

Re: What is the dual of l^∞ ?

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- *From:* David C. Ullrich <ullrich@xxxxxxxxxxxxxxxxxxxx>
 - *Date:* Wed, 31 Aug 2005 07:28:35 -0500
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On 30 Aug 2005 22:26:44 -0700, tommy.hoynalanmaa@xxxxxx wrote:

>What is the dual of space l^∞ defined by
>
> $l^\infty = \{ (x_k)_{k=0}^\infty \subset C \mid \sup_k |x_k| < \infty \}$
>
>and
>
> $\|(x_k)\| = \sup_k |x_k|$?

The dual is very very large (much larger than l^1 , for example.)

Looking at it abstractly, there is a compact Hausdorff space K (the maximal ideal space of l^∞ regarded as a Banach algebra) such that l^∞ is isometrically isomorphic to $C(K)$, hence the dual is the space of complex Borel measures on K . But this is a very large complicated K .

> - Tommi Höynälänmaa -

David C. Ullrich

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 - ◇ *From:* tommy . hoynalanmaa
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