In this paper, a watermark embedding method, using amplitude modulation technique, based on Gaussian pixel-weighting marks was proposed. The method utilized a technique of weighting marks by averaging the luminance of its own pixel and its neighboring pixels, and used it as an additional scaling factor in the existing watermark embedding methods. The watermark retrieval process was borrowed from the technique of image averaging from the cross-shaped neighboring pixels of the watermarked image, and hence had no need of original image. The results showed that the improved performances were obtained when applying the Gaussian pixel-weighting marks technique, compared to other different techniques namely, Equal gain pixel-weighting and No pixel-weighting marks techniques.