短文与研究通讯

BAQ算法应用于基站数据压缩

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摘要：

伴随长期演进（Long Term Evolution，LTE）标准的应用，对上下行链路传输速率的需求大幅提高，使得分布式基站传输的数据量也对应增长，而目前硬件设备所能提供的接口速率是有限的。要解决这种不匹配的情况，可以在传输前对基站数据进行压缩。鉴于基站数据的统计分布和合成孔径雷达数据的统计分布相似，本文参考合成孔径雷达（Synthetic Aperture Radar，SAR）数据的压缩方法—分块自适应量化（Block adaptive quantization）压缩算法，将该算法改进后应用于基站数据压缩。该方法首先将IQ数据（In-phase and quadrature data，IQ data）分块，通过变换使得数据块服从标准正态分布，将块内数据与最佳电平阈值进行比较然后编码。计算机仿真结果表明，BAQ算法能够应用于压缩IQ数据。

关键词： 分布式基站；同相正交数据；数据压缩；正态分布；分块自适应量化

BAQ Algorithm in Base Station Data compression

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Abstract:

The transmission rate of uplink and downlink has been increasing with the application of Long Term Evolution (LTE), and correspondingly the amount of data transferred by distributed base station has been growing. But nowadays, the used equipment can only support a limited interface rate. Aiming at this problem, we could compress data before transmission. This paper refer to synthetic aperture radar data compression algorithm—the block adaptive quantization compression algorithm. We will improve the algorithm and the algorithm is applied to the base station data compression. In our method, in-phase and quadrature data（IQ data） is firstly partitioned, and we make the data block to the standard normal distribution. Secondly, we could use the optimum threshold value to encode the block data. Simulation results show the block adaptive quantization compression algorithm can compress the IQ data bits effectively.

Keywords: Distributed base station；In phase and quadrature data；Data compression；Normal distribution；Block adaptive quantization

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