parameters are estimated based on a convolution decoding operation and are removed from the signal. At low signal to noise ratios these parameters become difficult to estimate and impractical to implement.

The combination of these two Sandia technological advances introduce a new method whereby the channel parameters are estimated and removed simultaneously using a convolutional decoding operation, while being combined by the receiver. This new method allows for the signal combining to occur at low signal to noise ratios which improves the overall channel capacity without losing functionality.



TECHNOLOGY READINESS LEVEL

Sandia estimates this technology at approximately a TRL 5. Key components of this technology have been demonstrated in relevant environments.

LICENSING CONTACT

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