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研究简报

SAR原始数据两种量化压缩方式的性能评估

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Performance Evaluation of Two Compression Methods for SAR Raw Data

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摘要 | 参考文献 | 相关文章

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摘要 原始数据压缩是高分辨率SAR需要着重考虑的环节。该文针对目前星载SAR比较常用的4 bit量化和8:3 bit BAQ两种量化压缩方式，在不同输入功率下对量化信噪比、功率保真能力和目视图像效果这几个方面进行了深入的分析和评估。分析得出，综合各项性能后4 bit和8:3 bit BAQ的最佳输入功率范围分别为26.1 dB~34.9 dB和23.5 dB~36.5 dB，这为星载SAR实际运行中MGC值的设置提供了依据。

关键词： SAR 数据压缩 分块自适应量化 信噪比

Abstract： Raw data compression is an important step for high resolution SAR systems. This paper bases on two data compression methods, the 4 bit quantization and the 8 to 3 bit Block Adaptive Quantization (BAQ), which are widely used in spaceborne SAR, the evaluations are made on the Signal-to-Noise Ratio (SNR), the fidelity of the amplitude, and the vision effects of the images under different quantization input power. From the evaluations, the reasonable power regions of the quantization input for 4 bit and 8:3 bit BAQ are provided, which are 26.1 dB~34.9 dB and 23.5 dB~36.5 dB, respectively. This offers a good reference to the Manual Gain Control (MGC) value for the SAR mission.

Keywords： SAR Data compression BAQ (Block Adaptive Quantization) SNR

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