Let $E$ be a non-Archimedean Banach space over a non-Archimedean locally compact non-trivially valued field $K := (K, |.|)$. Let $E''$ be its bidual and $M$ a bounded set in $E$. We say that $M$ is $\varepsilon$-weakly relatively compact if $\overline{M}^{\sigma(E'', E')} \subseteq E + B_{E'', \varepsilon}$, where $B_{E'', \varepsilon}$ is the closed ball in $E''$ with the radius $\varepsilon \geq 0$. In this paper we describe measures of noncompactness $\gamma, k$ and De Blasi measure $\omega$. We show that $\gamma(M) \leq k(M) \leq \omega(M) = \omega(acoM) \leq \frac{1}{|\rho|} \gamma(M)$, where $\rho (|\rho| < 1)$ is an uniformizing element in $K$, and $\omega(M) = \sup \{ \lim_m \text{dist} (x_m, [x_1, \ldots, x_{m-1}]) : (x_m) \subseteq M \}$; the latter equality is purely non-Archimedean. In particular, assuming $|K| = \{|x| : x \in E\}$, we prove that the absolutely convex hull $acoM$ of a $\varepsilon-$weakly relatively compact subset $M$ in $E$ is $\varepsilon-$weakly relatively compact.

In fact we show that in this case for a bounded set $M$ in $E$ we have $\gamma(M) = \gamma(acoM) = k(M) = k(acoM) = \omega(M)$. Note that the above equalities fail in general for real Banach spaces by results of A. S. Granero [An extension of the Krein-Smulian theorem, Rev. Mat. Iberoam. 22 (2006) 93–100] and K. Astala and H. O. Tylli [Seminorms related to weak compactness and to Tauberian operators, Math. Proc. Cambridge Philos. Soc. 107 (1990) 367–375]. Most proofs are strictly non-Archimedean. A non-Archimedean variant of another quantitative Krein’s theorem due to Fabian, Hajek, Montesinos and Zizler is also provided, see Corollary 9.

**Keywords:** Krein’s theorem, Compactness, Measures of weak noncompactness.

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