On almost sequence spaces defined by infinite matrix

Ekrem Savaş[1]

[1]Uşak University, Department of Mathematics, ekremsavas@yahoo.com

Let w denote the set of all real and complex sequences $x = (x_k)$. By l_∞ and c, we denote the Banach spaces of bounded and convergent sequences $x = (x_k)$ normed by $\|x\| = \sup_n |x_n|$, respectively. A linear functional L on l_∞ is said to be a Banach limit [1] if it has the following properties:

1. $L(x) \geq 0$ if $n \geq 0$ (i.e. $x_n \geq 0$ for all n),
2. $L(e) = 1$ where $e = (1, 1, \ldots)$,
3. $L(Dx) = L(x)$, where the shift operator D is defined by $D(x_n) = \{x_{n+1}\}$.

Let B be the set of all Banach limits on l_∞. A sequence $x \in \ell_\infty$ is said to be almost convergent if all Banach limits of x coincide. Let $\hat{c}$ denote the space of almost convergent sequences.

Definition 1. Let $A = [a_{n,k}]$ denote a summability transformation [4] that maps complex sequences x into the sequence Ax where the n-th term of Ax is as follows:

$$[Ax_n] = \sum_{k=1}^{\infty} a_{n,k} x_k$$

The purpose of this paper is to present the new deferred almost sequence space which emerges naturally from the concepts of almost convergence and an infinite matrix. Further some theorems are proved.

References

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